

Migrational Characteristics of Columbia Basin
Salmon and Steelhead Trout, 1984

Part II: 1984 Smolt Monitoring Program Annual Report

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Migrational Characteristics of Columbia River
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I. Introduction.

The Smolt Monitoring Program addresses section 304 (d)(2) of the Northwest Power Planning Council's Fish and Wildlife Program. This section calls for the Bonneville Power Administration to fund a program to be conducted by the fishery agencies and tribes to monitor the migrational characteristics of important Columbia Basin fish stocks. Because the program is closely tied to the in-season management of the Water Budget and other system operations, the fishery agencies and tribes have incorporated it into the activities of the Water Budget Center.

This report completes the description of the results of the monitoring program for 1984. A previous report (McConnaha and Basham, 1985) provided the result from the survival monitoring portion of the program. The present report will describe the travel time of marked yearling and sub-yearling chinook salmon (Oncorhynchus tshawytscha), sockeye salmon (O. nerka), and steelhead trout (Salmo gairdneri) between points within the system, and report the arrival timing and duration of the migrations for these species as well as coho salmon (O. kisutch). A final listing of 1984 hatchery releases is also included. Some of this information was reported in preliminary form in the 1984 Annual Report from the Water Budget Managers (WBC, 1984).

The Smolt Monitoring Program.

1. Purpose.

The Smolt Monitoring Program is designed to provide in-season information on smolt movement to the Water Budget Managers and other interested parties, and to provide a post-season analysis of the survival and movement of out-migrating salmonids. This is closely allied to efforts to evaluate and refine the Water Budget. For instance, determination of smolt travel time is a major part of the program because decreasing smolt travel time is positively linked to survival of spring migrants, and indeed, is the basis for the establishment of the Water Budget. Monitoring of the summer migration provides information to direct operational changes to the Columbia River hydroelectric system to facilitate the migration, and provides baseline data upon which research hypotheses can be based. Information collected by the Smolt Monitoring Program is designed so that flow and other environmental factors can be associated with travel time and survival on an annual basis. These results will be combined with more detailed studies of the relationships between flow, travel time, and survival to direct any necessary refinement of the Water Budget.

Two measures of smolt travel are determined: first, a smolt travel time index, which is travel time in days, or speed in miles per day, for marked groups of fish between selected recovery points; and second, the travel time or speed of marked groups of fish from the point of release to various downstream recovery points. The distinction between these two measures is that the smolt travel index is designed to be a measure of travel

time which can be statistically compared between years and be related to flow or other environmental conditions. It is measured between points located some distance below the point of release so that initial hatchery induced mortality or delay has occurred, and the fish are actively migrating in response to their environment. This travel time or speed measured from the release site is difficult to relate to environmental factors because of the large and variable effect of the hatchery rearing environment. Travel time does, however, have utility from a hatchery evaluation standpoint. The ultimate goal of the program is to index travel time between Lower Granite and McNary dams in the Snake River, Rock Island and McNary dams in the mid-Columbia, and McNary and Bonneville dams in the lower Columbia (Figure 1).

2. 1984 Program.

1984 was a year of transition for the Smolt Monitoring Program from the research efforts of the National Marine Fisheries Service (NMFS) in the Snake and lower Columbia Rivers (Sims et al. 1984 and others) to the management orientation of the program under the Water Budget Center. The present program builds on the techniques and data base established by NMFS efforts, particularly in the areas of smolt travel time and characteristics of the migration. However, it expands past efforts to include under one program the mid-Columbia outmigration along with the Snake and lower Columbia outmigrations, and utilizes different techniques for the assessment of smolt survival (McConnaha and Basham, 1985). In addition, the program expands on past efforts by including

available data on migration characteristics of sockeye and coho.

In 1984, spring, summer, and fall chinook and steelhead were marked at Snake and mid-Columbia hatcheries for determination of travel time through the Columbia River hydroelectric system. Although no sockeye were marked as part of the program, their travel time through the Hanford Reach and lower Columbia was monitored by using mark groups released at Priest Rapids Dam as part of the Grant County Public Utility District (PUD) smolt transportation evaluation. The PUD program also provided additional migrational data on spring chinook.

3. Smolt Monitoring System.

To monitor the movement of out-migrating salmonids, data was collected at a number of sites throughout the Columbia system above Bonneville Dam (Figure 1). In the Snake River, smolts were first sampled at trap sites located above Lower Granite Dam in the Salmon River (Whitebird site), the Clearwater river, and the Snake River at Lewiston, Idaho (Scully, 1984). The Whitebird and Clearwater sites were used only for In-season monitoring while the Snake River trap also provided information on the migration characteristics of the outmigration at the head of Lower Granite pool. Fish were next sampled at Lower Granite Dam in the bypass/collector system associated with that project. Smolt travel time was indexed for marked groups of spring chinook and steelhead between Lower Granite and McNary dams.

Monitoring in the mid-Columbia consisted largely of hydroacoustic indexing of the migration at Wells Dam (Raemhild et al., 1984). This index only indicated the relative day-to-day

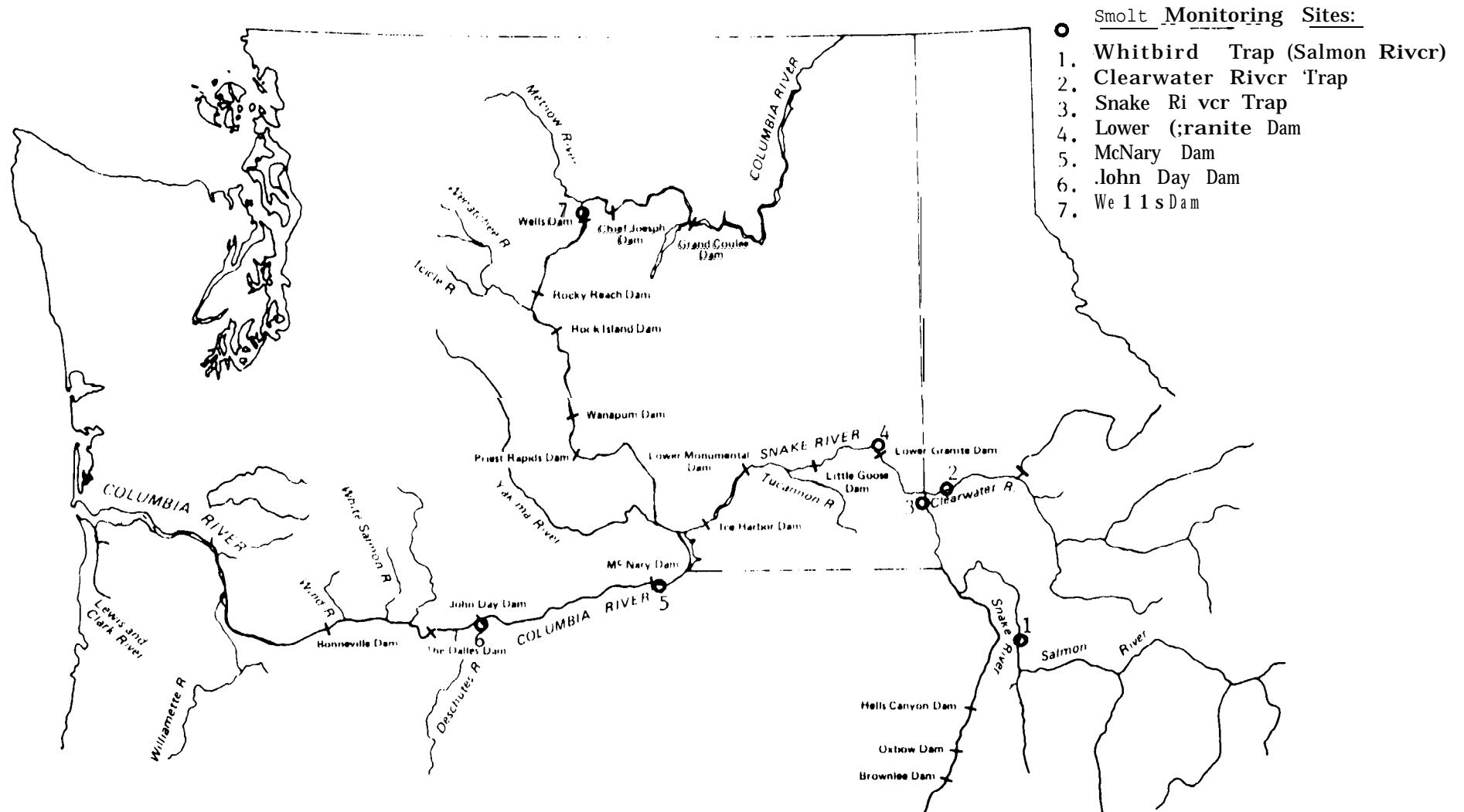


Figure 1-- 1984 Smolt Monitoring Sites (Courtesy of Jim Peacock NMFS)

movement of fish past the project without regard to species. Actual sampling of the migration occurred at Rock Island and Priest Rapids dams. However the sampling program at these sites was not consistent, and so was not suitable for determination of travel time or other migrational characteristics. Also because of this, smolt travel time was not indexed in the mid-Columbia.

The lower Columbia was monitored at McNary and John Day dams. Smolt travel time was indexed between these points because the sampling facilities at Bonneville were not suitable for smolt monitoring.

Data collected at these sites was initially termed "soft" data. Soft data was considered preliminary, and was used for in-season management. It was relayed daily by telephone to the Water Budget Center where it was compiled and organized before being supplied to the Water Budget Managers and other interested parties daily. The data was also summarized in a weekly report distributed throughout the Columbia Basin. After the data collection season, the soft data was verified and edited if necessary. The data was then termed "hard", and was archived for future analysis. In 1984, hard data was compiled on the National Marine Fisheries Service Burroughs computer in Seattle, Washington.

The final hard data version of the 1984 mark recoveries at Lower Granite, McNary and John Day dams is provided in Appendix 1. Daily sample and collection data from Lower Granite and McNary dams was reported in the 1984 Fish Transportation and Oversight Team (FTOT) report (Koski et al., 1985).

III. Methods.

1. Marking Procedures.

Fish used for travel time determination were marked at hatcheries in the aid-Columbia and Snake River using conventional freeze branding techniques (Migheii, 1969) employing silver tipped brass branding rods cooled in liquid nitrogen. Fish were marked in the mid-Columbia by U.S. Fish and Wildlife personnel, and in the upper Snake River by Idaho Fish and Game.

Hatcheries were chosen for travel time indexing to represent major production releases, and to be indicative of the migration as a whole. Sufficient fish were marked to provide for an adequate number of recoveries and a good pattern of recoveries at the sampling sites given assumed sample rates. Hatcheries and release data for mark groups are provided in Table 1.

2. Travel Time Determination

Travel time for specific natcnery groups was determined by freeze branding a portion of the production release, and recovering these marks at aownstream sampiing sites. Travel time was calculated as the number of days between reiease date and median date of passage at a downstream point, or, for the travel time index, the number of days between the median dates of passage at various points.

Smolt travel speed between release and recovery points was also determined. Speed is often a more meaningful measure of the smolt migration than travel time because **it** eliminates the effect of variable distances traveied by different groups, and permits comparison between groups and areas. Speed was calculated by

Table 1: 1984 MARKED FISH RELEASES

YEARLING CHINOOK

BRAND	HATCHERY	RELEASE SITE	NUMBER RELEASED	RELEASE DATES
LD-J-1	MCCALL	SAIMON R SP	28858	APR 09 - APR 11
LO-J-3	MCCALL	SANTOOTH	33934	MAR 27 - MAR 29
RD-J-1	RAPID RIVER	HELLS CANYON	88664	MAR 20 - MAR 21
RD-J-3	RAPID RIVER	RAPID RIVER	23840	MAR 21 - APR 01
LA-BU-4	NONE	RED RIVER	18000	APR 16 - APR 16
LA-TZ-1	WINTHROP	WINTHROP	30319	APR 23 - APR 23
LA-TM-1	NONE	BELOW PRIEST	11478	MAY 16 - MAY 26
LA-TR-1	NONE	BELOW PRIEST	17030	MAY 06 - MAY 18
LA-IU-1	NONE	BELOW PRIEST	7058	MAY 01 - MAY 08
RA-ST-1	ENTIAT	NACHES RIVER	4683	MAY 18 - MAY 23
RA-TK-1	ENTIAT	YAKIMA RIVER	6818	APR 09 - APR 11
LA-ZC-1	LEAVENWORTH	YAKIMA RIVER	8124	JUN 06 - JUN 06

STEELHEAD

BRAND	HATCHERY	RELEASE SITE	NUMBER RELEASED	RELEASE DATES
LA-J-1	HAGERMAN	SALMON RIVER	21146	APR 16 - APR 17
LA-J-3	HAGERMAN	SALMON RIVER	22236	APR 16 - APR 17
RA-J-1	DWORSHAK	DWORSHAK	19969	MAY 04 - MAY 04
RA-J-3	NIAGARA SPR	HELLS CANYON	21623	APR 30 - MAY 04
RA-IJ-1	LYONS FERRY	TUCANNON	30473	APR 22 - MAY 14
RA-IJ-2	LYONS FERRY	TUCANNON	27122	APR 22 - MAY 14
RA-IV-1	LYONS FERRY	TUCANNON	31790	APR 22 - MAY 14
RA-IV-3	LYONS FERRY	TUCANNON	30930	APR 22 - MAY 14
RD-IT-1	LYONS FERRY	LYONS FERRY	51008	APR 18 - MAY 01
RD-IT-2	LYONS FERRY	LYONS FERRY	50450	APR 18 - MAY 01
LA-TG-1	WELLS	METHOW	32137	APR 23 - APR 23
LA-TG-3	WELLS	METHOW	31301	APR 27 - APR 27
LA-TP-1	WELLS	BELOW PRIEST	4070	MAY 01 - MAY 01
LA-TP-2	WELLS	BELOW PRIEST	4044	MAY 03 - MAY 03
LA-TP-3	WELLS	BELOW PRIEST	4043	MAY 02 - MAY 02
RA-TP-1	WELLS	BELOW PRIEST	4087	MAY 04 - MAY 04
RA-TP-2	WELLS	BELOW PRIEST	4041	MAY 05 - MAY 05
RA-TP-3	WELLS	BELOW PRIEST	4093	MAY 07 - MAY 07
LA-T-2	NACHES	NACHES	24635	APR 16 - APR 19
LA-T-4	NACHES	NACHES	24654	APR 16 - APR 19

SUB-YEARLING CHINOOK

BRAND	HATCHERY	RELEASE SITE	NUMBER RELEASED	RELEASE DATES
LA-S-1	WELLS	WELLS	101653	MAY 30 - MAY 30
RA-F-1	PRIEST RAPIDS	PRIEST RAPIDS	36704	JUN 13 - JUN 13
RA-S-1	PRIEST RAPIDS	PRIEST RAPIDS	44608	JUN 13 - JUN 13

SOCKEYE

BRAND	HATCHERY	RELEASE SITE	NUMBER RELEASED	RELEASE DATES
LA-IN-1	NONE	BELOW PRIEST	5326	MAY 18 - MAY 25
LA-IR-1	NONE	BELOW PRIEST	6038	MAY 06 - MAY 15
LA-IU-1	NONE	BELOW PRIEST	3016	MAY 01 - MAY 05
LA-IU-3	NONE	BELOW PRIEST	3392	MAY 26 - JUN 06

dividing median travel time in days into the distance traveled in miles.

Analytical Procedures. At Lower Granite and McNary dams, the basic data for travel time analyses was the "migration index", which represents the daily estimated collection of marked fish at a project, divided by the proportion of water passing through the powerhouse on that day. This makes the assumption that the collection efficiency is related in a linear fashion to the proportion of river flow through the powerhouse, at least within the range of powerhouse loading observed during the collection period. This procedure was used to correct the daily collection for changes in powerhouse operation and to more truly represent the dynamics of day-to-day passage at the projects. At the Idaho trap sites, the basic data used was the daily estimated collection of the mark groups.

At John Day Dam, the migration index was computed as the daily collection expanded by the relationship of Sims et al. (1984) which relates collection efficiency of the unit 3 airlift system to the proportion of river flow through that unit. This procedure was used because of the unique nature of the John Day sampling system, and the fact that 1984 was the last year that unit 3 would be operated without submerged traveling screens. In the future, the system will have to be re-calibrated to reflect the presence of traveling screens. The Sims expansion is equally applicable as a fish migration index, and provides a consistent data base for the period prior to screening of the John Day powerhouse.

The travel time index was computed as the number of days between the median dates of passage of a mark group past the various downstream recovery points. The median was used as the statistic of location rather than the average because the median is less sensitive to extended tails that frequently occur in mark recovery data (Sokal and Rohlf, 1981). However, it is not possible to calculate a variance term for an individual median using conventional methods. This makes it impossible to make statistical comparisons between individual mark groups. It is possible to compute a standard error on a median or other statistic by using computer resampling techniques such as the bootstrap procedure (Efron, 1982). These methods are presently being investigated for applicability to this data and may be employed in the future.

Within the indexing areas, the various mark groups within a species were treated as replicates. The annual index is the average of the median travel times of the individual mark groups of a species within the indexing areas. A standard error was calculated for the averages to provide an estimate of the variation in travel time and speed within the population. The standard error was calculated using the formula from Sokal and Rohlf (1981). This procedure was not used for travel time from release point to recovery point since the variation would reflect mainly the variation in initial migration rate from the hatchery.

In determining travel time, the mark recovery data was examined for the presence of a continuous pattern of recoveries over a period of several days at each of the projects between which travel time was indexed. This was largely a subjective

process which involved deciding whether the pattern of mark recoveries was representative of the passage of the group past the recovery point. In most cases, groups that were rejected on this basis were those with small sample sizes.

3. Smolt Arrival Timing and Duration.

The arrival and passage of each species past the various sampling points was characterized by the dates that 10%, 50%, and 90% of the population had passed the project. The median or 50% point is most useful for comparison between species, while the 10% and 90% dates have implications for various management actions. To compute these dates, the migration index discussed above was used as the basic statistic.

Duration of the migration was computed as the number of days between the 10% and 90% dates of passage.

4. Magnitude of the Migration.

Year-to-year variation in the size of the salmonid outmigration at Lower Granite and McNary dams is compared with an index which is the annual sum of the daily migration indices for a species. It is important to note that the annual indices of abundance are not estimates of total passage, and they are not comparable between projects and between species within a year. The indices are useful for comparing the size of the outmigration between years within a species. At John Day Dam, the sum of the daily migration index is comparable with past estimates of passage which have used the expansion of Sims et al. (1984). This index will not be comparable with future indices, however,

because of the need for recalibration of the sampling system.

5. Physical Conditions.

Flow conditions were averaged to associate with the median travel times and migration speed. In most cases, flow was averaged for the median date of passage plus and minus three days (seven days total). The exception to this was those groups released below Priest Rapids Dam. For these groups, flows were averaged for the calculated date of median passage at Priest Rapids plus three days. For the Snake River, flows were averaged at Ice Harbor Dam, for the mid-Columbia, at Priest Rapids Dam, and in the lower Columbia, at John Day Dam. For Ice Harbor and Priest Rapids dams, the median date of passage of the mark groups was calculated based on the observed travel time to McNary. Flows are included in tables discussed below to associate a flow index with the annual indices of travel time for year-to-year comparison.

IV. Results.

1. 1984 Runoff

a. Columbia River Basin.

Runoff volumes in the Columbia basin in 1984 were above average overall. Snake River runoff was extremely high. January to July runoff in the Snake was 43.9 MAF or 146% of the 1961-80 average. In contrast, the mid-Columbia runoff was 52.2 MAF, 92% of the average. The combined effects of the runoff from these two areas resulted in a runoff volume at The Dalles of 111% of average or 119.1 MAF (WBC, 1984).

b. Snake River.

Flow in the Snake River, as indexed at Lower Granite Dam (Figure 2), was high throughout the spring outmigration period, and peaked at 247.9 kcfs on May 31. Lack of water storage capability in the Snake basin resulted in a freshet condition with comparatively large fluctuation in flow. Flows at Lower Granite were well in excess of the fishery minimum flow of 85 kcfs from March 15 through July 9. Similarly, high spill levels occurred through much of the spring period (Figure 3). Spill began on April 10 and continued at variable but often high levels through July 5.

c. Mid-Columbia.

Because of the quantity of upstream storage, the flow at mid-Columbia projects was stable compared to the freshet observed in the Snake River. Despite the relatively low runoff volume, spill occurred at all mid-Columbia projects during the spring because of a spill plan instituted by the PUD's in response to a Federal Energy Regulatory Commission fish passage plan. Flow at Wells Dam, where acoustic indexing of the migration occurred, generally increased during the season to the peak flow of 184 kcfs on April 25 and then gradually declined through the remainder of the sampling period (Figure 4). Flow at Priest Rapids Dam, the Water Budget indexing site, decreased slightly over the Water Budget period from April 15 to June 15, but then increased after this period because of runoff conditions (Figure 5). Figures 4 and 5 show the dramatic effect of power regulation on the flows in the mid-Columbia, as flow was dropped on weekends

Figure 2
1984 Flow at Lower Granite Dam

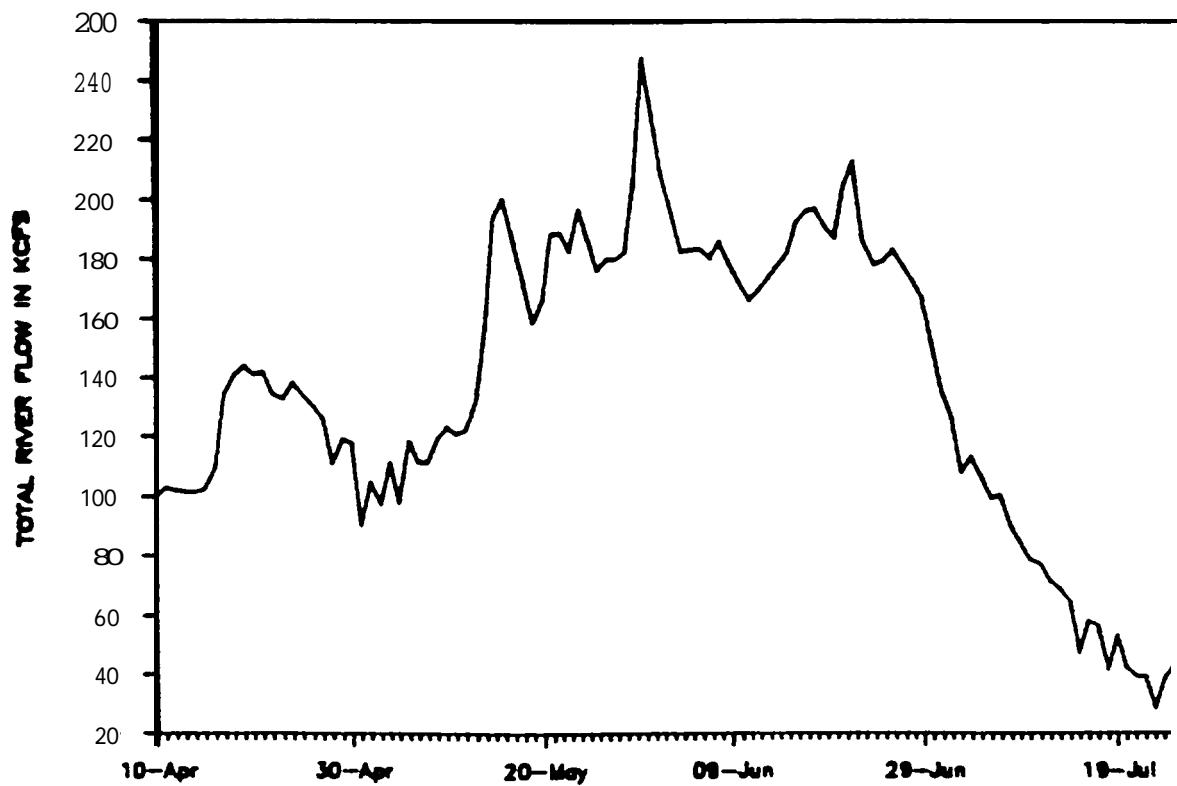


Figure 3
1984 Spill at Lower Granite Dam

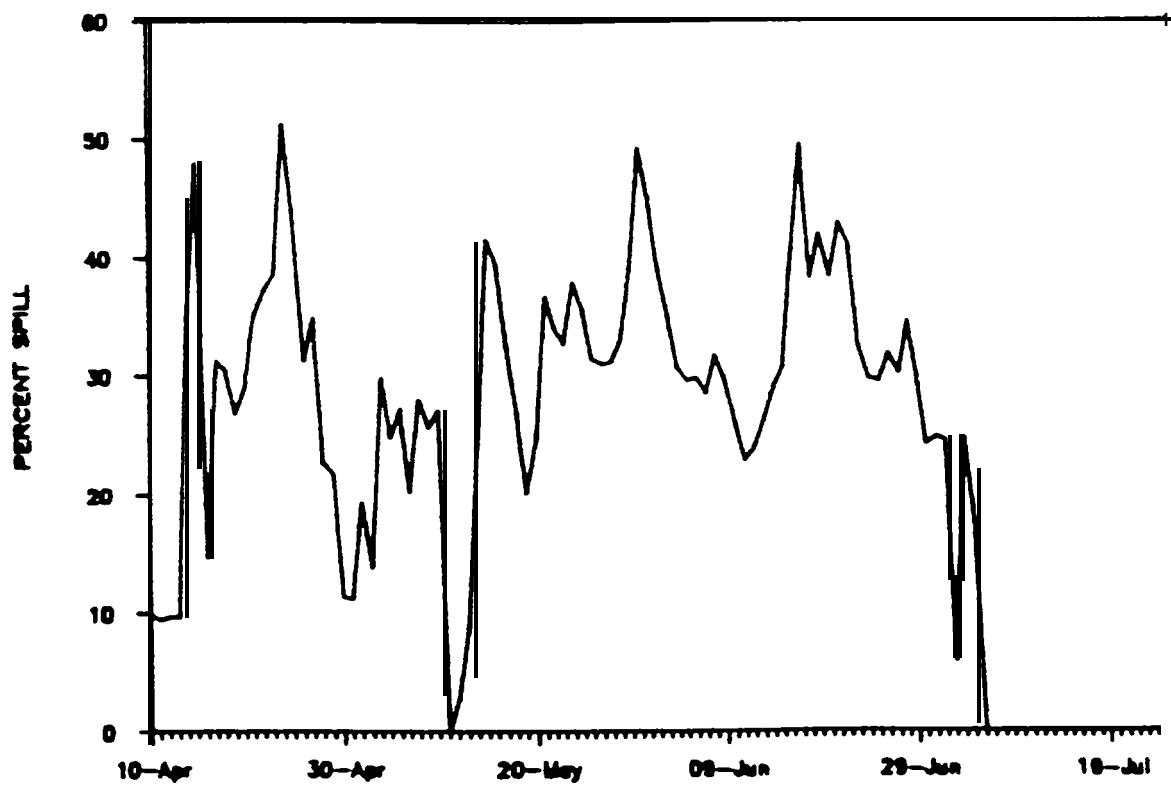


Figure 4
1984 Flow at Wells Dam

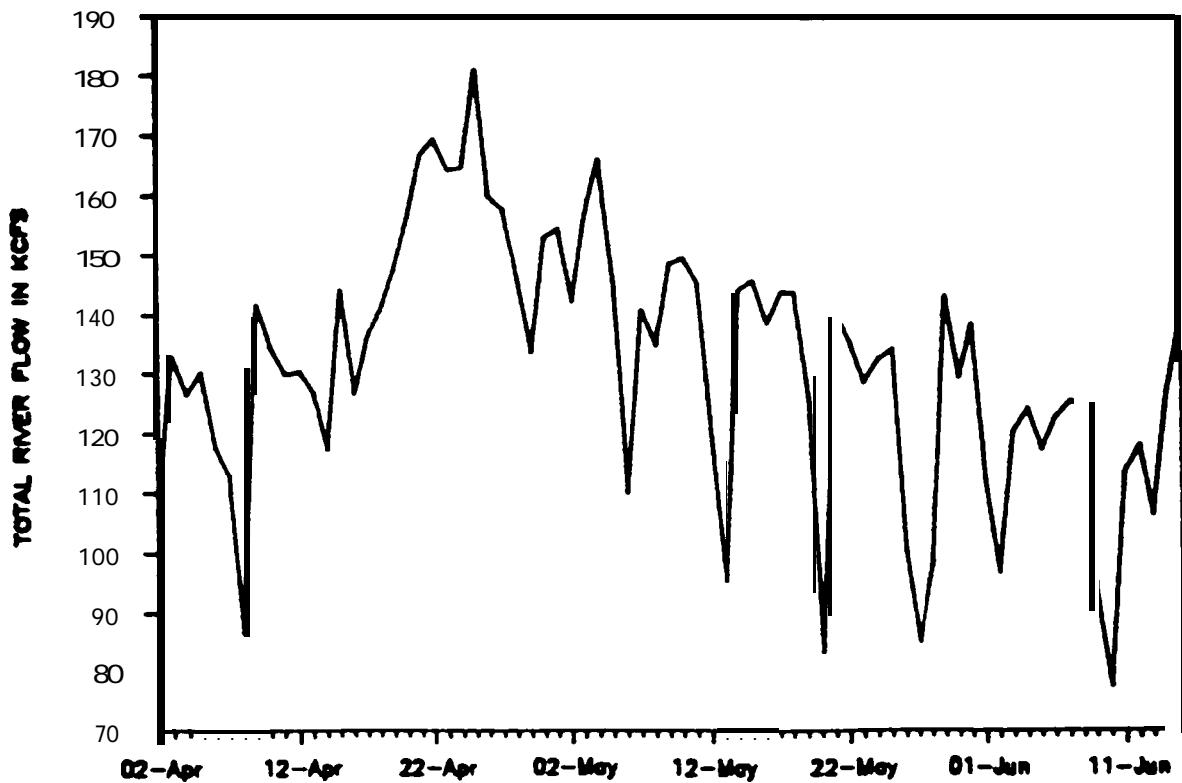
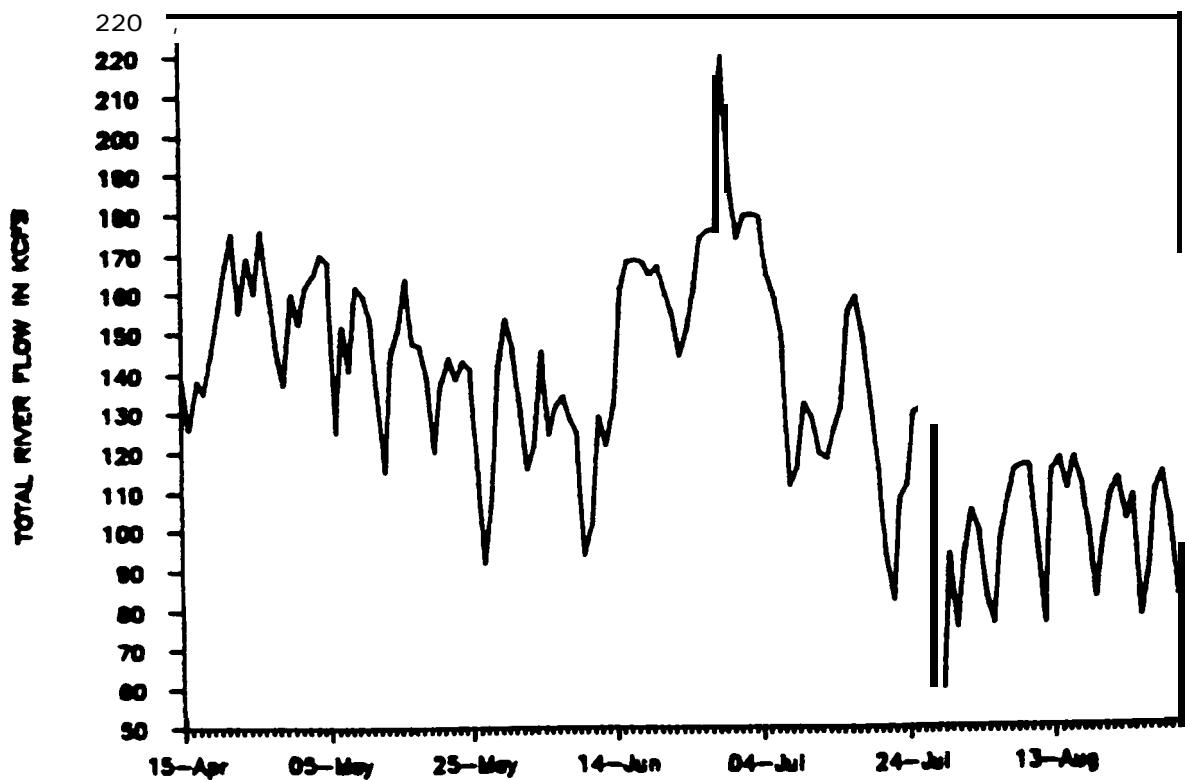


Figure 5
1984 Flow at Priest Rapids Dam



because of a decrease in power demand.

d. Lower Columbia

Flow at McNary Dam exceeded the fishery flow of 220 kcfs at The Dalles beginning March 27 and remained well in excess of this level through July 8 (Figure 6). Flow peaked at 417 kcfs on May 31.

Spill at McNary was high throughout the spring migration period. Significant spill began on April 5 and continued through July 19 (Figure 7).

At John Day Dam, flow began to exceed The Dalles fishery minimum of 220 kcfs on March 27, and remained above this level through July 8 (Figure 8). Flow peaked at 387 kcfs on May 31.

Spill at John Day began on April 2 and continued at a high level through July 10 (Figure 9). After this date, spill for fish passage continued through August 30 at a lower level.

e. Travel Time of Mark Groups.

a Snake River

Spring Chinook. Spring chinook in the Snake River generally showed a good pattern of mark recoveries at downstream sites. Five mark groups provided information on smolt travel time and speed. The accuracy of travel time and migration rate from release sites was greatly lessened for some groups because of uncertainty in exact release dates. This occurred when fish were released volitionally over an extended period as was the case of Rapid River Hatchery. For volitional releases, the median date of release was used to compute travel time.

Figure 0
1984 Flow at McNary Dam

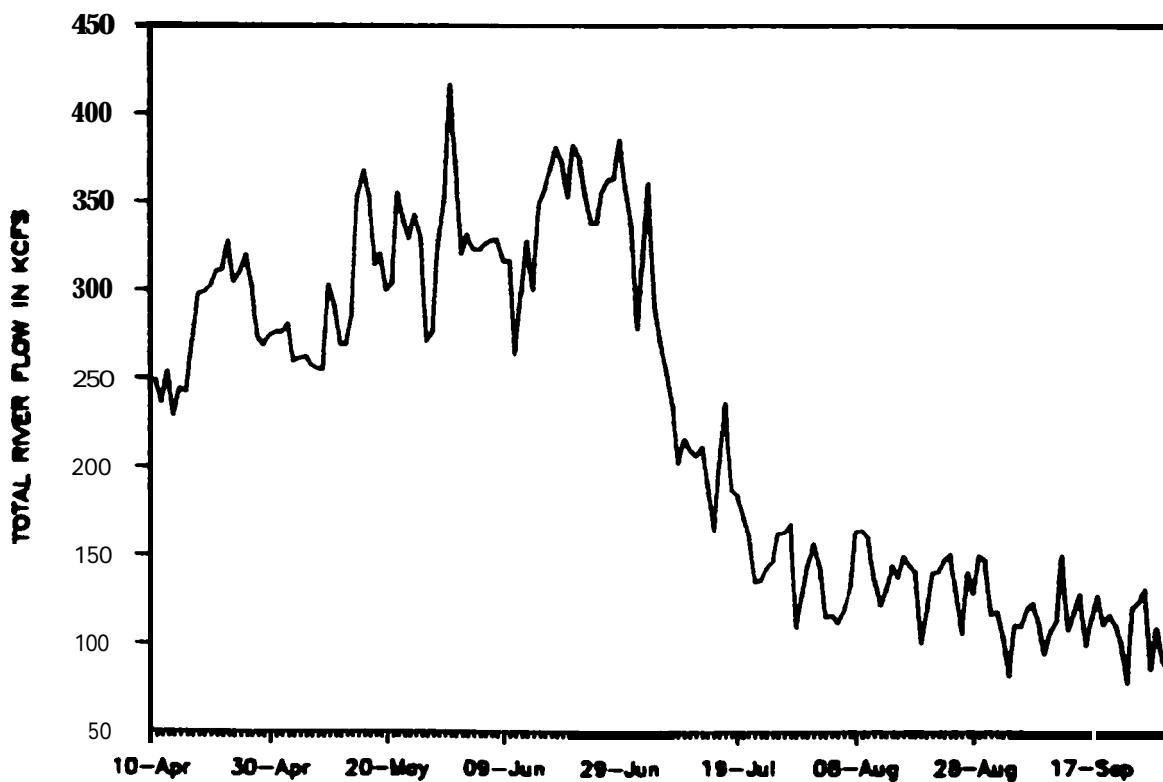


Figure 7
1984 Spill at McNary Dam

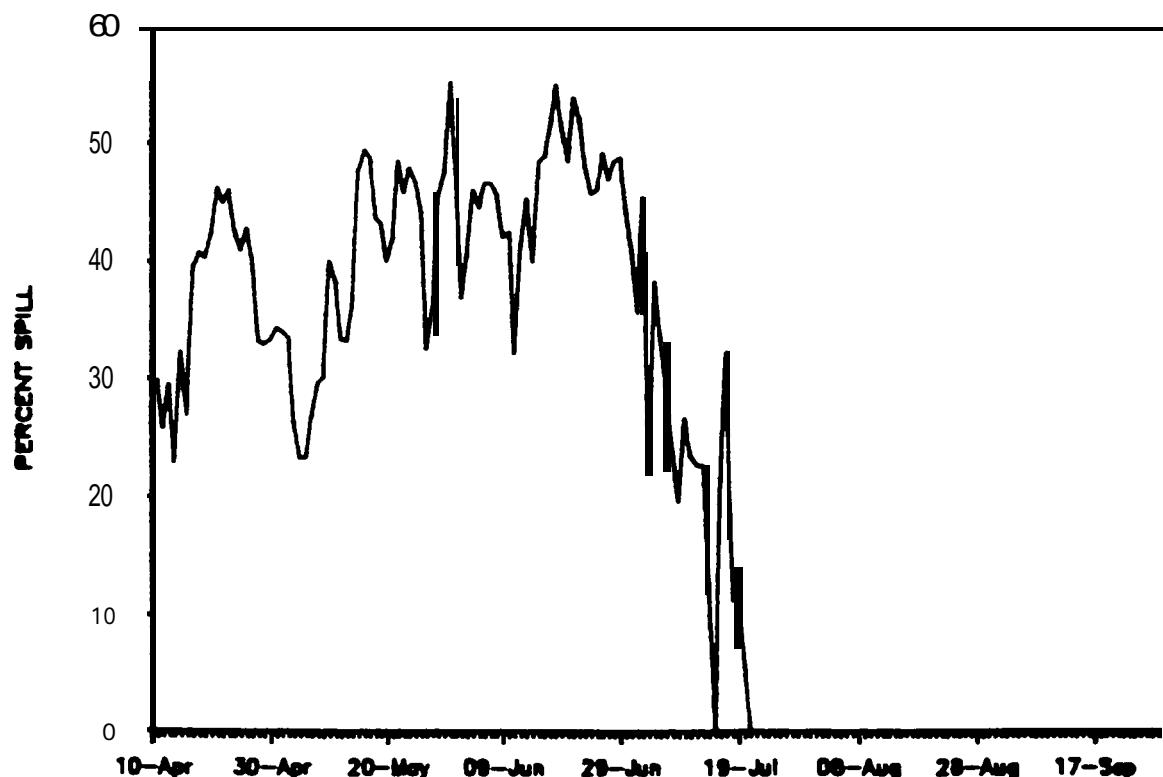


Figure 8
1984 Flow at John Day Dam

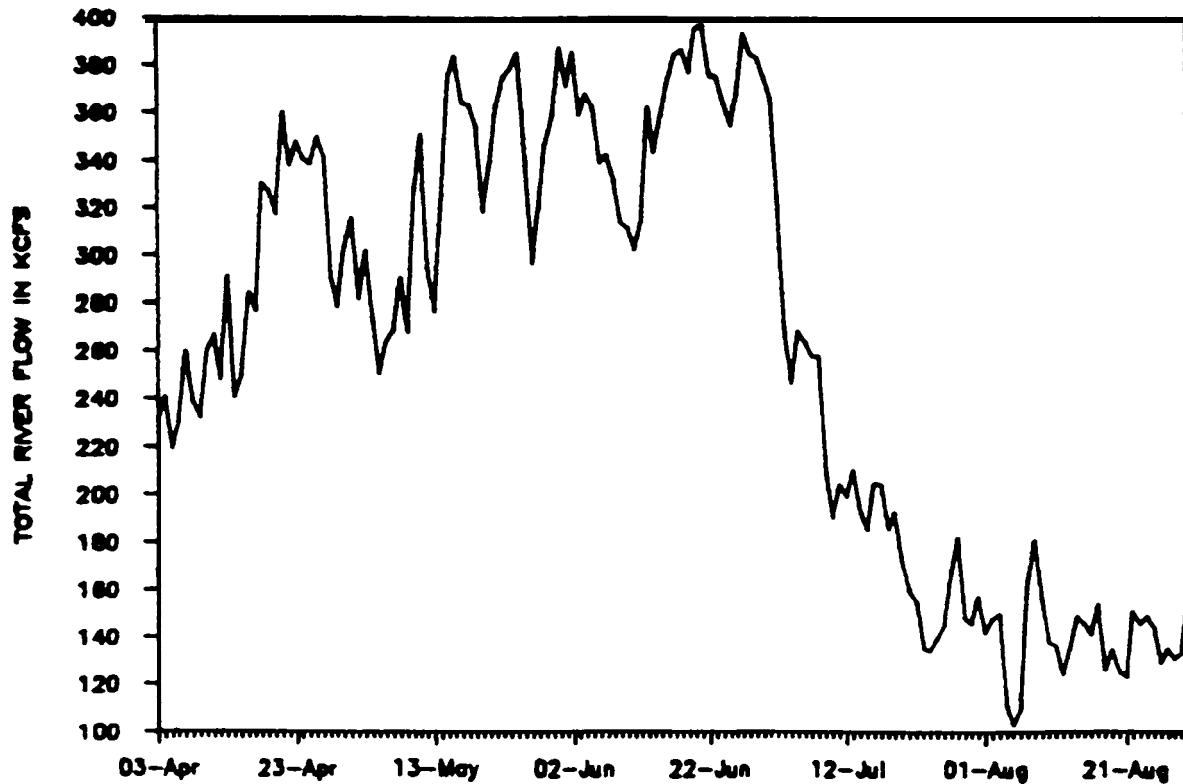
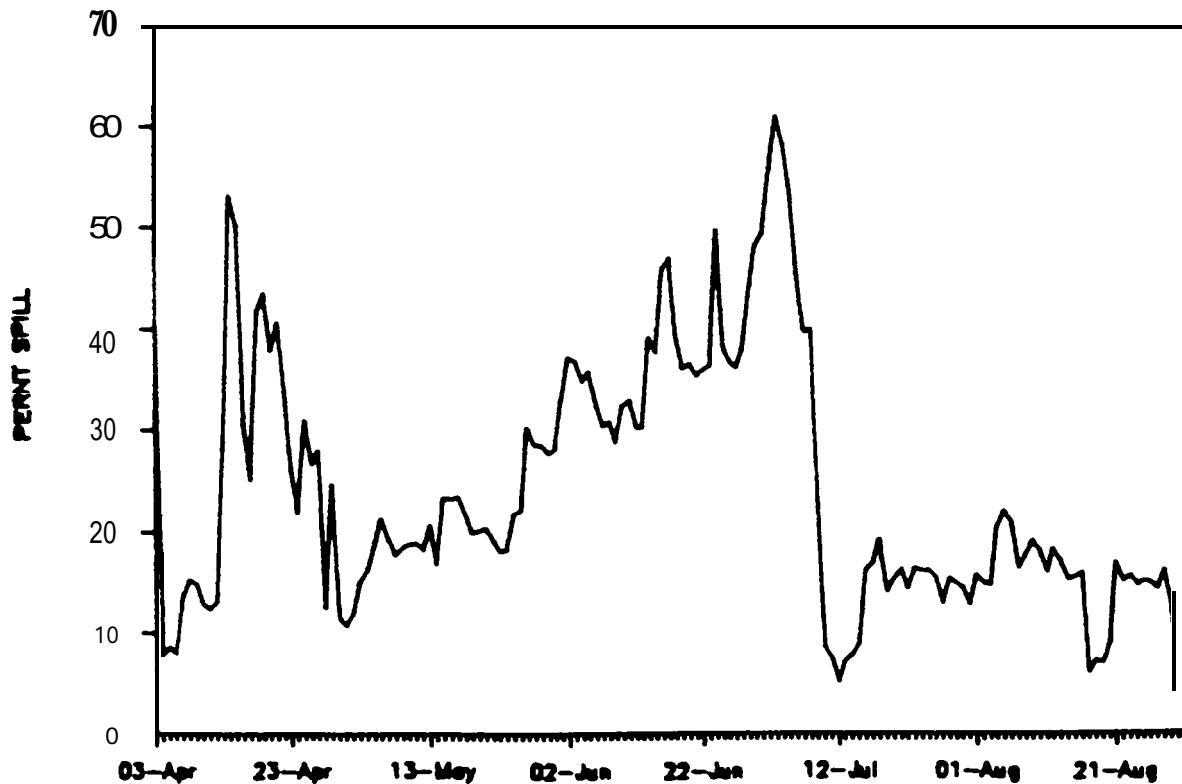


Figure 9
1984 Spill at John Day Dam



Travel time of marked yearling chinook in the Snake River from release sites to McNary Dam ranged from 38 to 52 days, and averaged 44 days (Table 2). Speed of migration from release sites to McNary ranged from 6.6 miles/day to 11.6 miles/day, and averaged 8.7 miles/day. The fastest rate of migration was for fish released from Sawtooth Hatchery, while the slowest migration was for fish released from Rapid River Hatchery,

Table 2. Travel time of marked yearling chinook in the Snake River from point of release to McNary Dam, 1984.

BRAND	RELEASE SITE	no. RELEASED	No. COLL. AR MCNARY	% COLL. AT MCNARY	50% PASSAGE TRV. TIME	AVE. FLOW •	AVE. SPEED MILES/DAY)
LD-J-1	SALMON R SF	25555	1573	6.16	45	176.9	9.5
LD-J-3	SAWTOOTH	33934	1576	4.64	52	157.2	11.6
RD-J-1	HELLS CANYON	85664	6852	8.00	36	133.2	7.4
RD-J-3	RAPID RIVER	23840	2765	11.60	47	102.2	6.6
LA-SU-4	RED RIVER	15000	630	4.20	39	180.2	8.2

• AVERAGE FLOW THROUGH ICE HARBOR DAM AT CALCULATED 50% PASSAGE DATE +/- 3 DAYS

These same five mark groups were also used for smolt travel indexing between Lower Granite and McNary dams (Table 3). Median travel times for the five groups were similar, ranging from nine to twelve days. This represented a speed of 11.7 to 15.5 miles/day. Median travel time for the five groups through the Snake River monitoring area averaged ten days with a standard error of 1.5. This reflects a speed of 14.1 miles/day.

Table 3. Travel time of marked yearling chinook in the Snake River from Lower Granite Dam to McNary Dam, 1984.

BRA!!	RELEASE SITE	No. RELEASED	No. COLL. AT MCNARY	% COLL. AT MCNARY	50% PASSAGE TRV. TIME	AVE. FLOW •	AVE. SPEED (MILES/DAY)
LD-J-1	SALMON R SF	25555	1573	6.16	9	176.9	15.5
LD-J-3	SAWTOOTH	33934	1576	4.64	12	157.2	11.7
RD-J-I	HELLS CANYON	85664	6852	8.00	9	133.2	15.5
RD-J-3	RAPID RIVER	23840	2765	11.60	10	102.2	14.0
LA-SU-4	RED RIVER	150000	630	4.20	10	180.2	14.0

• AVERAGE FLOW THROUGH ICE HARBOR DAM AT CALCULATED 50% PASSAGE DATE • /- 3 DAYS

Steelhead Steelhead marked in the upper Snake River area were recovered in very low numbers at all downstream recovery points. Of four groups marked in the Snake (Table 1), only one group from Dworshak Hatchery was sampled in sufficient numbers at Lower Granite and McNary dams to determine the travel time. Groups from Hagerman and Niagara Springs hatcheries displayed either poor survival or poor brand retention and detection at the recovery sites. Because steelhead in general were abundant at Lower Granite Dam, it is probable that survival was normal and that the problem was poor brand retention. Poor survival of these mark groups cannot, however, be ruled out.

Several steelhead groups reared at Lyons Ferry Hatchery were marked and released by the Washington Department of Game in the Tucannon River and at the hatchery (Table 1). Actual release time for these groups is uncertain, however, due to trucking problems with the Tucannon River releases, and volitional release

for the on-station releases. Because of this uncertainty in release date, these groups were only used for indexing travel time from McNary to John Day dams.

The steelhead group from Dworshak Hatchery migrated to McNary Dam in 16 days (Table 4) at a speed of 13.3 miles/day. This was faster than the migration of the Snake River yearling chinook mark groups from release sites to McNary Dam (Table 2). Through the Lower Granite to McNary indexing area, this group required seven days travel time for a speed of 20 miles per day (Table 5), appreciably faster than any of the marked yearling chinook groups migrating through the same indexing area (Table 3).

Table 4. Travel time of marked steelhead in the Snake River from reiease site to McNary Dam, 1984.

BRAND	RELEASE SITE	No. RELEASED	no. COLL. AT MCNARY	% COLL. AT MCNARY	50% PASSAGE TRV. TIME	AVE. FLOW •	AVE. SPEED (MILE/DAY)
RA-J-I	DWORSHAK	19969	670	3.36	16	178.5	13.3

• AVERAGE FLOW THROUGH ICE HARBOR DAM AT CALCULATED 50% PASSAGE DATE +/- 3 DAYS

Table 5. Travel time of marked steelhead in the Snake River from Lower Granite Dam to McNary Dam, 1984.

BRAND	RELEASE SITE	lo. RELEASED	NO. COLL. AT MCNARY	% COLL. AT MCNARY	50% PASSAGE TRV. TIME	AVE. FLOW .	AVE. SPEED (MILES/DAY)
RA-J-I	DWORSHAK	19969	670	3.36	7	178.5	20.0

• AVERAGE PLOW THROUGH ICE HARBOR DAM AT CALCULATED 50% PASSAGE DATE • /- 3 DAYS

b. Mid-Columbia

Spring Chinook Marking of yearling chinook in the mid-Columbia for travel time analysis was limited to one group of spring chinook released from Winthrop Hatchery. However, additional mark data is available from three groups of river-run yearling chinook marked and released at Priest Rapids Dam by Grant County PUD (Table 1).

Spring chinook released from Winthrop Hatchery required 26 days to reach McNary Dam, reflecting a median speed of 10.8 miles/day (Table 6). The river-run fish marked at Priest Rapids Dam had a median travel time of 10 days through the Hanford Reach to McNary Dam (Table 6). Median speed of migration for these fish averaged 10.8 miles/day, identical with the migration rate of fish released from Winthrop Hatchery. This rate of migration was slightly faster than that of the Snake River yearling chinook mark groups from release sites to McNary Dam (Table 2).

Table 6. Travel time of marked yearling chinook in the mid-Columbia from release sites to McNary Dam, 1984.

BRAND	RELEASE SITE	NO. RELEASED	NO. COLL. AT MCNARY	% COLL. AT MCNARY	50% PASSAGE TRV. TIME	AVE. FLOW	AVE. SPEED (MILES/DAY)
LA-IZ-1	WINTHROP	20319	1627	8.01	26	146.6 *	10.8
LA-IM-1	BELOW PRIEST	11478	2892	25.20	8	123.1 **	13.1
LA-IR-1	BELOW PRIEST	17030	2790	16.38	12	135.9 **	8.8
LA-IU-1	BELOW PRIEST	7059	1541	21.83	10	137.2 **	10.5

* AVERAGE FLOW THROUGH PRIEST RAPIDS DAM AT CALCULATED 50% PASSAGE DATE +/- 3 DAYS

** AVERAGE FLOW THROUGH PRIEST RAPIDS DAM AT CALCULATED 50% PASSAGE DATE PLUS 3 DAYS

Steelhead Indexing of steelhead travel time in the mid-Columbia was done in conjunction with monitoring of steelhead survival at Wells Hatchery. Two groups were released as test groups near the mouth of the Methow River above Wells Dam, while

six groups were released as controls below Priest Rapids Dam (Table 1).

The median travel time to McNary Dam for the two steelhead groups released above Wells Dam was 18 and 14 days respectively. Their migration rate was 12.9 and 16.6 miles per day respectively (Table 7). The median travel time of the six groups released below Priest Rapids Dam averaged six days to McNary Dam. These groups migrated at a median speed of 18.7 miles per day, appreciably faster than the groups reieased above Wells Dam.

Two groups of steelhead marked and released in the Naches tributary of the Yakima River required 24 days to migrate to McNary Dam (Table 7). This presumably reflects the iength of time required to exit the Yakima system prior to migrating to McNary Dam.

Table 7. Travel time of marked steelhead through the mid-Columbia from points of release to McNary Dam, 1984.

BRAND	RELEASE SITE	NO. RELEASED	NO. COLL. AT MCNARY	% COLL. AT MCNARY	50% PASSAGE TRV. TIME	AVE. FLOW	AVE. SPEED (MILES/DAY)
LA-7C-1	METHOW	32137	4728	14.71	18	157.4 •	12.9
LA-7C-3	METHOW	31301	8038	19.28	14	154.6 •	16.6
LA-7P-1	BELOW PRIEST	4070	958	23.54	8	162.2 **	13.1
LA-7P-2	BELOW PRIEST	4044	1451	35.88	5	166.2 **	21.0
LA-7P-3	BELOW PRIEST	4043	1439	35.59	5	157.0 **	21.0
RA-7P-1	BELOW PRIEST	4057	1242	30.61	4	153.7 **	26.3
RA-7P-2	BELOW PRIEST	4041	851	21.04	6	146.5 **	17.5
RA-7P-3	BELOW PRIEST	4093	780	19.04	8	153.3 **	13.1
LA-T-2	NACHES	24635	1479	6.00	24	---	6.8
LA-T-4	NACHES	24654	1367	5.63	24	---	6.8

• = AVERAGE FLOW THROUGH PRIEST RAPIDS DAM AT CALCULATED 50% PASSAGE DATE +/- 3 DAYS

• = AVERAGE FLOW THROUGH PRIEST RAPIDS DAM AT CALCULATED 50% PASSAGE DATE PLUS 3 DAYS

Sockeye. Four groups of sockeye were captured, marked, and released at Priest Rapids Dam by Grant County PUD. Median travel time of these fish to McNary Dam averaged 4.5 days for a speed of

25.1 miles per day (Table 8). This was appreciably faster than any of the other species through this area. It should be noted, however, that the accuracy of this estimate is low since each group was released from Priest Rapids Dam over an extended period of up to ten days. For these calculations, the median date of release was used as the starting date.

Table 8. Travel time of marked sockeye in the mid-Columbia from release sites to McNary Dam, 1984.

BRAND	RELEASE SITE	NO. RELEASED	NO. COLL. AT MCNARY	% COLL. AT MCNARY	50% PASSAGE TRV. TIME	AVG. FLOW • (MILES/DAY)	AVE. SPEED
LA-[R-1]	BELOW PRIEST	5326	610	11.45	6	169.2	17.5
LA-IU-1	BELOW PRIEST	6038	710	6.63	4	144.6	26.2
LA-IU-3	BELOW PRIEST	3916	615	15.70	4	162.2	26.2
		3362	310	9.14	4	116.0	26.2

* AVERAGE FLOW THROUGH PRIEST RAPIDS DAM AT RELEASE DATE PLUS 3 DAYS

Summer migrating chinook Summer chinook were marked and released for travel time indexing at Wells Hatchery below Wells Dam, while fall chinook were marked and released at Priest Rapids Hatchery below Priest Rapids Dam (Figure 1). These fish migrated throughout the summer months. Median travel time to McNary Dam for summer chinook released from Wells Hatchery was 51 days, while fall chinook released at Priest Rapids Hatchery required 28 days to migrate through the Hanford Reach to McNary Dam (Table 9). Migration speed for the two groups was similar: the Wells summer chinook migrated at a rate of 4.4 miles per day, while the

Priest Rapids fall chinook migrated 3.8 miles per day.

Table 9. Travel time of marked summer migrating chinook in the mid-Columbia from release sites to McNary Dam, 1984.

BRAND	RELEASE SITE	NO. RELEASED	NO. COLL. AT MCNARY	% COLL. AT MCNARY	50% PASSAGE TRV. TIME	AVE. FLOW .	AVE. SPEED (MILES/DAY)
LA-S-1	WELLS	101653	3357	3.30	51	171.6	4.4
RA-F-1/RA-3-1	PRIEST RAPIDS	61312	11195	13.77	26	146.0	3.8

• ~~19-08-00~~ FLOW THROUGH PRIEST RAPIDS DAM AT 50% PASSAGE DATE • /- 3 DAYS

Lower Columbia

Spring chinook Two yearling chinook groups used for indexing of travel time in the Snake showed in sufficient numbers at John Day Dam to index travel time in the lower Columbia reach. In addition, three groups were available that were captured and marked by Grant County PUD at Priest Rapids Dam.

Median travel time of yearling chinook mark groups between McNary and John Day dams averaged 3.8 days and ranged from three to six days (Table 10). The standard error on the travel time was 1.63. Yearling chinook migration speed through this reach averaged 21.7 miles per day, appreciably faster than the yearling chinook migration rate through the upper areas.

Table 10. Travel time of marked yearling chinook in the lower Columbia between McNary Dam and John Day Dam, 1984.

BRAND	RELEASE SITE	NO. RELEASED	NO. COLL. AT JOHN MY	% COLL. AT JOHN MY	50% PASSAGE TRV. TIME	AVE. FLOW .	AVE. SPEED (MILES/DAY)
RB-J-1	BELL'S CANYON	85684	337	0.39	3	352.4	25.5
LA-IM-1	RAPID RIVER	23640	90	0.38	3	323.6	25.5
LA-IR-1	BELOW PRIEST	11478	71	0.62	3	346.6	26.5
LA-IU-1	BELOW PRIEST	17030	a4	0.55	4	338.9	16.1
		7059	42	0.59	6	355.2	12.7

• AVERAGE FLOW THROUGH JOHN MY DAM AT 50% PASSAGE DATE • /- 3 DAYS

Steelhead Twelve steelhead groups from the Snake and mid-Columbia were suitable for travel time indexing in the lower Columbia (Table 11). These fish migrated through the John Day pool much more rapidly than other species. Median travel time for these groups ranged from a negative one day, indicating that the peak of the migration at John Day occurred slightly ahead of the peak at McNary, to a single outlier of five days (Table 11). Median travel time averaged 1.25 days, with a standard error of 2.33. The average speed calculated from this travel time was **61.1 miles/day.**

Table 11. Travel time of marked-steelhead in the lower Columbia from McNary Dam to John Day Dam, 1984.

BRAND	RELEASE SITE	NO. RELEASED	NO. COLL. AT JOHN MY	% COLL. AT JOHN DAY	50% PASSAGE TRV. TIRE	AVE. FLOW *	AVE. SPEED (MILES/DAY)
RA-J-1	DWORSHAK	19969	75	0.36	-1	355.0	
RA-IV-1	TUCANNON	31790	111	0.35	3	367.5	25.5
RA-IV-3	TUCANNON	30930	112	0.36	5	366.1	15.3
RD- If-1	LYONS FERRY	5100s	203	0.40	-1	3S2.4	
LA-7C-1	METHOW	32137	372	1.16	-1	296.6	
LA-7C-3	METHOW	31301	429	1.37	2	333.7	36.2
LA-7P-1	BELOW PRIEST	4070	72	1.71	1	296.6	76.4
LA-7P-2	BELOW PRIEST	4044	85	2.10	2	296.6	36.2
LA-7P-3	BELOW PRIEST	4043	93	2.30	3	296.6	25.5
RA-7P-1	BELOW PRIEST	4057	73	1.80	2	296.6	36.2
RA-7P-2	BELOW PRIEST	4041	67	1.66	1	317.1	76.4
RA-7P-3	BELOW PRIEST	4093	76	1.66	0	336.6	

* AVERAGE FLOW THROUGH JOHN DAY DAM AT 50% PASSAGE DATE +/- 3 DAYS

Sockeye Only one of the four sockeye groups marked and released at Priest Rapids Dam had a large enough sample size at John Day Dam to index sockeye travel time in the lower Columbia. This group had a median travel time between McNary and John Day dams

of 8 days and a speed of 9.5 miles per day (Table 12). This was appreciably slower than the travel rate of the same group through the Hanford Reach (Table 8).

Table 12. Travel time of marked sockeye in the lower Columbia from McNary Dam to John Day Dam, 1984.

BRAND	RELEASE SITE	No. RELEASED AT JOHN M Y	HO. COLL. AT JOHN M Y	% COLL.	50% PASSAGE TRV. TIME	AVE. SPEED FLOW .	(MILES/DAY)
LA-IU-1	BELOW PRIEST	3918	42	1.07	6	340.5	9.53

* AVERAGE FLOW THROUGH JOHN DAY AT 50% PASSAGE DATE +/- 3 DAYS

3. Migration Characteristics.

a. Snake River

Lewiston Trap. Yearling chinook passage at the Snake River trap at Lewiston, Idaho peaked on April 19 (Figure 10). Yearling chinook were present when the trap first began operation on March 23, and passage continued through the end of trapping operations on May 15.

Steelhead passage at the Lewiston trap began to increase after the chinook peak (Figure 11). The highest count was recorded on May 14. It is not known if this was the true migration peak since the trap ceased operation because of high flow on May 15. It is apparent in Figures 10 and 11 that chinook and steelhead passage at the Lewiston trap was effectively separated; the time between chinook and steelhead peaks at Lewiston was 25 days.

Figure 10
1984 Migration Timing: Lewiston Trap
YEARLING CHINOOK

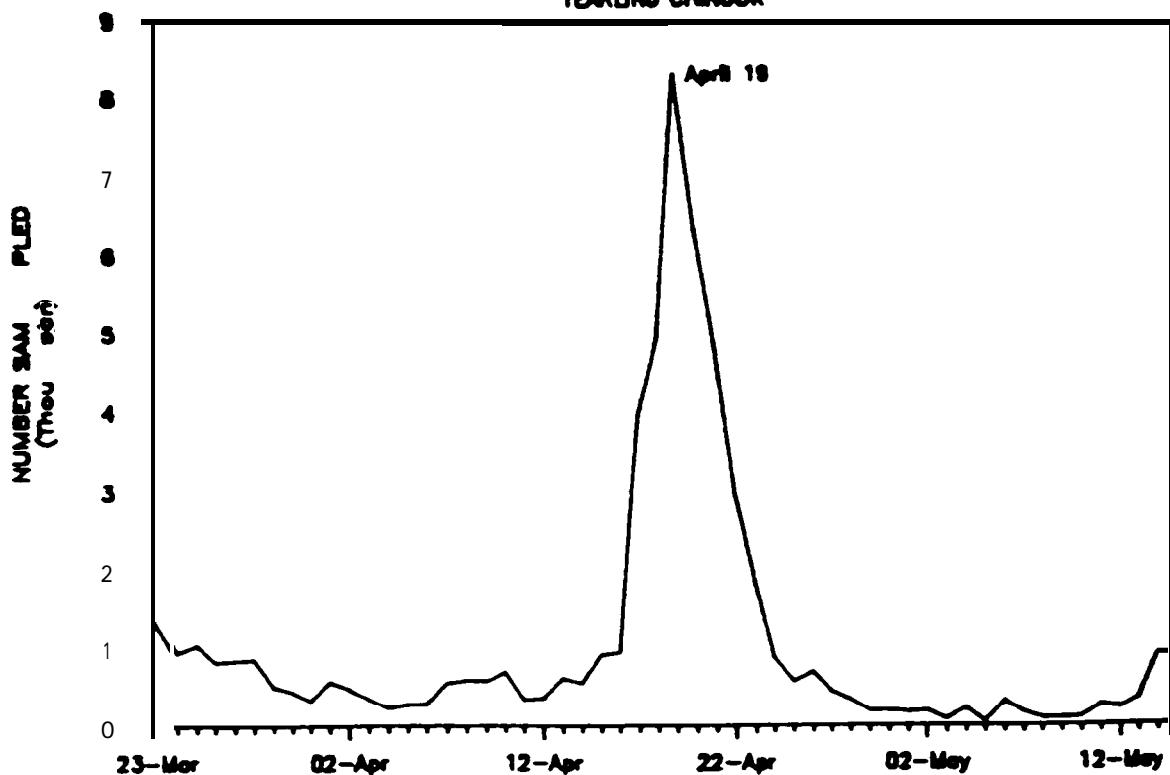
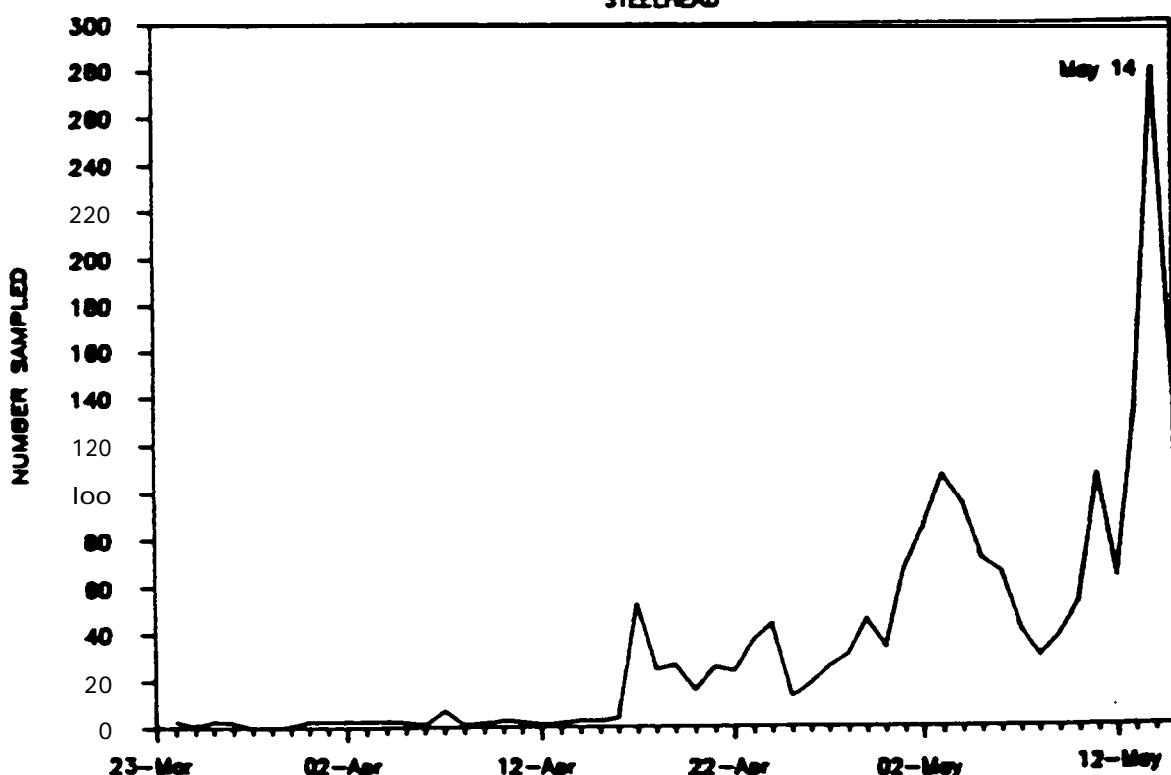


Figure 11
1984 Migration Timing: Lewiston Trap
STEELHEAD



Lower Granite. Sampling at Lower Granite Dam began April 10. Yearling chinook were present when sampling began, indicating that a portion of the early migration was missed. The yearling chinook migration peaked at Lower Granite Dam on May 2 (Figure 12), and the steelhead migration peaked on May 15 (Figure 13). Most of the yearling chinook passage preceded the high flows at Lower Granite Dam. However, the peak in yearling chinook passage did coincide with the first large increase in flow (Figure 2).

Steelhead passage at Lower Granite took place during the period of highest flows. The peak passage period around May 15 (Figure 13) coincided with a large increase in flow that peaked on May 16 (Figure 2). Spill levels were high at Lower Granite during both the yearling chinook and steelhead migration periods (Figure 3).

Separation of yearling chinook and steelhead migrations at Lower Granite' was less than that observed at the Lewiston trap, but still appreciable. Time between the median dates of passage for yearling chinook and steelhead at Lower Granite was 14 days (Table 14).

Sub-yearling chinook showed two distinct periods of migration at Lower Granite. The first peak occurred on May 2 and the second on June 17 (Figure 14). Because of the timing, it is likely that the first peak actually represented small yearling rather than sub-yearling chinook. The separation of yearling and sub-yearling chinook in this data is based upon FTOT criteria of fish longer than 110mm being called yearling chinook prior to July 1, and chinook longer than 115mm classed as yearling chinook after this date (Koski et al., 1985). The first peak in

Figure 12
1984 Migration Timing: Lower Granite

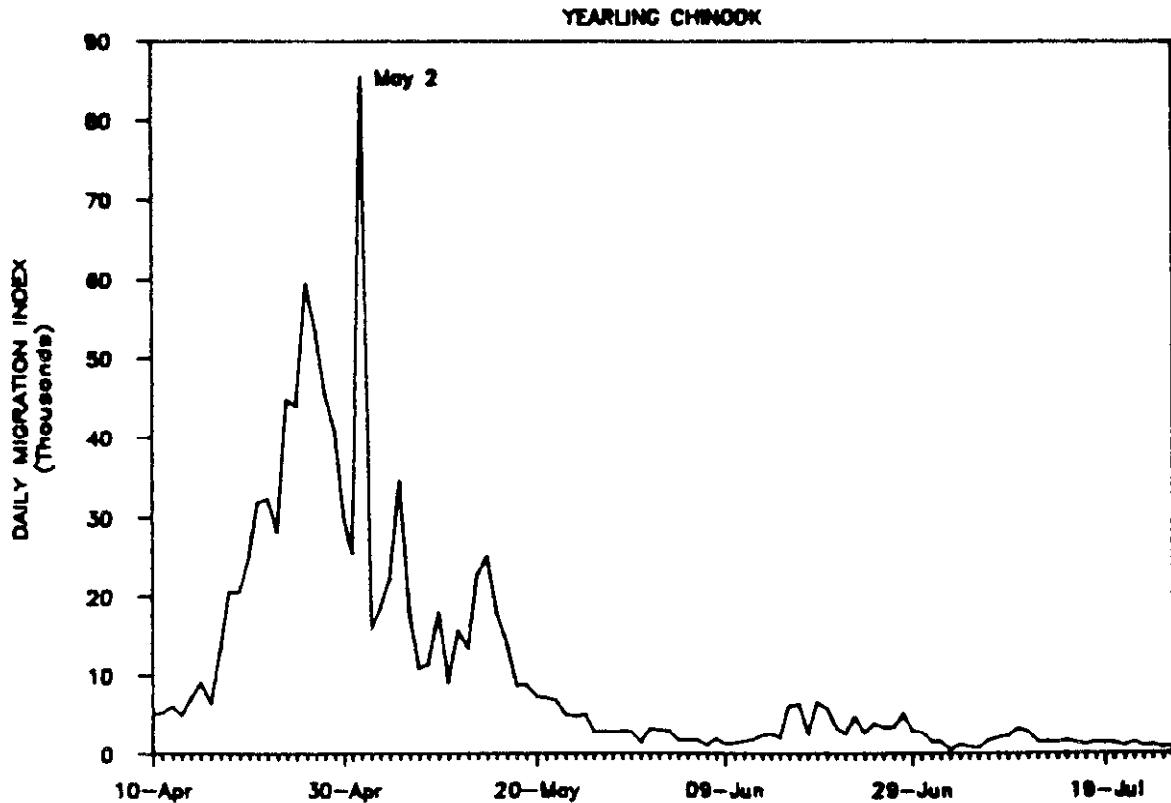
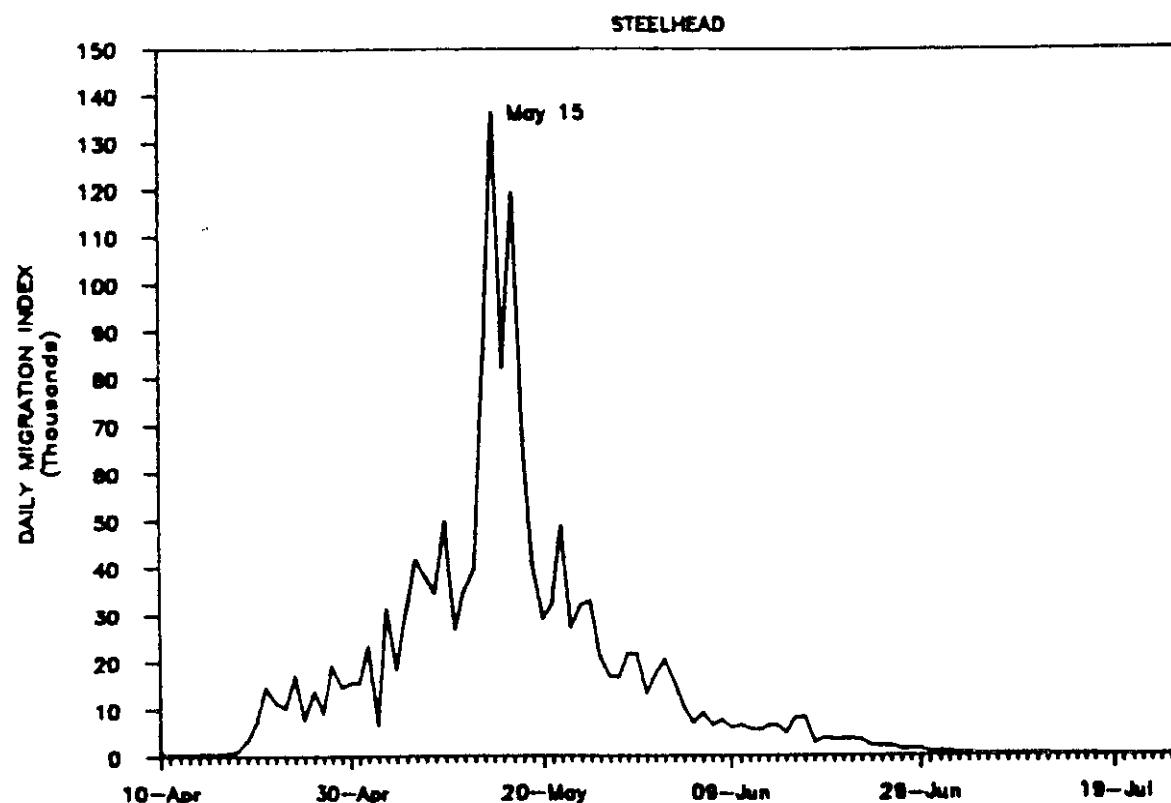


Figure 13
1984 Migration Timing: Lower Granite



sub-yearling chinook passage at Lower Granite Dam took place during a period of relatively low flow, although still in excess of minimum levels. The second peak occurred during the period of highest flow (Figure 2).

The sockeye migration at Lower Granite took place in two periods around May 25 and June 13 (Figure 15). Both migration peaks occurred during periods of high flows (Figure 2).

Coho passage at Lower Granite was very small. A total of 30 fish was sampled; a total collection of 256 fish was estimated.

Passage indices for all species at Lower Granite Dam for 1984 are shown in Table 13.

Table 13. Total passage indices at Lower Granite Dam, 1984f

	Estimated Total collection	Total Migration Index
Yearling Chinook	828,332	1,122,829
Steelhead	1,114,740	1,589,910
Sub-yearling Chin.	97,639	132,582
Sockeye	11,152	15,803
Coho	256	

Time between the 10% and 90% dates of recorded passage at Lower Granite indicates an extended period of migration for yearling and sub-yearling chinook compared to the steelhead and sockeye migration (Table 14). If the above speculation regarding their migration at Lower Granite is correct, however, the sub-yearling migration is appreciably shorter than indicated by the data in Table 14.

Figure 14
1984 Migration Timing: Lower Granite
SUB-YEARLING CHINOOK

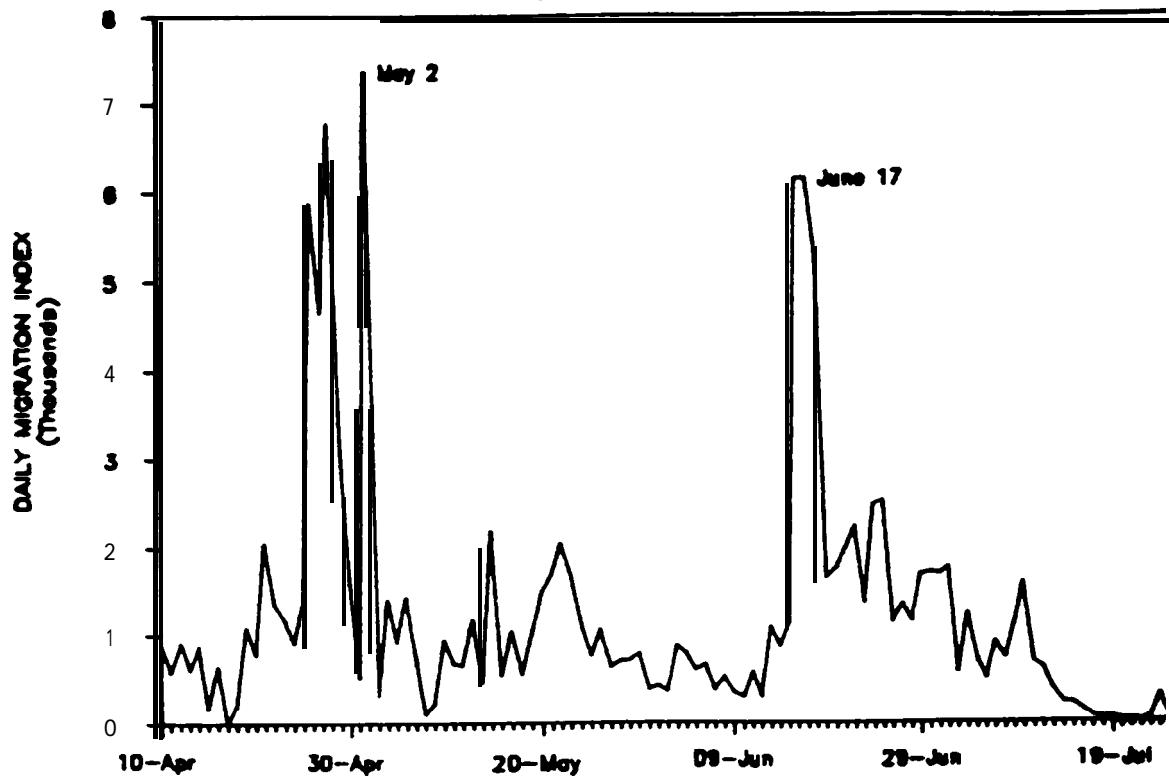


Figure 15
1984 Migration Timing: Lower Granite
SOCKEYE

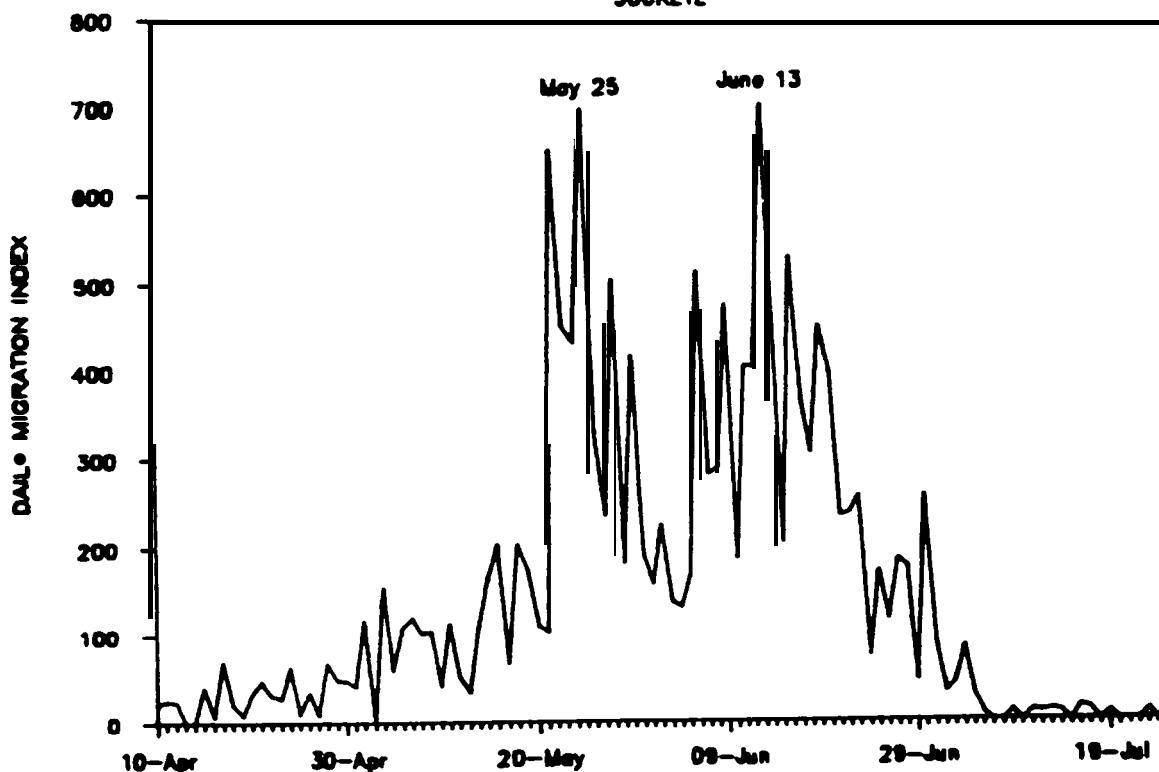


Table 14. Timing and duration of migration at Lower Granite Dam, 1984.

SPECIES	10% PASSAGE	50% PASSAGE	90% PASSAGE	DURATION (DAYS)
YEARLING CHINOOK	APR 20	MAY 01	JUN 10	51
STEELHEAD	APR 30	MAY 15	JUN 02	33
SUB-YEARLING CHINOOK	APR 25	MAY 24	JUN 30	66
SOCKEYE	MAY 11	JUN 05	JUN 22	42
COHO	MAY 22	MAY 31	JUN 16	25

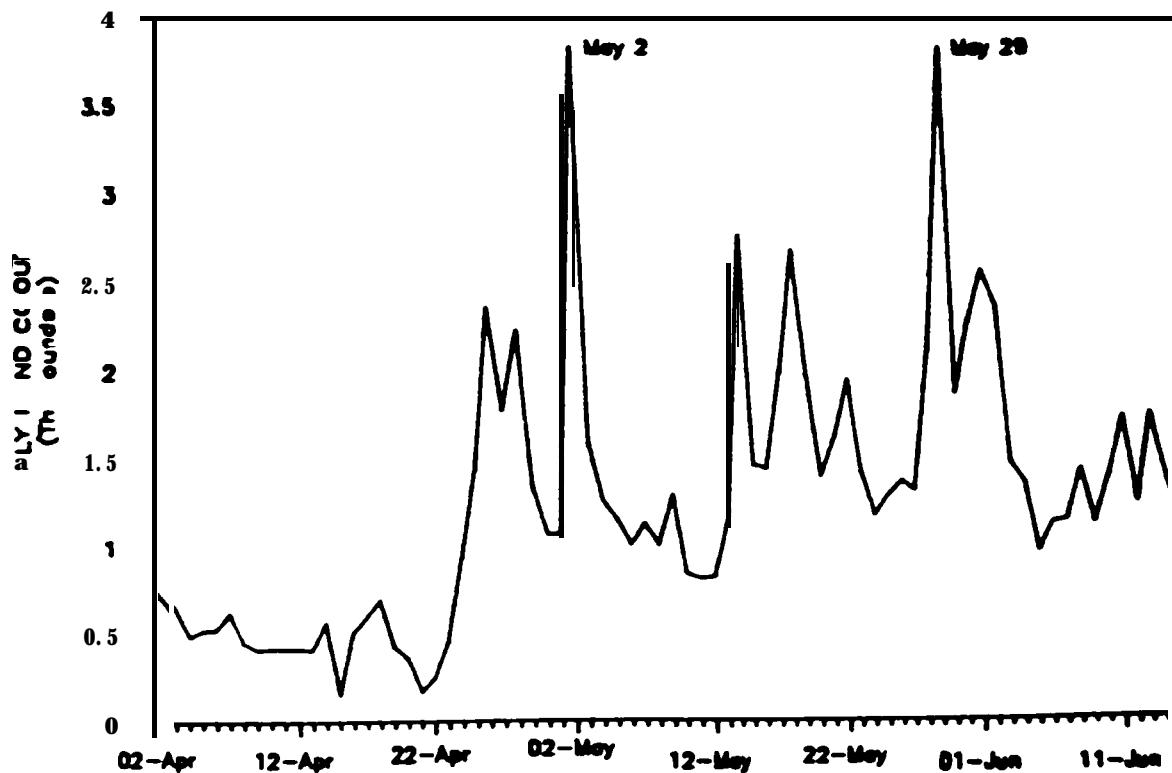
b. Mid-Columbia

Weils Dam. The acoustic index at Wells Dam showed at least two periods of peak fish passage around the dates of May 2 and May 29 (Figure 16). The first peak occurred soon after the release of spring chinook from Winthrop Hatchery and steelhead from Wells Hatchery (released above Wells Dam) around April 23. The species composition of the second peak is unknown. Raemhild et al. (1984) speculated that it was possibly whitefish, although anadromous salmonids could not be ruled out on the basis of the acoustic characteristics.

c. Lower Columbia

McNary Dam. Sampling at McNary Dam began on April 12 and continued through September 28. Yearling chinook passage increased rapidly soon after sampling began; the peak period of passage occurred around May 7. However, the peak date of passage occurred as a spike on May 21, after which passage declined (Figure 17). Steelhead passage at McNary was highest around May 22, although the peak date of passage was May 7 (Figure 18). Both yearling

Figure 16
1984 Hydroacoustic Index: Wells Dam



chinook and steelhead passage at McNary occurred during the period of highest flow (Figure 6). Indices of **passage** of yearling chinook and steelhead at McNary are shown in Table 15.

Table 15. Total passage indices at McNary Dam, 1984.

	Estimated Total Collection	Total Migration Index
Yearling Chinook	1,261,187	2,085,232
Steelhead	610,511	1,051,936
Sub-yearling Chin.	4,098,004	5,348,554
Sockeye	191,930	315,313
Coho	82,144	149,250

Sub-yearling chinook passage at McNary Dam showed four periods of migration centered around the dates of May 26, June 24, July 17, and August 3 (Figure 19). The first two peaks occurred during periods of high flow and spill (Figures 6 and 7). The remaining migration took place under conditions of sub-minimum flows and little or no spill. Passage indices for sub-yearling chinook at McNary Dam are provided in Table 15.

The first three peak in but-yearling chinook passage at McNary closely corresponded to releases of fall chinook from Ringold Ponds and Priest Rapids Hatchery. On Figure 19 the arrows indicate release dates from these facilities. On May 22, Ringold Ponds released 2.1 million fall chinook. The first peak in sub-yearling chinook at McNary occurred four days later. Between June 11 and June 19, Priest Rapids Hatchery made three releases of fall chinook totaling 5.9 million fish. The **second** peak in sub-yearling chinook passage occurred six **days after the** last release in this series. Finally, on July 3 and July 10,

Figure 17
1984 Migration Timing: McNary Dam

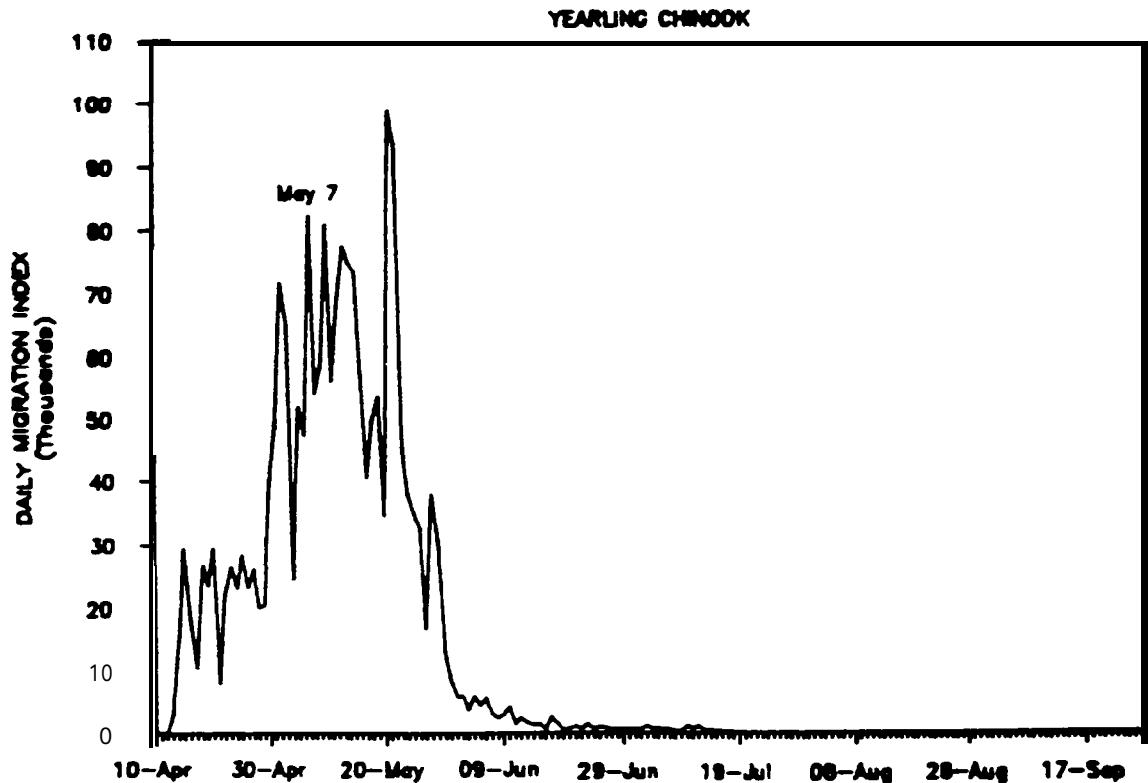
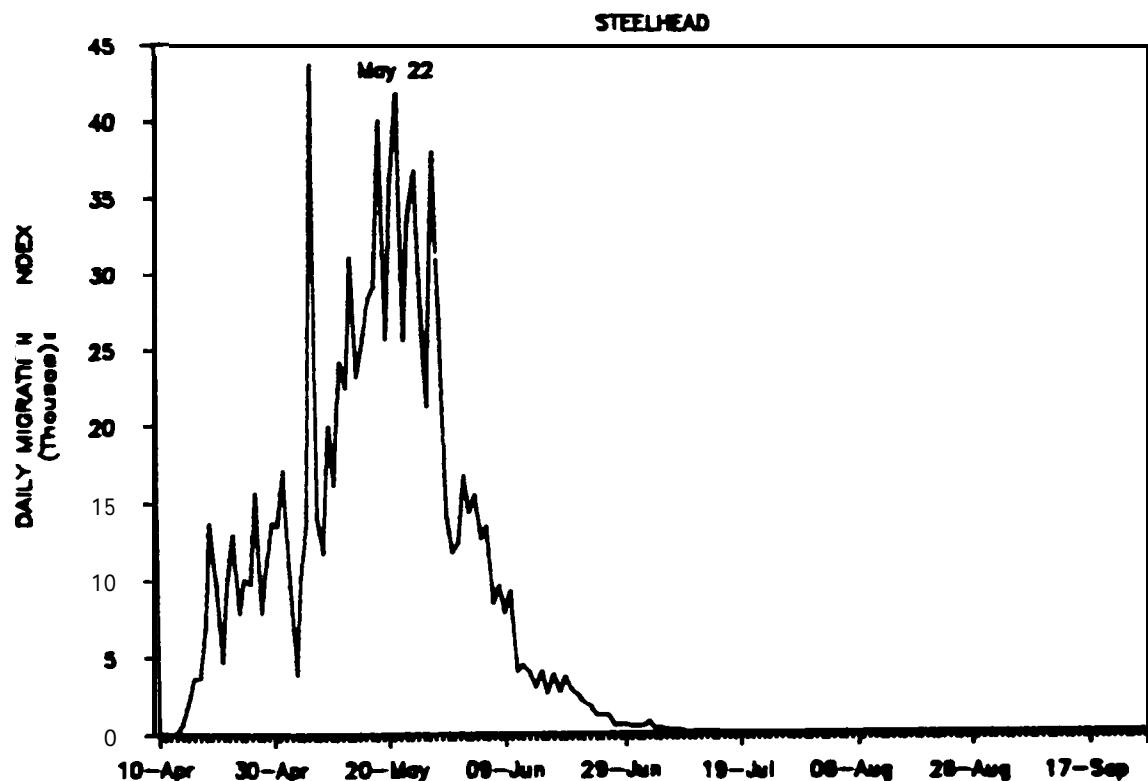


Figure 18
1984 Migration Timing: McNary Dam



Priest Rapids Hatchery made their last release of fall chinook which totaled 3.5 million fish. These releases preceded the third peak by seven days.

Sockeye passage peaked at McNary on May 7, and then trailed off over an extended period into the middle of July (Figure 20). Coho passage was very brief and peaked on May 25 (Figure 21). This is to be expected since most coho above McNary Dam originate at Turtle Rock Hatchery (WDF) located above Rocky Reach Dam. Peak passage of both sockeye and coho occurred during the period of peak flow at McNary (Figure 6).

Table 15 provides the indices of passage for sockeye and coho at McNary Dam.

Passage of yearling chinook, steelhead and sockeye at McNary Dam extended for similar periods, ranging from 32 to 42 days (Table 16). This represents an appreciably shorter period of migration for yearling chinook as compared to Lower Granite Dam. Passage duration for the other species was similar at both facilities. Sub-yearling chinook passage at McNary was the longest (67 days), while coho passage was the shortest (16 days).

1984 Migration Timing: McNary Dam

SUB-YEARLING CHINOOK

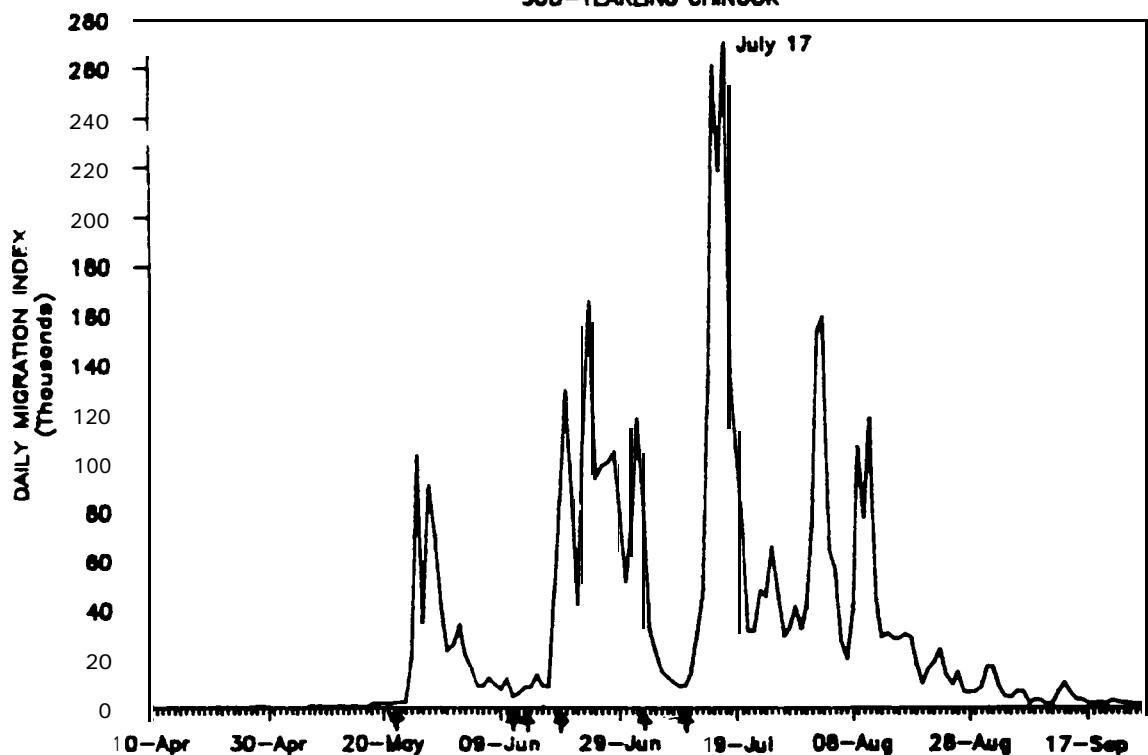


Figure 20
1984 Migration Timing: McNary Dam
SOCKEYE

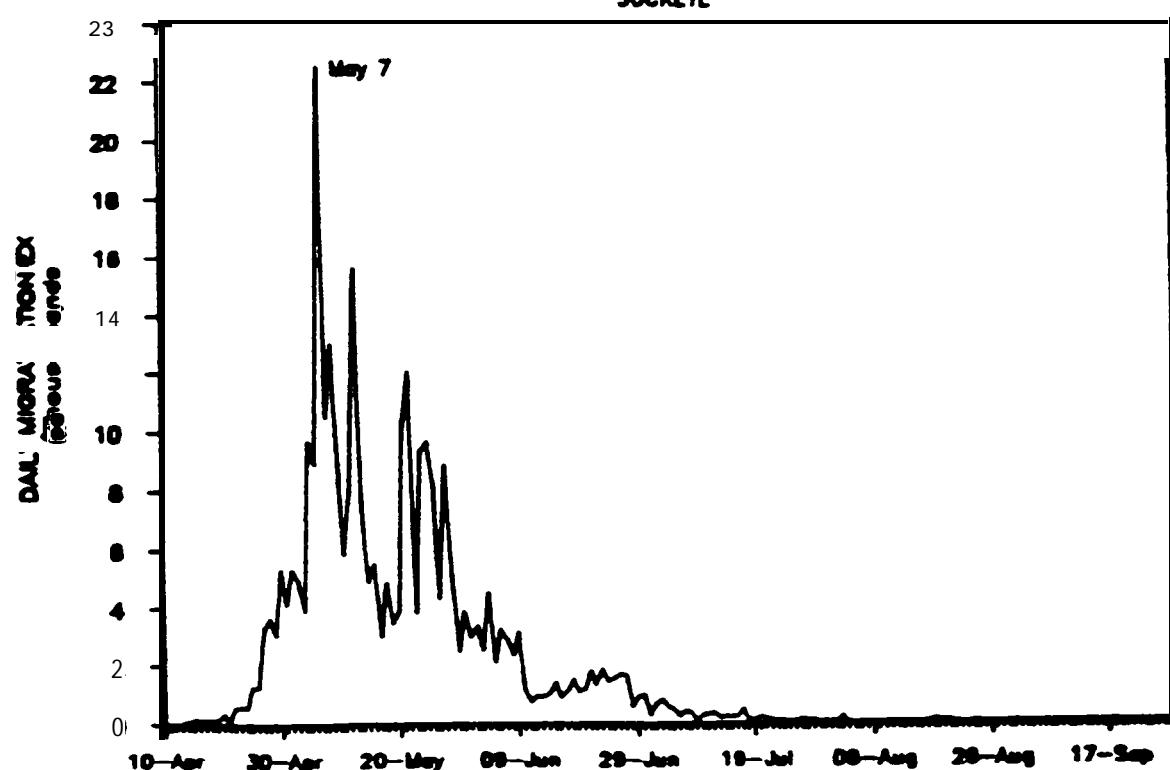


Table 16. Timing and duration of migration at McNary Dam, 1984.

SPECIES	10% PASSAGE	50% PASSAGE	90% PASSAGE	DURATION (DAYS)
YEARLING CHINOOK	APR 23	MAY 11	NAY 25	32
STEELHEAD	APR 27	NAY 19	JUN 05	39
SUB-YEARLING CHINOOK	JUN 07	JUL 15	AUG 11	65
SOCKEYE	MAY 02	NAY 16	JUN 13	42
COHO	MAY 19	MAY 28	JUN 04	18

John Day. Yearling chinook passage at John Day Dam peaked on May 15 (Figure 22), six days earlier than the peak at McNary Dam. However, median passage of yearling chinook at John Day was on May 27, or two days after the date of median yearling chinook passage at McNary. The time between these two median **passage** dates was two days less than the travel time of the five spring chinook mark groups through John Day Pool (Table 10). Spring chinook passage at John Day coincided with the period of highest flow (Figure 8), although spill at John Day was at a relative low point (less than 20% of the daily average) during much of the yearling chinook migration (Figure 9). Table 17 provides **passage** indices for yearling chinook at John Day Dam.

Steelhead passage at John Day peaked on May 23 (Figure 23). Median passage occurred on May 18, one **day** before the median **passage** date as McNary. This **was** similar to the results from some of the **steelhead** mark groups, and testifies to the rapid movement of steelhead through John Day pool. Steelhead **passage also** occurred at John Day Dam under high flow but comparatively low spill conditions (less than 20% daily average spill). **Passage** indices for steeihead at John Day are shown in Table 17.

1984 Migration Timing: McNary Dam
COHO

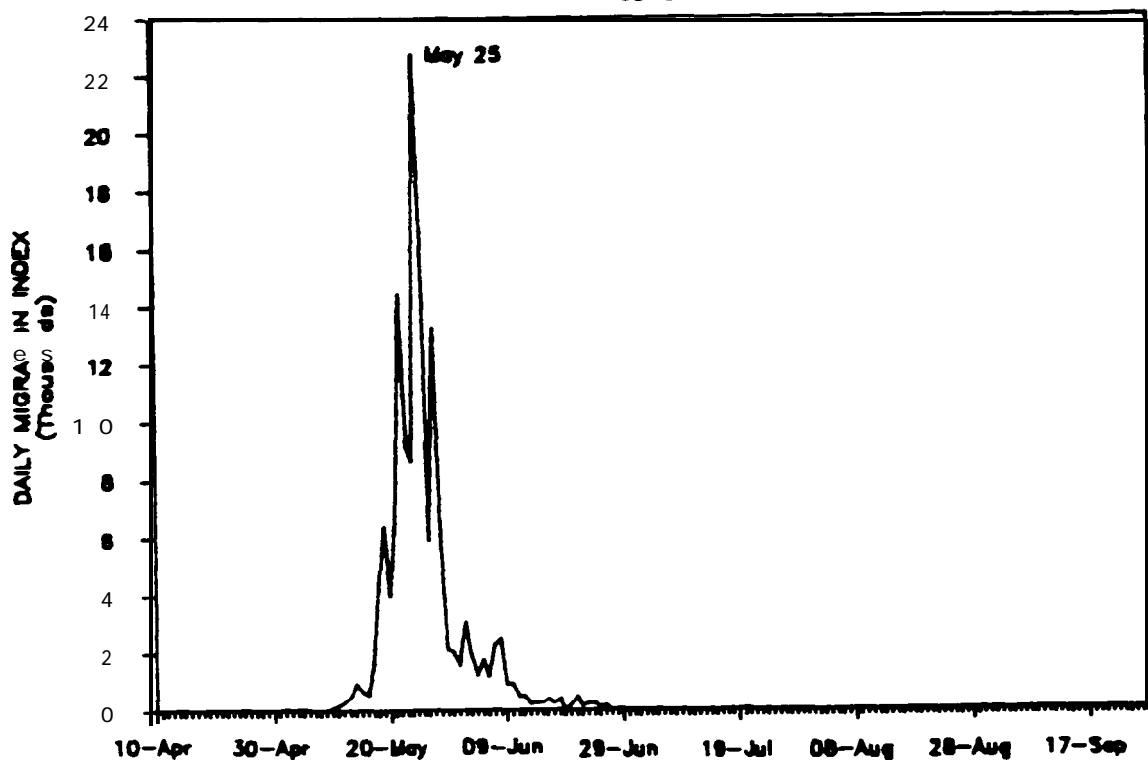


Figure 22
1984 Migration Timing: John Day Dam
YEARLING CHINOOK

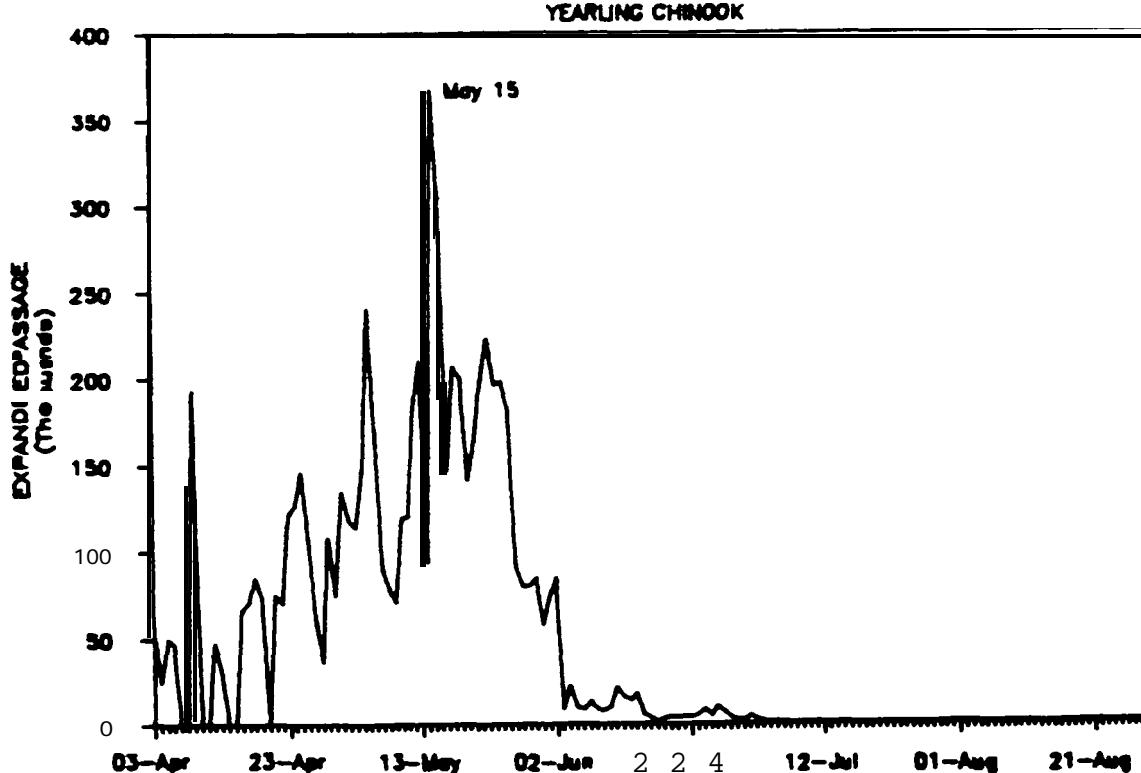


Table 17. Total passage indices at John Day Dam, 1984.

	Estimated Total Collection	Total Migration Index
Yearling Chinook	50,537	6,885,102
Steelhead	84,802	2,637,625
Sub-yearling Chin.	115,141	8,385,910
Sockeye	15,070	2,213,387
Coho	2,662	87,853

The multiple peaks in movement of sub-yearling summer/fall chinook at McNary were also seen at John Day (Figure 24). If, as was suggested above, the peaks at McNary correspond to specific hatchery releases at Ringold Ponds and Priest Rapids Hatchery, then the pattern at John Day further suggests that these groups maintained their cohesiveness and migrated relatively rapidly through John Day Pool. As was the case at McNary, the first two peaks in sub-yearling chinook passage at John Day took place under high flow and spii conditions, while the remaining migration passed during periods of lower flows (Figures 8 and 9).

Passage of sockeye at John Day Dam peaked on May 18, also the date of median passage (Figure 25). Median passage of sockeye at McNary Dam occurred two days previous. This time between median dates is six days shorter than the median travel time of the single sockeye mark group through this area (Table 12).

Coho passage peaked on May 28 at John Day (Figure 26), three days after the peak at McNary. Time between the median dates of passage at McNary and John Day dams was two days.

Figure 23
1984 Migration Timing: John Day Dam
STEELHEAD

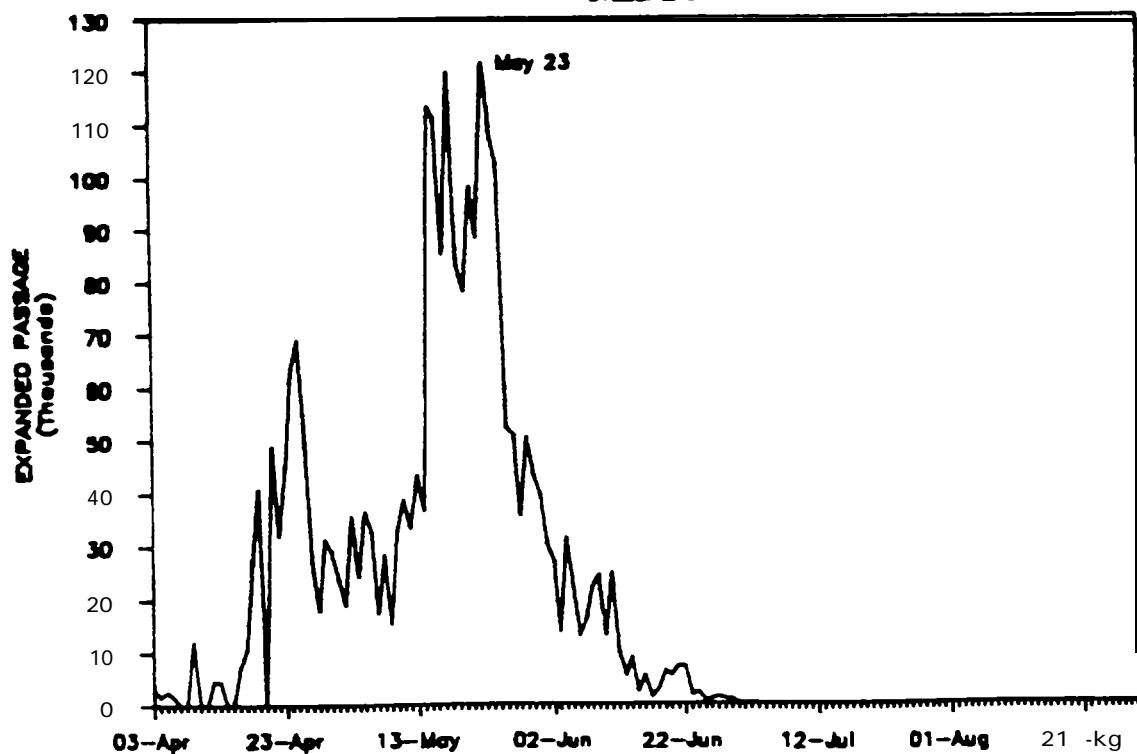


Figure 24
1984 Migration Timing: John Day Dam
SUB-YEARLING CHINOOK

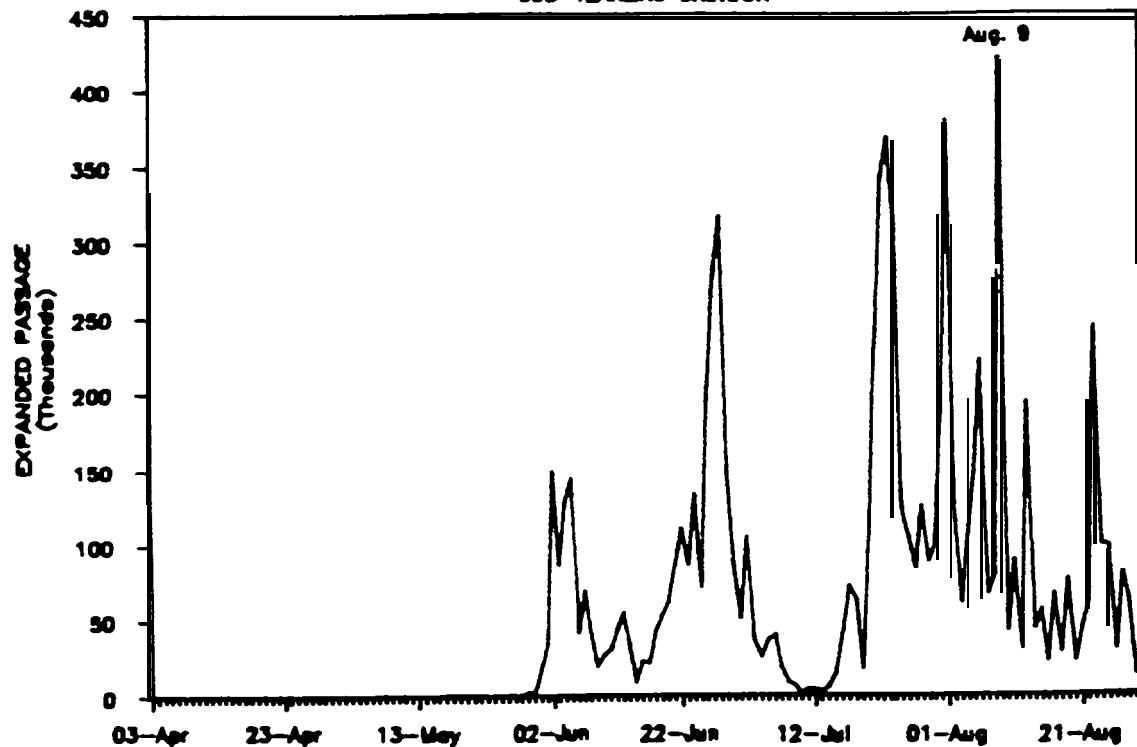


Figure 25
1984 Migration Timing: John Day Dam

SOCKEYE

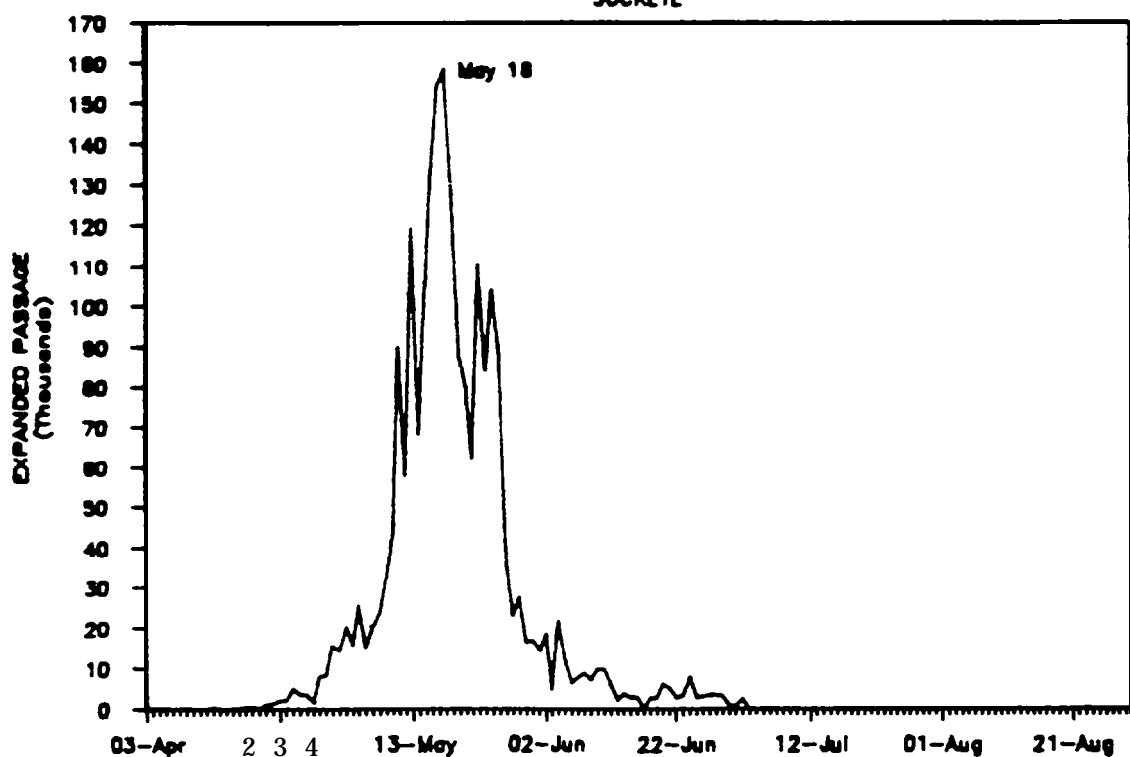
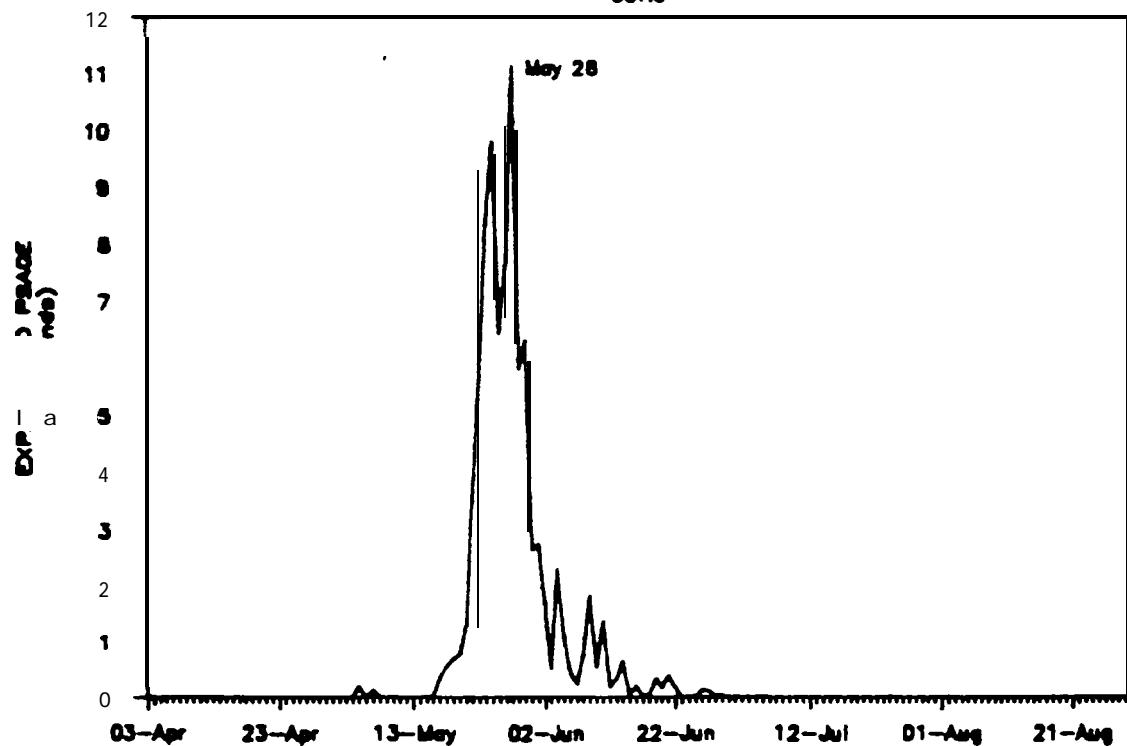


Figure 26
1984 Migration Timing: John Day Dam

COHO



Both sockeye and coho migrated during a period of high flow at John Day, but comparatively low spill (spill less than or equal to 20% daily average flow).

With the exception of sockeye, the duration of the migrations at John Day (Table 18) was very similar to those observed at McNary. The duration of the sockeye migration at John Day Dam, however, was less than half the duration of the migration at McNary Dam.

Table 18. Timing and duration of the migration past John Day Dam, 1984.

SPECIES	10% PASSAGE	50% PASSAGE	90% PASSAGE	DURATION (DAYS)
YEARLING CHINOOK	APR 18	MAY 13	NAY 27	39
STEELHEAD	APR 23	MAY 18	JUN 02	40
SUB-YEARLING CHINOOK	JUN 12	JUL 23	AUG 18	67
SOCKEYE	NAY 09	MAY 18	NAY 29	20
COHO	MAY 22	NAY 27	JUN 05	14

V. 1984 Hatchery Releases.

In 1984, approximately 15 million salmon and steelhead were released in the Snake River, 25 million in the mid-Columbia, and 35 million in the lower Columbia for a total release of 75 million fish (Table 19). This represents a 15% increase over 1983, and a 25% increase over 1982. The biggest increases in 1984 were in steelhead releases in the Snake (44% above 1983 levels and 15% increase over 1982), spring chinook releases in

the Snake (30% greater than in 1983 **and 67% more than 1982**), and bright **fall** chinook in the mid-Columbia (19% increase over 1983 levels; a 60% increase over 1982 levels).

A final listing of **1984** hatchery releases is provided in Appendix 2.

TABLE 19

SUMMARY OF FISH RELEASES BY SPECIES AND RELEASE AREA
FROM 1982 TO 1984

1984

<u>River Area</u>	<u>Spring¹</u> Chinook	<u>Summer</u> Chinook	<u>Fall Chinook.,</u>		<u>Coho</u>	<u>Steelhead</u>	<u>Total</u>
			<u>Brights</u>	<u>Tule²</u>			
Snake R.	8,054,425	356,673 ¹	427,191	0	0	6,214,760	15,053,049
Hid-Col. R.	6,129,744	1,240,865	15,548,324	0	517,100	1,422,329	24,858,362
Lover Col. R.	6,398,645	0	3,604,403	20,773,294	3,905,834	534,124	35,216,300
<u>TOTAL</u>	<u>20,582,814</u>	<u>1,597,538</u>	<u>19,579,918</u>	<u>20,773,294</u>	<u>4,422,934</u>	<u>8,171,213</u>	<u>75,127,711</u>

1983

Snakt R.	5,626,000	264,000	115,000	0	0	3,475,000	9,480,000
Mid-Col. R.	4,369,017	1,608,798	12,537,557	0	535,029	1,235,000	20,285,401
Lower Col. R.	4,743,230	0	2,370,249	21,200,000	5,385,004	447,000	34,145,483
<u>TOTAL</u>	<u>14,738,247</u>	<u>1,872,798</u>	<u>15,022,806</u>	<u>21,200,000</u>	<u>5,920,033</u>	<u>5,157,000</u>	<u>63,910,884</u>

1982

Snake R.	2,657,000	148,000	900,000	0	0	5,300,000	9,005,000
Hid-Col. R.	5,354,641	2,713,266	6,297,241	0	482,510	1,115,000	15,962,658
Lover Col. R.	5,556,645	0	0	21,200,000	4,603,437	352,000	31,712,082
<u>TOTAL</u>	<u>13,568,286</u>	<u>2,861,266</u>	<u>7,197,241</u>	<u>21,200,000</u>	<u>5,085,947</u>	<u>6,767,000</u>	<u>56,679,740</u>

¹ Includes 1983 brood year releases of spring and summer chinook.

² 1982 and 1983 Tule Fall Chinook numbers are estimated.

Note: 210,000 sockeye were released 6/84 by IDFG in Stanley and Alturas Lake (Snake River area).

VI. Conclusions.

a. Travel Time of Mark Groups

Travel time for groups of **salmon** and **steelhead** marked in 1984 is summarized in Table 20.

Snake River

1. The **Smolt** Monitoring Program in 1984 monitored the **travel** time of **marked** spring chinook, summer chinook, and steelhead from hatcheries in the upper Snake and **mid-**Columbia Rivers.
2. The travel time index between Lower Granite Dam and McNary Dam for five groups of marked yearling chinook **was** 10 days with a standard error of 1.86 days. Migration speed through the indexing area was 12.1 miles/day.
3. With the exception of one group from Dworshak Hatchery, marked **steelhead** were not recovered in sufficient number at any downstream recovery site to calculate travel time. This could have been the result of poor retention and detection of brands or poor survival.
4. The travel time index for one steelhead group between Lower Granite and **McNary** Dam was seven days for a speed of 20 miles/day.

Mid-Columbia

5. Travel time indexing was not done in the mid-Columbia in 1984 because of inconsistent **sampling** effort.
6. Travel time of marked yearling chinook from Winthrop Hatchery to McNary Dam was **26 days, for a speed of 10.8** miles/day. River-run yearling chinook marked and released below **Priest** Rapids Dam required **10 days to migrate to McNary** at an identical speed of **10.8** miles/day.
7. **Steelhead** reieased into the iower part of the **Methow** River required 16 days to migrate to McNary Dam, for a speed of **14.7 miles/day**. **Steelhead** released below Priest Rapids Dam required six days to migrate to McNary for a speed of 18.7 miles/day.
8. Sockeye marked and released at Priest Rapids Dam migrated to McNary Dam in 4.5 days reflecting a speed of 25.1 miles/day.

9. Summer chinook released from Wells Hatchery required 51 **days** to **migrate** to **McNary Dam** while fall chinook released from Priest Rapids Hatchery required 28 days. Speed of the two groups **was** 4.4 and 3.8 miles/day respectively.

Lower Columbia

10. Spring chinook from the Snake and mid-Columbia combined had a travel time through John Day pool of 3.8 days with a standard error of **1.30 days**. Migration speed of these fish was 21.7 miles/day, appreciably faster than the spring chinook migration rate through the upper areas.
11. Steelhead migrated through the John **Day** Pool at **a** high rate of speed. Median travel time of **12** mark groups averaged 1.25 **days** and a standard error of 1.86. This equates to **a** speed of **61.1 miles/day**.
12. One group of sockeye from the mid-Columbia marking **was** recovered in sufficient numbers at John Day to **calculate** travel time. This group **had** a median travel time through the John Day **Pool** of 8 days for a speed of 9.5 miles/day.

b. Migration Characteristics

Snake River

13. Migration characteristics were determined for spring chinook, summer chinook, fall chinook, **steelhead**, sockeye, and **coho** in the Snake and Lower Columbia. An acoustic index of fish **passage was** determined for Wells Dam in the mid-Columbia.
14. **Passage** of yearling chinook at Lower Granite Dam peaked on May 2 and the steelhead migration peaked on **May 15**. Duration of the migration (time between the 10% **and** 90% dates of migration) **was 51 and** 33 days respectively.
15. Sub-yearling chinook (classified by FTOT criteria) migrated past Lower Granite in two time periods around May 2 and June 18. Duration of the migration **was 66 days**.
16. Sockeye **passage** at Lower Granite was also bimodal with peak passage occurring **around May 25 and** June 13. Duration of the sockeye migration **was 42 days**. Coho were **sampled** in very low numbers (<50).

Mid-Columbia

17. **Passage** of fish at Weirs **Dam** occurred in at least two major periods around **May 2 and May 29**.

Lower Columbia

18. The peak period of yearling chinook passage at McNary occurred around May 7, while steelhead passage peaked around May 22. Duration of the migration was 32 days for yearling chinook and 39 days for steelhead.
19. Sub-yearling chinook showed four periods of peak migration at **McNary** Dam: May 26, June 24, July 17, and August 3. The first three closely followed large releases of fall chinook from **Ringold** Ponds and Priest Rapids Hatchery.
20. Sockeye passage peaked at McNary on May 7. Coho passage was very brief and peaked on May 25.
21. Yearling chinook passage at John Day peaked on May 15, while steelhead passage peaked on May 23. Duration of the migrations was similar to that at **McNary**.
22. Sub-yearling chinook showed several periods of passage at John Day similar to those at **McNary**. Sockeye passage peaked on May 18, and **coho** peaked on May 28.

c. 1984 Hatchery Releases

23. A total of 75.1 million salmon and steelhead were released into the Columbia River system above Bonneville Dam in 1984. This included 20.6 million spring chinook, 1.6 million summer chinook, 19.6 million bright fall chinook, **20.8** million tule fall chinook, 4.4 million **coho**, and 8.2 million steelhead.

Table 20. Summary of travel time of marked salmon and steelhead in the Columbia basin, 1984.

Species/Race	Reach	Travel Time (days)	n	Standard Error	Speed (miles/day)
Yearling Chinook	Lower Granite to McNary Dam*	10	5	1.53	12.1
Steelhead	Lower Granite to McNary Dam*	7	1		20.0
Yearling Chinook	Winthrop Hatch. to McNary Dam	26	1		10.8
Yearling Chinook	Priest R. Dam to McNary Dam	10	3		10.8
Sub-Year. Chinook	Wells Hatchery to McNary Dam	51	1		4.4
Sub-Year. Chinook	Priest R. Hatch. to McNary Dam	28	1		3.8
Steelhead	Methow R. to McNary Dam	16	2		14.7
Steelhead	Priest R. Dam to McNary Dam	6	6		18.7
Yearling Chinook	McNary Dam to John Day Dam*	3.8	5	1.30	21.7
Steelhead	McNary Dam to John Day Dam*	1.2	12	2.33	61.1
Sockeye	McNary Dam to John Day Dam*	8	1		9.5

*Smolt travel time indexing area Standard error calculated only within these areas.

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Appendix I:

1984 Mark Recoveries

A. LOWER GRANITE DAM

EFFECTIVE DATES: 4/1/84 THRU 7/26/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LD J 1 MARKED CHINOOK 1'S RELEASED AT SALMON R. SF CN 840405 - E40411 BY IDFG			ADCLIP
840424	1	7	0
840425	0	0	
840426	2	11	0
840427	6	37	0
840428	7	54	0
840429	2	15	0
840430	0	0	
840501	4	35	0
840502	18	180	0
840503	0	0	
840504	0	0	
840505	4	59	0
840506	8	94	0
840507	4	100	0
840508	1	25	0
840509	1	27	0
840510	2	48	0
840511	2	50	0
840512	5	125	0
840513	8	267	0
840514	7	233	0
840515	7	221	0
840516	2	50	0
840517	17	352	0
840518	7	145	0
840519	3	69	0
840520	3	75	0
840521	3	40	0
840522	11	138	0
840523	4	86	0
840524	8	89	0
840525	7	79	0
840526	3	32	0
840527	9	63	0
840528	5	38	0
840529	7	55	0
840530	5	39	0
840531	1	7	0
840601	1	7	0
840602	0	0	
840603	3	19	0
840604	2	14	0
840605	1	7	0
840606	0	0	
840607	2	16	0
840608	1	8	0

EFFECTIVE DATES: 4/1/84 THRU 7/26/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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LD J 1 MARKED CHINOOK 1'S RELEASED AT SALMON R. SF CN 840409 - E40411
BY IDFG ADCLIP

			(CONT)
840609	0	0	
840610	1	8	0
840611	0	0	
840612	1	8	0
TOTALS	196	3,032	0

LD J 3 MARKED CHINOOK 1'S RELEASED AT SAWTOOTH HAT CN 840327 - E40329
BY IDFG ADCLIP

840413	1	10	0
840419	2	15	0
840420	0	0	
840421	5	41	0
840422	2	16	0
840423	4	29	0
840424	3	21	0
840425	5	35	0
840426	15	80	0
840427	12	75	0
840428	20	154	0
840429	22	163	0
840430	14	122	0
840501	11	97	0
840502	29	290	0
840503	0	0	
840504	1	27	0
840505	7	102	0
840506	17	200	0
840507	7	175	0
840508	2	50	0
840509	2	55	0
840510	3	72	0
840511	3	75	0
840512	10	250	0
840513	3	100	0
840514	5	167	0
840515	6	189	0
840516	4	100	0
840517	4	83	0
840518	0	0	
840519	4	92	0
840520	1	25	0
840521	0	0	
840522	1	13	0

EFFECTIVE DATES: 4/1/84 THRU 7/26/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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LD J 3 MARKED CHINOOK 1'S RELEASED AT SAWTOOTH HAT CN 840327 - 840329
BY IDFG ADCLIP

840523	2	43	(CONT)
840524	0	0	0
840525	2	23	0
840526	0	0	0
840527	0	0	0
840528	1	8	0
TOTALS	230	2997	0

RD J 1 MARKED CHINOOK 1'S RELEASED AT HELLS CANYON CN 840320 - 840321
BY IDFG ADCLIP

840401	3	100	0
840402	0	0	0
840403	4	133	0
840404	0	0	0
840405	4	133	0
840406	16	166	0
840407	10	100	0
840408	12	120	0
840409	19	190	0
840410	8	73	0
840411	19	198	0
840412	21	210	0
840413	9	92	0
840414	13	133	0
840415	16	160	0
840416	27	196	0
840417	40	235	0
840418	35	340	0
840419	45	346	0
840420	44	343	0
840421	26	214	0
840422	18	144	0
840423	30	220	0
840424	21	147	0
840425	16	112	0
840426	20	107	0
840427	34	212	0
840428	9	69	0
840429	9	67	0
840430	4	35	0
840501	9	79	0
840502	7	70	0

EFFECTIVE DATES: 4/1/84 THRU 7/26/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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RD J 1 MARKED CHINOOK 1'S RELEASED AT HELLS CANYON CN 840320 - 840321
BY IDFG ADCLIP

			(CONT)
840503	3	90	0
840504	0	0	0
840505	1	15	0
840506	1	12	0
840507	2	50	0
840508	0	0	0
840509	0	0	0
840510	0	0	0
840511	0	0	0
840512	0	0	0
840513	0	0	0
840514	0	0	0
840515	1	32	0
840516	1	25	0
TOTALS	557	4,966	0

RD J 3 MARKED CHINOOK 1'S RELEASED AT RAPID R. HAT ON 840321 - 840401
BY IDFG

840410	1	9	0
840411	0	0	0
840412	1	10	0
840413	0	0	0
840414	3	31	0
840415	1	10	0
840416	1	7	0
840417	4	24	0
840418	1	10	0
840419	3	23	0
840420	9	70	0
840421	15	123	0
840422	8	64	0
840423	13	95	0
840424	14	98	0
840425	18	126	0
840426	41	220	0
840427	33	206	0
840428	23	177	0
840429	26	193	0
840430	22	191	0
840501	20	176	0
840502	23	230	0
840503	3	90	0

EFFECTIVE DATES: 4/1/84 THRU 7/26/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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RD J 3 MARKED CHINOOK 1# S RELEASED AT RAPID R. HAT CN 840321 - E40401
BY IDFG

			(CONT)
840504	2	55	0
840505	2	29	0
840506	4	47	0
840507	0	0	0
840508	3	75	0
840509	0	0	0
840510	2	48	0
840511	0	0	0
840512	3	75	0
840513	0	0	0
840514	0	0	0
840515	1	32	0
840516	0	0	0
840517	0	0	0
840518	0	0	0
840519	2	46	0
TOTALS	302	2,590	0

LA SU 2 MARKED CHINOOK 1# S RELEASED AT RED R.
BY IDFG ON 831011 - 831014
ADCLIP

840411	1	10	0
840412	0	0	0
840413	0	0	0
840414	0	0	0
840415	0	0	0
840416	0	0	0
840417	0	0	0
840418	1	10	0
840419	2	15	0
840420	2	18	0
840421	0	0	0
840422	0	0	0
840423	1	7	0
840424	0	0	0
840425	0	0	0
840426	2	11	0
840427	1	6	0
840428	1	8	0
840429	1	7	0
840430	0	0	0
840501	1	9	0
840502	4	40	0

EFFECTIVE DATES: 4/1/84 THRU 7/26/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LA SU 2 MARKED CHINOOK 1'S	RELEASED AT RED R.	CN 831011 - 831014	
	BY IDFG		ADCLIP

(CONT)

840503	1	30	0
840504	0	0	
840505	0	0	
840506	1	12	0
840507	1	25	0
840508	2	50	0
840509	0	0	
840510	0	0	
840511	0	0	
840512	0	0	
840513	0	0	
840514	1	33	0
840515	2	63	0
840516	1	25	0
840517	0	0	
840518	1	21	0
840519	0	0	
840520	0	0	
840521	0	0	
840522	0	0	
840523	0	0	
840524	0	0	
840525	1	11	0
840526	0	0	
840527	2	14	0
840528	0	0	
840529	1	8	0
840530	0	0	
840531	0	0	
840601	0	0	
840602	0	0	
840603	0	0	
840604	1	7	0
840605	0	0	
840606	0	0	
840607	0	0	
840608	0	0	
840609	0	0	
840610	0	0	
840611	0	0	
840612	0	0	
840613	1	9	0
840614	0	0	
840615	0	0	
840616	0	0	
840617	0	0	

EFFECTIVE DATES: 4/1/84 THRU 7/26/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
840618	0	0	
840619	0	0	
840620	0	0	
840621	1	7	0
840622	0	0	
840623	0	0	
840624	1	7	0
TOTALS	35	461	0

LA SU 4 MARKED CHINOOK 1" S RELEASED AT RED R.
BY ICFGCN 840416 - 840416
ADCLIP

840417	1	6	0
840418	0	0	
840419	0	0	
840420	0	0	
840421	0	0	
840422	0	0	
840423	0	0	
840424	0	0	
840425	1	7	0
840426	0	0	
840427	0	0	
840428	2	15	0
840429	0	0	
840431	0	0	
840501	0	0	
840502	0	0	
840503	0	0	
840504	0	0	
840505	1	15	0
840506	3	35	0
840507	3	75	0
840508	1	25	0
840509	1	27	0
840510	0	0	
840511	1	25	0
840512	1	25	0
840513	1	33	0
840514	2	67	0
840515	5	158	0
840516	0	0	
840517	1	21	0
840518	2	41	0
840519	1	23	0
840520	2	50	0
840521	0	0	
840522	2	25	0

EFFECTIVE DATES: 4/1/84 THRU 7/26/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LA SU 4 MARKED CHINOOK 1'S	RELEASED AT RED R. BY IDFG	ON 840416 - 840416 ADCLIP	
(CONT)			
840523	2	43	0
840524	0	0	0
840525	1	11	0
840526	0	0	0
840527	1	7	0
840528	2	15	0
840529	2	16	0
840530	0	0	0
840531	0	0	0
840601	2	14	0
840602	1	6	0
840603	1	6	0
840604	0	0	0
840605	0	0	0
840606	1	8	0
840607	0	0	0
840608	1	8	0
840609	0	0	0
840610	0	0	0
840611	0	0	0
840612	0	0	0
840613	0	0	0
840614	1	8	0
840615	0	0	0
840616	0	0	0
840617	0	0	0
840618	1	7	0
840619	0	0	0
840620	0	0	0
840621	0	0	0
840622	0	0	0
840623	0	0	0
840624	0	0	0
840625	1	8	0
TOTALS	43	330	0

EFFECTIVE DATES: 4/1/84 THRU 7/26/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LA J 1 MARKED STEELHEAD	RELEASED AT DECKER FLAT	CN 840416 - 840417	ADCLIP
	BY IDFG		
840510	1	24	0
840511	0	0	
840512	0	0	
840513	0	0	
840514	0	0	
840515	1	32	0
840516	0	0	
840517	0	0	
840518	0	0	
840519	0	0	
840520	1	25	0
840521	0	0	
840522	0	0	
840523	0	0	
840524	0	0	
840525	0	0	
840526	1	11	0
840527	0	0	
840528	1	8	0
840529	0	0	
840530	0	0	
840531	0	0	
840601	0	0	
840602	0	0	
840603	1	6	0
840604	0	0	
840605	2	15	0
840606	0	0	
840607	0	0	
840608	0	0	
840609	0	0	
840610	0	0	
840611	0	0	
840612	0	0	
840613	0	0	
840614	0	0	
840615	0	0	
840615	0	0	
840617	0	0	
840618	1	7	0
TOTALS	9	128	0

EFFECTIVE DATES: 4/1/84 THRU 7/26/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LA J 3 MARKED STEELHEAD	RELEASED AT DECKER FLAT BY IDFG	CN 840416 - 840417 ADCLIP	
840522	1	13	0
840523	0	0	
840524	1	11	0
840525	0	0	
840526	0	0	
840527	0	0	
840528	1	8	0
TOTALS	3	32	0
RA J 1 MARKED STEELHEAD	RELEASED AT DWORSHAK HAT BY IDFG	CN 840504 -	
840508	6	150	0
840509	22	600	0
840510	10	240	0
840511	4	100	0
840512	9	225	0
840513	7	233	0
840514	10	333	0
840515	6	189	0
840516	5	125	0
840517	6	124	0
840518	3	62	0
840519	1	23	0
840520	1	25	0
840521	2	27	0
840522	3	38	0
840523	3	64	0
840524	3	33	0
840525	2	23	0
840526	3	32	0
840527	2	14	0
840528	0	0	
840529	4	31	0
840530	2	16	0
840531	0	0	
840601	0	0	
840602	1	6	0
840603	1	6	0
840604	0	0	
840605	0	0	
840606	0	0	
840607	1	8	0
TOTALS	117	2,727	0

EFFECTIVE DATES: 4/1/84 THRU 7/26/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
RA J 3 MARKED STEELHEAD	RELEASED AT HELL'S CANYON CN 340430 - BY IDFG		ADCLIP
840511	1	25	0
840512	0	0	
840513	0	0	
840514	0	0	
840515	0	0	
840515	1	25	0
840517	1	21	0
840518	0	0	
840519	0	0	
840520	0	0	
840521	1	13	0
840522	1	13	0
TOTALS	5	97	0

Appendix I:

1984 Mark Recoveries

B. McNARY DAM

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LA IM 1 MARKED SOCKEYE	RELEASED AT PRIEST RAP. ON 840516 - E40525 BY NMFS ADCLIP		

840520	1	10	0
840521	5	50	0
840522	6	60	0
840523	1	10	0
840524	5	50	0
840525	5	50	0
840526	7	70	0
840527	3	30	0
840528	19	190	0
840529	7	70	0
840530	1	20	0
TOTALS	60	610	0

LA IR 1 MARKED SOCKEYE	RELEASED AT PRIEST RAP. ON 840506 - E40515 BY NMFS ADCLIP		
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840510	3	30	0
840511	3	30	0
840512	6	60	0
840513	21	210	0
840514	6	60	0
840515	4	40	0
840516	2	20	0
840517	5	50	0
840518	5	50	0
840519	5	80	0
840520	0	0	0
840521	4	40	0
840522	3	30	0
840523	0	0	0
840524	0	0	0
840525	0	0	0
840526	0	0	0
840527	0	0	0
840528	1	10	0
TOTALS	71	710	0

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LA IU 1 MARKED SOCKEYE	RELEASED AT PRIEST RAP. BY NMFS	CN 840501 - 840505	ADCLIP
840504	1	20	0
840505	6	60	0
840506	3	80	0
840507	16	175	0
840508	14	140	0
840509	9	90	0
840510	0	0	
840511	0	0	
840512	1	10	0
840513	2	20	0
840514	0	0	
840515	1	10	0
840516	0	0	
840517	0	0	
840518	0	0	
840519	0	0	
840520	0	0	
840521	0	0	
840522	0	0	
840523	0	0	
840524	0	0	
840525	0	0	
840526	0	0	
840527	0	0	
840528	0	0	
840529	0	0	
840530	0	0	
840531	0	0	
840601	0	0	
840602	1	10	0
TOTALS	59	615	0

LA IU 3 MARKED SOCKEYE

RELEASED AT PRIEST RAP. BY NMFS CN 840526 - 840606
ADCLIP

840530	1	20	0
840531	0	0	0
840601	1	10	0
840602	8	80	0
840603	4	40	0
840604	2	20	0
840605	1	10	0
840606	1	10	0

EFFECTIVE DATES: 4/10/84 THRU 9/26/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LA TU 3 MARKED SOCKEYE	RELEASED AT PRIEST RAP. ON 840526 - 840606 BY NMFS		ADCLIP
			(CONT)
840607	3	30	0
840603	3	30	0
840609	4	40	0
840610	1	10	0
840611	1	10	0
TOTALS	30	310	0

BRAND RECAPTURE SUMMARY

MCNARY DAM

PAGE 4

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LA IM 1 MARKED COHO	RELEASED AT PRIEST RAP. ON 840516 - 840525 BY NMFS		
840520	1	10	0
840521	0	0	
840522	0	0	
840523	0	0	
840524	0	0	
840525	1	10	0
840526	1	10	0
TOTALS	3	30	0
LA IR 1 MARKED COHO	RELEASED AT PRIEST RAP. ON 840506 - 840515 BY NMFS		
840514	1	10	0
840515	1	10	0
840516	0	0	
840517	1	10	0
840518	2	20	0
840519	1	10	0
840520	0	0	
840521	0	0	
840522	0	0	
840523	0	0	
840524	0	0	
840525	1	10	0
TOTALS	7	70	0
LA IV 3 MARKED COHO	RELEASED AT PRIEST RAP. ON 840526 - 840606 BY NMFS		
840601	2	20	0
TOTALS	2	20	0

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LA H 1 MARKED CHINOOK 1'S RELEASED AT PROSSER RM48 CN 840417 - BY YAKIMA VC			
840525	1	10	53
TOTALS	1	10	53
RA H 1 MARKED CHINOOK 1'S RELEASED AT PROSSER RM48 CN 850415 - BY YAKIMA DC			
840520	1	10	45
TOTALS	1	10	45
RA H 2 MARKED CHINOOK 1'S RELEASED AT PROSSER RM48 CN 840417 - BY YAKIMA DC			
840511	1	10	37
840512	0	0	
840513	1	10	45
TOTALS	2	20	80
LA IM 1 MARKED CHINOOK 1'S RELEASED AT PRIEST RAP. CN 840516 - 840525 BY NMFS ADDLIP			
840520	8	80	362
840521	60	600	2,381
840522	43	430	2,431
840523	17	170	841
840524	9	90	391
840525	14	140	736
840526	27	270	1,267
840527	19	190	753
840528	46	460	1,556
840529	28	280	1,320
840530	7	140	612
840531	1	22	115
840601	0	0	
840602	1	10	39
840603	0	0	
840604	0	0	
840605	0	0	

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
840606	0	0	
840607	0	0	
840608	0	0	
840609	0	0	
840610	0	0	
840611	0	0	
840612	0	0	
840613	1	10	45
TOTALS	281	2,892	12,849

LA IN 1 MARKED CHINOOK 10'S RELEASED AT PRIEST RAP. CN 840506 - 840515
BY NMFS ADCLIP

840511	1	10	37
840512	6	60	253
840513	21	210	909
840514	21	210	861
840515	15	150	786
840516	19	190	1,045
840517	24	240	1,297
840518	32	320	1,468
840519	27	270	1,091
840520	27	270	1,221
840521	41	410	1,627
840522	19	190	1,074
840523	7	70	346
840524	4	40	174
840525	4	40	210
840526	2	20	94
840527	0	0	
840528	1	10	34
840529	1	10	47
840530	0	0	
840531	0	0	
840601	1	10	57
840602	2	20	75
840603	0	0	
840604	2	20	90
840605	1	10	44
840606	0	0	
840607	0	0	
840608	0	0	
840609	0	0	
840610	1	10	49
TOTALS	279	2,790	12,892

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LA IU 1 MARKED CHINOOK 1'S RELEASED AT PRIEST RAP. CN 840501 - E40505 BY NMFS ADCCLIP			
840506	5	50	175
840507	12	131	339
840503	8	80	294
840509	19	190	549
840510	24	240	1,071
840511	13	130	476
840512	13	130	549
840513	11	110	476
840514	4	40	164
840515	11	110	577
840516	6	60	330
840517	2	20	108
840518	5	50	229
840519	1	10	40
840520	2	20	90
840521	3	30	119
840522	5	50	283
840523	1	10	49
840526	2	20	87
840525	2	20	105
840526	0	0	
840527	2	20	79
840528	0	0	
840529	0	0	
840530	0	0	
840531	0	0	
840601	1	10	57
840602	0	0	
840603	0	0	
840604	0	0	
840605	0	0	
840606	0	0	
840607	0	0	
840608	0	0	
840609	0	0	
840610	1	10	49
TOTALS	153	1,541	6,398

LA IU 3 MARKED CHINOOK 1'S RELEASED AT PRIEST RAP. CN 840526 - E40606
BY NMFS ADCCLIP

840531	2	43	231
840601	2	20	114

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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LA TU 3 MARKED CHINOOK 1'S RELEASED AT PRIEST RAP. CN 840526 - 840606
BY NMFS ADCLIP

(CONT)

840602	3	30	117
840603	4	40	158
840604	5	50	224
840605	0	0	
840606	1	10	44
840607	1	10	48
840608	5	50	222
840609	5	50	213
840610	5	50	244
840611	1	10	34
840612	0	0	
840613	0	0	
840614	1	10	41
TOTALS	35	373	1,690

LA TZ 1 MARKED CHINOOK 1'S RELEASED AT WINTHROP NFH CN 840423 -
BY USFWS

840505	4	40	135
840506	1	10	36
840507	8	87	226
840508	1	10	37
840509	1	10	34
840510	13	130	580
840511	4	40	147
840512	7	70	296
840513	12	120	519
840514	3	80	328
840515	9	90	472
840516	2	20	110
840517	3	30	162
840518	4	40	184
840519	9	90	364
840520	0	80	362
840521	24	240	952
840522	16	160	905
840523	3	30	143
840524	2	20	87
840525	5	50	263
840526	4	40	183
840527	2	20	79
840528	5	50	169
840529	1	10	47

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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LA 12 1 MARKED CHINOOK 1'S RELEASED AT WINTHROP NFH CN 840423 -
BY USFWS

(CONT)

840530	0	0	
840531	0	0	
840601	0	0	
840602	1	10	39
840603	0	0	
840604	0	0	
840605	0	0	
840606	0	0	
840607	0	0	
840608	0	0	
840609	0	0	
840610	0	0	
840611	1	10	34
840612	0	0	
840613	0	0	
840614	0	0	
840615	0	0	
840616	0	0	
840617	1	20	100
840618	0	0	
840619	0	0	
840620	0	0	
840621	0	0	
840622	0	0	
840623	0	0	
840624	0	0	
840625	0	0	
840626	0	0	
840627	0	0	
840628	0	0	
840629	1	20	97
TOTALS	160	1627	7100

LC J 1 MARKED CHINOOK 1'S RELEASED AT SALMON R. SF CN 840409 - 840411
BY IDFG ADCLIP

840507	1	11	28
840503	0	0	
840509	0	0	
840510	1	10	45
840511	1	10	37
840512	1	10	42
840513	3	30	130

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LD J 1 MARKED CHINOOK 1" S	RELEASED AT SALMON R. SF CN 840405 - E40411		
	BY IDFG		ADCLIP

(CONT)

840514	2	20	82
840515	5	50	262
840516	2	20	110
840517	3	30	162
840518	5	30	138
840519	11	110	444
840520	6	60	271
840521	14	140	556
840522	11	110	622
840523	10	100	494
840524	7	70	304
840525	9	90	473
840526	7	70	329
840527	7	70	277
840528	12	120	406
840529	8	80	377
840530	3	60	262
840531	1	22	115
840601	5	50	285
840602	3	30	117
840603	3	30	119
840604	3	30	135
840605	3	30	132
840606	2	20	89
840607	0	0	
840608	1	10	44
840609	1	10	43
840610	1	10	49
840611	0	0	
840612	0	0	
840613	1	10	45
840614	1	10	41
840615	1	10	41
 TOTALS	 153	 1,573	 7,106

LD J 3 MARKED CHINOOK 1" S	RELEASED AT SAWTOOTH HAT CN 840327 - E40329	
	BY IDFG	ADCLIP

840429	1	10	35
840430	0	0	
840501	1	10	38
840502	3	30	93
840503	0	0	

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
840504	0	0	
840505	0	0	
840506	3	30	107
840507	4	44	113
840508	4	40	147
840509	0	0	
840510	2	20	29
840511	2	20	73
840512	9	90	380
840513	11	110	476
840514	11	110	451
840515	6	60	315
840516	10	100	550
840517	5	50	270
840518	9	90	413
840519	17	170	687
840520	7	70	316
840521	16	160	635
840522	5	50	283
840523	9	90	445
840524	6	60	260
840525	1	10	53
840526	5	50	235
840527	3	30	119
840528	1	10	34
840529	1	10	47
840530	0	0	
840531	1	22	115
840601	2	20	114
840602	0	0	
840603	0	0	
840604	1	10	45
TOTALS	156	1,576	6,943

RD J 1 MARKED CHINOOK 1'S RELEASED AT HELLS CANYON ON 840320 - E40321
BY IDFG ADCLIP

840413	1	10	35
840414	5	50	141
840415	9	90	315
840416	5	50	180
840417	2	20	71
840418	19	190	819
840419	21	210	830
840420	14	240	977
840421	12	120	577
840422	29	290	1,259

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
RD J 1 MARKED CHINOOK 1'S RELEASED AT HELLS CANYON ON 840320 - 840321 BY IDFG ADCLIP			

(CONT)

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
840423	32	320	1,360
840424	31	310	1,299
840425	61	610	2,512
840426	50	500	2,056
840427	31	310	1,255
840428	33	330	1,407
840429	35	350	1,209
840430	62	620	2,293
840501	43	430	1,635
840502	53	530	1,726
840503	19	326	1,275
840504	7	140	465
840505	13	130	439
840506	14	140	499
840507	18	196	508
840508	4	40	147
840509	7	70	239
840510	5	50	223
840511	2	20	73
840512	5	50	211
840513	6	60	260
840514	1	10	41
840515	1	10	52
840516	2	20	110
840517	0	0	
840518	0	0	
840519	1	10	40
TOTALS	653	6,852	26,538

RD J 3 MARKED CHINOOK 1'S RELEASED AT RAPID F. HAT CN 840321 - 840401
BY IDFG

840414	1	10	28
840415	0	0	
840416	0	0	
840417	0	0	
840418	1	10	43
840419	0	0	
840420	0	0	
840421	0	0	
840422	0	0	
840423	1	10	42
840424	1	10	42

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
RD J 3 MARKED CHINOOK 1'S	RELEASED AT RAPID R. HAT CN 840321 - 840401		
	BY IDFG		

(CONT)

840425	1	10	41
840426	3	30	123
840427	2	20	81
840428	2	20	85
840429	4	40	136
840430	10	100	370
840501	9	90	342
840502	25	250	814
840503	6	103	403
840504	8	160	532
840505	18	180	608
840506	20	200	712
840507	24	262	577
840508	16	180	662
840509	18	180	615
840510	16	160	714
840511	11	110	403
840512	9	90	380
840513	15	150	649
840514	11	110	451
840515	9	90	472
840516	5	50	275
840517	2	20	108
840518	3	30	138
840519	1	10	40
840520	0	0	
840521	2	20	79
840522	3	30	170
840523	0	0	
840524	1	10	43
840525	2	20	105
TOTALS	262	2,765	10,385

LA SU 2 MARKED CHINOOK 1'S	RELEASED AT RED R.	CN 831011 - 831014
BY IDFG		ADCLIP

840421	2	20	87
840423	0	0	
840424	0	0	
840425	3	30	124
840426	0	0	
840427	0	0	
840428	0	0	

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
840429	0	0	
840430	0	0	
840501	0	0	
840502	1	10	33
840503	0	0	
840504	0	0	
840505	1	10	34
840506	3	30	107
840507	1	11	28
840508	0	0	
840509	1	10	34
840510	1	10	45
840511	2	20	73
840512	1	10	42
840513	3	30	130
840514	2	20	82
840515	1	10	52
840516	0	0	
840517	0	0	
840518	1	10	46
840519	0	0	
840520	2	20	90
840521	1	10	40
840522	4	40	226
840523	0	0	
840524	1	10	45
840525	0	0	
840526	1	10	47
840527	0	0	
840528	0	0	
840529	1	10	47
840530	0	0	
840531	0	0	
840601	0	0	
840602	0	0	
840603	0	0	
840604	0	0	
840605	0	0	
840606	0	0	
840607	1	10	48
TOTALS	34	341	1456

LA SU 4 MARKED CHINOOK 1'S RELEASED AT RED R.
BY IDFGCN 840416 - 840416
ADCLIP

840427	1	10	40
840428	0	0	
840429	1	10	35

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LA SU 4 MARKED CHINOOK 1'S	RELEASED AT RED R.		CN 840416 - 840416
	BY IDFG		ADCLIP

(CONT)

840430	0	0	
840501	0	0	
840502	0	0	
840503	0	0	
840504	0	0	
840505	1	10	34
840506	0	0	
840507	0	0	
840508	0	0	
840509	2	20	68
840510	0	0	
840511	0	0	
840512	1	10	42
840513	0	0	
840514	1	10	41
840515	1	10	52
840516	0	0	
840517	3	30	162
840518	2	20	92
840519	1	10	40
840520	1	10	45
840521	2	20	79
840522	7	70	396
840523	2	20	99
840524	2	20	87
840525	4	40	210
840526	3	30	141
840527	0	0	
840528	6	60	203
840529	5	50	236
840530	2	40	175
840531	0	0	
840601	3	30	171
840602	0	0	
840603	1	10	40
840604	0	0	
840605	1	10	44
840606	0	0	
840607	0	0	
840608	0	0	
840609	2	20	85
840610	0	0	
840611	0	0	
840612	0	0	
840613	0	0	
840614	2	20	83

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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LA SU 4 MARKED CHINOOK 1'S RELEASED AT RED R.
BY IDFG

CN 840416 - 840416
ADCLIP

(CONT)

840615	1	10	41
840616	1	10	49
840617	0	0	
840618	0	0	
840619	0	0	
840620	0	0	
840621	0	0	
840622	0	0	
840623	1	20	109
TOTALS	60	630	2,899

LA W 4 MARKED CHINOOK 1'S RELEASED AT PRSSEER RM4E CN 840420 -
BY YAKIMA VC

840505	1	10	34
840506	0	0	
840507	1	11	28
840508	0	0	
840509	0	0	
840510	1	10	45
840511	1	10	37
840512	0	0	
840513	0	0	
840514	0	0	
840515	0	0	
840516	0	0	
840517	1	10	54
TOTALS	5	51	193

RA W 1 MARKED CHINOOK 1'S RELEASED AT PRSSEER RM4E CN 840410 - 840420
BY YAKIMA DC

840427	1	10	40
840428	0	0	
840429	0	0	
840430	0	0	
840501	0	0	
840502	0	0	
840503	0	0	
840504	0	0	
840505	1	10	34

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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RA W 1 MARKED CHINOOK 1'S RELEASED AT PFCSSEF RM48 CN 840410 - E40420
BY YAKIMA DC

(CONT)

840506	0	0	
840507	2	22	56
840508	0	0	
840509	0	0	
840510	0	0	
840511	0	0	
840512	1	10	37
840513	0	0	
840514	0	0	
840515	0	0	
840516	0	0	
840517	2	20	106
840518	0	0	
840519	0	0	
840520	0	0	
840521	0	0	
840522	0	0	
840523	0	0	
840524	0	0	
840525	0	0	
840526	1	10	47
840527	0	0	
840528	0	0	
840529	0	0	
840530	0	0	
840531	0	0	
840601	0	0	
840602	0	0	
840603	0	0	
840604	0	0	
840605	0	0	
840606	0	0	
840607	1	10	48
TOTALS	9	92	370

RA W 3 MARKED CHINOOK 1'S RELEASED AT PFCSSEF RM48 CN 840410 - E40420
BY YAKIMA DC

840427	1	10	40
840428	0	0	
840429	0	0	
840430	0	0	
840501	0	0	

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
840502	0	0	
840503	0	0	
840504	0	0	
840505	0	0	
840506	0	0	
840507	0	0	
840508	0	0	
840509	0	0	
840510	0	0	
840511	0	0	
840512	0	0	
840513	1	10	43
840514	0	0	
840515	0	0	
840516	0	0	
840517	0	0	
840518	0	0	
840519	0	0	
840520	0	0	
840521	1	10	40
TOTALS	5	30	123

LA 2 1 MARKED CHINOOK 1'S RELEASED AT YAKIMA R- CN 840605 - 840606
BY YAKIMA ADCCLIP

840703	2	20	92
840704	0	0	
840705	1	10	39
840706	2	20	76
840707	0	0	
840708	3	30	116
840709	2	20	51
840710	0	0	
840711	3	30	85
840712	0	0	
840713	1	11	32
TOTALS	14	141	491

LA 3C 1 MARKED CHINOOK 1'S RELEASED AT PROSEER RM42 CN 840429 -
BY YAKIMA VC

840514	1	10	41
840515	1	10	52
TOTALS	2	20	93

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
RA 3C 1 MARKED CHINOOK 1'S RELEASED AT PROSSER RM48 CN 840427 - BY YAKIMA DC			
840515	1	10	52
TOTALS	1	10	52
RA 3C 2 MARKED CHINOOK 1'S RELEASED AT PROSSEF RM48 CN 840503 - BY YAKIMA DC			
840516	1	10	55
840517	0	0	
840518	0	0	
840519	1	10	40
840520	0	0	
840521	0	0	
840522	0	0	
840523	0	0	
840524	0	0	
840525	0	0	
840526	1	10	47
TOTALS	3	30	142
RA 3L 1 MARKED CHINOOK 1'S RELEASED AT PROSSER RM48 CN 840427 - BY YAKIMA DC			
840508	1	10	37
TOTALS	1	10	37
RA 3L 2 MARKED CHINOOK 1'S RELEASED AT PROSSEF RM48 CN 840503 - BY YAKIMA DC			
840523	1	10	49
TOTALS	1	10	49

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
RA 3T 1 MARKED CHINOOK 1'S	RELEASED AT NACHES NL SP CN 840411 - BY YAKIMA		ADCLIP
840504	1	20	66
840505	0	0	
840506	0	0	
840507	1	11	28
840508	0	0	
840509	2	20	68
840510	3	30	134
840511	2	20	73
840512	4	40	169
840513	5	50	216
840514	1	10	41
840515	1	10	52
840516	3	30	165
840517	0	0	
840518	1	10	46
840519	2	20	81
840520	1	10	45
840521	3	30	119
840522	0	0	
840523	0	0	
840524	1	10	43
840525	0	0	
840526	1	10	47
840527	0	0	
840528	0	0	
840529	0	0	
840530	0	0	
840531	0	0	
840601	0	0	
840602	0	0	
840603	0	0	
840604	3	30	135
TOTALS	35	361	1,528

RA 7K 1 MARKED CHINOOK 1'S RELEASED AT YAKIMA R. ON 840409 - 840412
BY YAKIMA ADCLIP

840506	1	10	36
840507	0	0	
840508	0	0	
840509	0	0	
840510	0	0	
840511	1	10	37

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
RA 7K 1 MARKED CHINOOK 1'S	RELEASED AT YAKIMA R.	CN 840409 - 840412	
	BY YAKIMA		ADCLIP

			(CONT)
840512	2	20	84
840513	0	0	
840514	0	0	
840515	1	10	52
840516	1	10	55
840517	0	0	
840518	1	10	46
840519	3	30	121
840520	2	20	90
840521	6	60	238
840522	3	30	170
840523	4	40	198
840524	3	30	130
840525	1	10	53
840526	1	10	47
840527	1	10	40
840528	2	20	68
840529	4	40	189
840530	1	20	87
840531	0	0	
840601	1	10	57
840602	0	0	
840603	1	10	40
840604	0	0	
840605	0	0	
840606	0	0	
840607	0	0	
840608	0	0	
840609	0	0	
840610	0	0	
840611	0	0	
840612	0	0	
840613	1	10	45
TOTALS	41	420	1,883

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
RA IJ 1 MARKED STEELHEAD	RELEASED AT TUCANNON R. CN 840509 - E40512 BY WDG		
840517	1	10	47
840518	2	20	70
840519	2	20	57
840520	3	30	102
840521	1	10	28
840522	0	0	
840523	1	10	40
840524	3	30	95
840525	4	40	177
840526	3	30	109
840527	7	70	193
840528	4	40	87
840529	1	10	36
840530	1	20	64
840531	0	0	
840601	3	30	155
840602	5	80	214
840603	10	100	276
840604	9	90	302
840605	3	30	98
840606	2	20	66
840607	0	0	
840608	5	50	165
840609	0	0	
840610	2	20	77
840611	3	30	66
840612	2	20	57
840613	1	10	33
840614	1	10	29
840615	3	30	85
840616	1	10	39
840617	1	20	81
840618	3	60	361
840619	1	20	81
840620	0	0	
840621	0	0	
840622	1	20	87
840623	0	0	
840624	1	20	72
840625	0	0	
840626	0	0	
840627	0	0	
840628	1	20	70
840629	0	0	
840630	1	20	75
840701	0	0	

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
840702	0	0	
840703	0	0	
840704	0	0	
840705	0	0	
840706	2	20	51
840707	0	0	
840708	0	0	
840709	0	0	
840710	0	0	
840711	0	0	
840712	1	11	23
TOTALS	93	1,081	3,669

RA IJ 2 MARKED STEELHEAD RELEASED AT TUCANNEN R. ON 840422 - 840512
BY WDG

840505	1	10	22
840506	0	0	
840507	1	11	17
840508	0	0	
840509	0	0	
840510	0	0	
840511	0	0	
840512	0	0	
840513	3	30	95
840514	1	10	29
840515	1	10	44
840516	0	0	
840517	5	50	233
840518	3	30	105
840519	4	40	114
840520	1	10	34
840521	2	20	55
840522	2	20	102
840523	0	0	
840524	6	60	191
840525	1	10	44
840526	1	10	36
840527	4	40	110
840528	7	70	153
840529	3	30	109
840530	1	20	64
840531	0	0	
840601	5	50	258
840602	4	40	107
840603	5	50	138
840604	6	60	201

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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RA IJ 2 MARKED STEELHEAD RELEASED AT TUCANNON R. CN 840422 - 840512
BY WDG

(CONT)

840605	3	30	98
840606	2	20	66
840607	2	20	75
840608	1	10	33
840609	3	30	93
840610	1	10	39
840611	1	10	22
840612	0	0	
840613	2	20	66
840614	3	30	88
840615	2	20	57
840616	0	0	
840617	0	0	
840618	1	20	120
840619	1	20	81
840620	0	0	
840621	1	20	82
840622	0	0	
840623	0	0	
840624	0	0	
840625	0	0	
840626	0	0	
840627	0	0	
840628	0	0	
840629	0	0	
840630	0	0	
840701	0	0	
840702	1	20	51
840703	0	0	
840704	0	0	
840705	0	0	
840706	0	0	
840707	0	0	
840708	0	0	
840709	1	10	15
840710	0	0	
840711	0	0	
840712	0	0	
840713	0	0	
840714	0	0	
840715	1	12	17
TOTALS	93	983	3,264

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
RD IT 1 MARKED STEELHEAD	RELEASED AT LYCNS FERRY	CN 840430 - 840509	BY WDG
840423	1	10	31
840424	0	0	
840425	0	0	
840426	0	0	
840427	0	0	
840428	3	0	
840429	0	0	
840430	0	0	
840501	2	20	52
840502	0	0	
840503	0	0	
840504	0	0	
840505	0	0	
840506	2	20	47
840507	1	11	17
840508	0	0	
840509	0	0	
840510	0	0	
840511	5	50	123
840512	4	40	122
840513	7	70	222
840514	3	30	87
840515	2	20	88
840516	6	60	289
840517	14	140	653
840518	11	110	384
840519	15	150	426
840520	11	110	374
840521	7	70	193
840522	16	160	314
840523	7	70	277
840524	17	170	541
840525	20	200	886
840526	16	180	652
840527	16	160	441
840528	27	270	590
840529	20	200	730
840530	1	20	64
840531	7	151	589
840601	10	100	516
840602	18	180	482
840603	22	220	607
840604	21	210	704
840605	10	100	327
840606	21	210	692
840607	5	80	299

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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RD IT 1 MARKED STEELHEAD RELEASED AT LYONS FERRY CN 84043C - E40509
BY WDG

(CONT)

840608	13	130	628
840609	9	90	278
840610	12	120	465
840611	11	110	242
840612	9	90	256
840613	3	30	100
840614	5	50	147
840615	9	90	257
840616	7	70	271
840617	2	40	163
840618	2	40	241
840619	3	60	244
840620	1	20	79
840621	1	20	82
840622	1	20	87
840623	0	0	
840624	3	60	215
840625	0	0	
840626	2	40	147
840627	2	40	168
840628	2	40	141
840629	0	0	
840630	0	0	
840701	2	40	129
840702	0	0	
840703	2	20	69
840704	1	10	24
840705	2	20	53
840706	0	0	
840707	0	0	
840708	0	0	
840709	0	0	
840710	0	0	
840711	1	10	17
840712	0	0	
840713	0	0	
840714	2	23	42
840715	0	0	
840716	0	0	
840717	0	0	
840718	1	14	35
840719	1	13	16
840720	0	0	
840721	0	0	
840722	0	0	
840723	0	0	

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
840724	0	0	
840725	0	0	
840726	0	0	
840727	1	14	19
840728	0	0	
840729	0	0	
840730	0	0	
840731	0	0	
840801	0	0	
840802	0	0	
840803	0	0	
840804	0	0	
840805	0	0	
840806	0	0	
840807	0	0	
840808	0	0	
840809	0	0	
840810	0	0	
840811	0	0	
840812	1	14	19
TOTALS	461	4,930	16,855

RD IT 2 MARKED STEELHEAD RELEASED AT LYONS FERRY CN 840430 - 840509
BY WDG

840426	1	10	29
840427	1	10	28
840428	0	0	
840429	0	0	
840430	0	0	
840501	0	0	
840502	3	30	62
840503	0	0	
840504	0	0	
840505	0	0	
840506	1	10	24
840507	1	11	17
840508	1	10	25
840509	0	0	
840510	6	60	200
840511	6	60	147
840512	2	20	61
840513	2	20	63
840514	15	150	436
840515	3	30	132
840516	3	30	145
840517	14	140	653

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
RD IT 2 MARKED STEELHEAD	RELEASED AT LYONS FERRY	CN 840430 - E40509	
	BY WDG		

(CONT.)

840518	13	130	453
840519	8	80	227
840520	13	180	612
840521	9	90	249
840522	13	130	661
840523	7	70	277
840524	6	60	191
840525	15	150	664
840526	9	90	326
840527	7	70	193
840528	17	170	371
840529	8	80	292
840530	6	120	387
840531	4	86	394
840601	9	90	465
840602	23	230	616
840603	13	130	358
840604	6	60	201
840605	4	40	131
840606	7	70	231
840607	5	50	187
840608	6	60	198
840609	3	30	95
840610	9	90	348
840611	8	60	132
840612	5	50	142
840613	2	20	65
840614	7	70	206
840615	4	40	114
840616	2	20	78
840617	1	20	81
840618	0	0	
840619	4	80	325
840620	1	20	79
840621	1	20	82
840622	0	0	
840623	0	0	
840624	0	0	
840625	1	20	74
840626	0	0	
840627	1	20	84
840628	0	0	
840629	1	20	76
840630	0	0	
840701	1	20	64
840702	0	0	
840703	2	20	69

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
RD IT 2 MARKED STEELHEAD	RELEASED AT LYONS FERRY	ON 840430 - E40509	
	BY WDG		

(CONT)

840704	1	10	24
840705	0	0	
840706	1	10	26
840707	1	10	23
840708	0	0	
840709	0	0	
840710	0	0	
840711	0	0	
840712	0	0	
840713	0	0	
840714	1	11	21
840715	0	0	
840716	1	14	22
840717	1	14	38
840718	1	14	35
TOTALS	330	3,530	12,008

RA IV 1 MARKED STEELHEAD	RELEASED AT TUCANNON R.	ON 840422 - E40426
	BY WEG	

840505	1	10	22
840506	0	0	
840507	3	33	50
840508	0	0	
840509	0	0	
840510	0	0	
840511	2	20	49
840512	7	70	213
840513	1	10	32
840514	2	20	58
840515	2	20	88
840516	2	20	90
840517	7	70	327
840518	2	20	70
840519	5	50	142
840520	4	40	136
840521	4	40	111
840522	1	10	51
840523	4	40	159
840524	8	80	255
840525	0	0	
840526	5	50	181
840527	7	70	193

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
RA IV 1 MARKED STEELHEAD	RELEASED AT TUCANNON R.	CN 840422 - 840426	
	BY WDG		

(CONT)

840528	10	100	216
840529	3	30	109
840530	1	20	64
840531	3	65	295
840601	3	30	155
840602	20	200	535
840603	8	80	221
840604	7	70	235
840605	3	30	93
840606	1	10	35
840607	1	10	37
840608	4	40	132
840609	2	20	62
840610	7	70	271
840611	4	40	88
840612	1	10	28
840613	1	10	33
840614	2	20	59
840615	6	60	171
840616	1	10	39
840617	0	0	
840618	2	40	241
840619	0	0	
840620	0	0	
840621	0	0	
840622	1	20	87
840623	0	0	
840624	1	20	72
840625	1	20	74
840626	0	0	
840627	1	20	84
840628	0	0	
840629	0	0	
840630	0	0	
840701	0	0	
840702	0	0	
840703	0	0	
840704	0	0	
840705	0	0	
840706	0	0	
840707	0	0	
840708	0	0	
840709	0	0	
840710	0	0	
840711	1	10	17

TOTALS

162

1,728

5,691

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
RA IV 3 MARKED STEELHEAD	RELEASED AT TUCANNEN R.	CN 840422 - 840426	BY WDG
840507	3	33	50
840508	1	10	25
840509	0	0	
840510	0	0	
840511	0	0	
840512	2	20	61
840513	1	10	32
840514	2	20	58
840515	3	30	132
840516	3	30	145
840517	6	60	280
840518	6	60	209
840519	12	120	341
840520	2	20	68
840521	5	50	138
840522	5	50	254
840523	2	20	79
840524	5	50	159
840525	11	110	487
840526	7	70	254
840527	5	50	138
840528	11	110	240
840529	2	20	73
840530	1	20	64
840531	1	22	90
840601	7	70	361
840602	16	160	428
840603	11	110	303
840604	4	40	134
840605	1	10	33
840606	1	10	33
840607	4	40	150
840608	4	40	132
840609	2	20	62
840610	4	40	155
840611	1	10	22
840612	3	30	85
840613	4	40	133
840614	3	30	88
840615	3	30	86
840616	0	0	
840617	0	0	
840618	0	0	
840619	0	0	
840620	1	20	79
840621	0	0	

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
840622	0	0	
840623	0	0	
840624	0	0	
840625	0	0	
840626	0	0	
840627	0	0	
840628	0	0	
840629	0	0	
840630	1	20	75
840701	0	0	
840702	0	0	
840703	0	0	
840704	0	0	
840705	0	0	
840706	0	0	
840707	0	0	
840708	1	10	27
TOTALS	167	1,715	5,771

LA J 1 MARKED STEELHEAD RELEASED AT DECKER FLAT CN 840416 - 840417
BY IDFG ADCCLIP

840526	1	10	36
840527	1	10	26
840528	0	0	
840529	0	0	
840530	0	0	
840531	0	0	
840601	0	0	
840602	0	0	
840603	0	0	
840604	1	10	34
840605	4	40	131
840606	0	0	
840607	0	0	
840608	3	30	99
840609	0	0	
840610	0	0	
840611	0	0	
840612	1	10	28
840613	1	10	33
840614	0	0	
840615	0	0	
840616	0	0	
840617	0	0	
840618	0	0	
840619	1	20	81

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LA J 1 MARKED STEELHEAD	RELEASED AT DECKER FLAT	CN 840416 - 840417	
	BY IDFG		ADCLIP

(CONT)

840620	0	0	
840621	0	0	
840622	0	0	
840623	0	0	
840624	0	0	
840625	0	0	
840626	0	0	
840627	0	0	
840628	0	0	
840629	0	0	
840630	0	0	
840701	1	20	64
840702	1	20	51
TOTALS	15	180	585

LA J 3 MARKED STEELHEAD	RELEASED AT DECKER FLAT	CN 840416 - 840417	
	BY IDFG		ADCLIP

840604	2	20	67
840605	1	10	33
840606	0	0	
840607	0	0	
840608	0	0	
840609	0	0	
840610	0	0	
840611	0	0	
840612	1	10	26
840613	1	10	33
840614	0	0	
840615	0	0	
840616	0	0	
840617	0	0	
840618	0	0	
840619	0	0	
840620	0	0	
840621	0	0	
840622	0	0	
840623	0	0	
840624	0	0	
840625	0	0	
840626	0	0	
840627	0	0	
840628	0	0	

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
840629	0	0	
840630	0	0	
840701	0	0	
840702	0	0	
840703	1	10	34
840704	1	10	24
840705	1	10	27
840706	0	0	
840707	0	0	
840708	0	0	
840709	0	0	
840710	0	0	
840711	0	0	
840712	0	0	
840713	0	0	
840714	0	0	
840715	0	0	
840716	0	0	
840717	0	0	
840718	0	0	
840719	0	0	
840720	0	0	
840721	0	0	
840722	0	0	
840723	0	0	
840724	0	0	
840725	0	0	
840726	0	0	
840727	0	0	
840728	0	0	
840729	0	0	
840730	0	0	
840731	1	14	19
TOTALS	9	94	265

RA J 1 MARKED STEELHEAD RELEASED AT DWORSHAK HAT ON 840504 -
BY IDFG

840513	2	20	63
840514	7	70	203
840515	3	30	132
840516	1	10	46
840517	6	60	280
840518	5	50	174
840519	3	30	85
840520	7	70	238
840521	2	20	55

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
RA J 1 MARKED STEELHEAD	RELEASED AT DWORSHAK HAT CN 840504 - BY IDFG		

(CONT)

840522	3	30	153
840523	3	30	119
840524	5	60	191
840525	2	20	89
840526	0	0	
840527	4	40	110
840528	5	50	109
840529	2	20	73
840530	0	0	
840531	0	0	
840601	1	10	52
840602	0	0	
840603	0	0	
840604	2	20	67
840605	0	0	
840606	0	0	
840607	1	10	37
840608	2	20	66
TOTALS	67	670	2,344

RA J 3 MARKED STEELHEAD	RELEASED AT HELLS CANYON CN 840430 - BY IDFG	ADCLIP
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840511	1	10	25
840512	0	0	
840513	0	0	
840514	0	0	
840515	0	0	
840516	0	0	
840517	1	10	47
840518	0	0	
840519	0	0	
840520	0	0	
840521	0	0	
840522	0	0	
840523	0	0	
840524	0	0	
840525	0	0	
840526	0	0	
840527	0	0	
840528	1	10	22
TOTALS	3	30	94

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LA S 1 MARKED STEELHEAD	RELEASED AT LYONS FERRY	CN 830501 - 830520	
	BY WDG		

840413	1	10	31
840419	1	10	27
840420	0	0	
840421	1	10	38
840422	1	10	32
840423	1	10	31
840424	1	10	30
840425	2	20	59
840426	0	0	
840427	0	0	
840428	2	20	62
840429	1	10	23
840430	0	0	
840501	0	0	
840502	1	10	21
840503	0	0	
840504	0	0	
840505	2	20	44
840506	0	0	
840507	0	0	
840508	0	0	
840509	0	0	
840510	0	0	
840511	1	10	25
840512	0	0	
840513	0	0	
840514	0	0	
840515	0	0	
840516	1	10	48
TOTALS	16	160	471

LD S 2 MARKED STEELHEAD	RELEASED AT LYONS FERRY	CN 830501 - 830520	
	BY WDG		

840415	1	10	23
840416	1	10	24
840417	0	0	
840418	2	20	63
840419	0	0	
840420	0	0	
840421	2	20	75
840422	0	0	
840423	0	0	
840424	1	10	30

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LD S 2 MARKED STEELHEAD	RELEASED AT LYCNS FERRY	CN 830501 - 830520	
	BY WDG		

(CONT)

840425	0	0	
840426	0	0	
840427	1	10	25
840428	0	0	
840429	0	0	
840430	0	0	
840501	0	0	
840502	0	0	
840503	0	0	
840504	0	0	
840505	0	0	
840506	0	0	
840507	0	0	
840508	1	10	25
TOTALS	9	90	268

RA S 2 MARKED STEELHEAD	RELEASED AT LYCNS FERRY	CN 830509 - 830513	
	BY WDG		

840423	1	10	31
TOTALS	1	10	31

LA T 2 MARKED STEELHEAD	RELEASED AT NACHES R.	CN 840416 - 840419	
	BY WDG	AOC/LIP	

840421	2	20	64
840423	7	70	215
840424	2	20	60
840425	5	50	146
840426	7	70	204
840427	6	60	171
840428	3	30	93
840429	1	10	23
840430	2	20	50
840501	1	10	26
840502	1	10	21
840503	1	17	46
840504	0	0	
840505	2	20	44
840506	10	100	235

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LA T 2 MARKED STEELHEAD	RELEASED AT NACHES R.	CN 840416 - 840419	
	BY WDG		ADCLIP

(CONT)

840507	13	142	216
840508	8	80	197
840509	1	10	22
840510	4	40	133
840511	3	30	74
840512	0	0	
840513	2	20	63
840514	1	10	29
840515	1	10	44
840516	2	20	96
840517	2	20	93
840518	9	90	314
840519	14	140	398
840520	9	90	306
840521	5	50	138
840522	1	10	51
840523	0	0	
840524	1	10	32
840525	0	0	
840526	4	40	145
840527	1	10	28
840528	1	10	22
840529	0	0	
840530	0	0	
840531	0	0	
840601	0	0	
840602	4	40	107
840603	2	20	55
840604	2	20	67
840605	1	10	33
840606	0	0	
840607	0	0	
840608	0	0	
840609	0	0	
840610	1	10	39
840611	0	0	
840612	2	20	57
840613	0	0	
840614	2	20	59

TOTALS

146

1,479

4,216

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LA T 4 MARKED STEELHEAD	RELEASED AT NACHES R. BY WDG	ON 840416 - 840419	ADCLIP
840423	2	20	62
840424	3	30	90
840425	2	20	59
840426	0	0	
840427	5	30	85
840428	2	20	62
840429	5	50	113
840430	1	10	25
840501	7	70	181
840502	1	10	21
840503	0	0	
840504	0	0	
840505	4	40	87
840506	8	80	183
840507	19	207	315
840508	11	110	271
840509	3	30	66
840510	4	40	133
840511	1	10	25
840512	3	30	91
840513	4	40	127
840514	2	20	56
840515	1	10	44
840516	1	10	40
840517	4	40	187
840518	6	60	209
840519	0	80	227
840520	2	20	68
840521	3	30	83
840522	4	40	204
840523	0	0	
840524	5	50	159
840525	2	20	89
840526	3	30	109
840527	0	0	
840528	1	10	22
840529	1	10	36
840530	0	0	
840531	0	0	
840601	1	10	52
840602	1	10	27
840603	1	10	28
840604	2	20	67
840605	2	20	65
840606	1	10	33
840607	0	0	

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
840603	0	0	
840609	0	0	
840610	0	0	
840611	0	0	
840612	0	0	
840613	0	0	
840614	0	0	
840615	1	10	29
840616	0	0	
840617	1	20	81
TOTALS	136	1387	3,926

LA 3C 1 MARKED STEELHEAD RELEASED AT PRESEER RM48 CN 840429 -
BY YAKIMA VC

840509	1	10	22
TOTALS	1	10	22

RA 3L 2 MARKED STEELHEAD RELEASED AT PRESEER RM48 CN 840503 -
BY YAKIMA DC

840518	1	10	35
TOTALS	1	10	35

LA 7C 1 MARKED STEELHEAD RELEASED AT METHOW R. CN 840423 -
BY USFWS

840430	1	10	25
840501	0	0	
840502	12	120	248
840503	7	120	325
840504	5	100	213
840505	16	160	349
840506	21	210	494
840507	83	906	1,376
840508	17	170	419
840509	18	180	399
840510	37	370	1,232
840511	25	250	613
840512	28	280	853
840513	18	180	570

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
LA 7C 1 MARKED STEELHEAD	RELEASED AT METHOW R. BY USFWS	CN 840423 -	

(CONT)

840514	19	190	552
840515	21	210	925
840516	25	250	1,205
840517	19	190	886
840518	7	70	244
840519	15	150	426
840520	3	80	272
840521	5	80	221
840522	7	70	356
840523	4	40	159
840524	5	50	159
840525	7	70	310
840526	1	10	36
840527	2	20	55
840528	3	50	109
840529	2	20	73
840530	0	0	
840531	1	22	98
840601	0	0	
840602	2	20	54
840603	0	0	
840604	1	10	34
840605	3	30	98
840606	0	0	
840607	0	0	
840608	0	0	
840609	1	10	31
840610	2	20	77
840611	0	0	
840612	1	10	28
TOTALS	454	4,728	13,524

LA 7C 3 MARKED STEELHEAD	RELEASED AT METHOW R. BY USFWS	CN 840427 -
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840505	5	50	109
840506	9	90	212
840507	149	1,626	2,471
840508	29	290	715
840509	34	340	753
840510	40	400	1,332
840511	35	350	858
840512	56	560	1,705

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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LA 7C 3 MARKED STEELHEAD RELEASED AT METHOW R. CN 840427 -
BY USFWS

(CONT)

840513	27	270	855
840514	27	270	785
840515	20	200	581
840516	26	260	1,253
840517	22	220	1,026
840518	13	130	453
840519	21	210	597
840520	10	100	340
840521	8	60	166
840522	12	120	611
840523	6	60	238
840524	7	70	223
840525	9	90	399
840526	6	60	217
840527	3	30	85
840528	5	50	109
840529	2	20	73
840530	1	20	64
840531	0	0	
840601	2	20	103
840602	3	30	80
840603	0	0	
840604	0	0	
840605	0	0	
840606	0	0	
840607	0	0	
840608	0	0	
840609	0	0	
840610	3	30	115
840611	0	0	
840612	0	0	
840613	1	10	35
TOTALS	589	6,036	16,860

LA 7P 1 MARKED STEELHEAD RELEASED AT BELOW FRIEST CN 840501 -
BY USFWS

840505	4	40	87
840506	6	60	141
840507	29	316	481
840508	5	50	123
840509	5	50	111
840510	5	50	166

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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LA 7P 1 MARKED STEELHEAD RELEASED AT BELCH PRIEST ON 840501 -
BY USFWS

(CONT)

840511	2	20	49
840512	8	80	244
840513	3	80	253
840514	1	10	29
840515	2	20	89
840516	3	30	145
840517	0	0	
840518	2	20	70
840519	3	30	85
840520	0	0	
840521	0	0	
840522	0	0	
840523	1	10	40
840524	2	20	64
840525	0	0	
840526	0	0	
840527	3	30	83
840528	2	20	44
840529	0	0	
840530	0	0	
840531	1	22	98
TOTALS	92	958	2,401

LA 7P 2 MARKED STEELHEAD RELEASED AT BELCH PRIEST ON 840503 -
BY USFWS

840505	6	60	141
840507	56	611	929
840508	15	150	370
840509	9	90	159
840510	4	40	133
840511	8	80	196
840512	15	150	457
840513	4	40	127
840514	3	30	87
840515	4	40	176
840516	2	20	95
840517	4	40	187
840518	4	40	139
840519	2	20	57
840520	1	10	34
840521	0	0	
840522	0	0	

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
840523	0	0	
840524	1	10	32
840525	0	0	
840526	1	10	36
840527	0	0	
840528	1	10	22
TOTALS	140	1,451	3,413

LA 7P 3 MARKED STEELHEAD RELEASED AT BELCH PRIEST ON 840502 -
BY USFWS

840505	8	80	174
840506	13	130	306
840507	65	709	1,078
840508	8	80	197
840509	3	30	66
840510	6	60	200
840511	2	20	49
840512	6	60	183
840513	5	50	158
840514	2	20	58
840515	3	30	132
840516	2	20	96
840517	1	10	47
840518	1	10	35
840519	1	10	28
840520	0	0	
840521	0	0	
840522	1	10	51
840523	1	10	40
840524	3	30	95
840525	1	10	44
840526	1	10	36
840527	1	10	29
840528	1	10	22
840529	1	10	36
840530	0	0	
840531	0	0	
840601	0	0	
840602	0	0	
840603	0	0	
840604	0	0	
840605	0	0	
840606	0	0	
840607	0	0	
840608	0	0	
840609	2	20	62
TOTALS	138	1,439	3,221

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
RA 7P 1 MARKED STEELHEAD	RELEASED AT BELOW FRIEST ON 840504 - BY USFWS		
840507	44	480	730
840508	15	150	370
840509	12	120	266
840510	13	130	433
840511	6	60	147
840512	4	40	122
840513	3	30	95
840514	2	20	58
840515	1	10	44
840516	2	20	96
840517	2	20	93
840518	2	20	70
840519	3	30	85
840520	1	10	34
840521	2	20	55
840522	0	0	
840523	1	10	40
840524	2	20	64
840525	1	10	44
840526	0	0	
840527	0	0	
840528	2	20	44
840529	0	0	
840530	0	0	
840531	1	22	95
TOTALS	119	1,242	2,988

RA 7P 2 MARKED STEELHEAD RELEASED AT BELOW FRIEST ON 840505 -
BY USFWS

840507	1	11	17
840508	7	70	172
840509	5	50	111
840510	13	130	435
840511	18	180	441
840512	16	160	487
840513	4	40	127
840514	2	20	58
840515	2	20	85
840516	2	20	96
840517	3	30	140
840518	2	20	70
840519	5	50	142

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
RA 7P 2 MARKED STEELHEAD	RELEASED AT BELOW PRIEST ON 840505 - BY USFWS		

(CONT)

840520	1	10	34
840521	3	30	83
840522	0	0	
840523	0	0	
840524	1	10	32
TOTALS	85	851	2,531

RA 7P 3 MARKED STEELHEAD	RELEASED AT BELOW PRIEST ON 840507 - BY USFWS		
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840510	5	50	166
840511	9	90	221
840512	14	140	426
840513	6	60	190
840514	6	80	233
840515	0	0	
840516	7	70	337
840517	7	70	327
840518	4	40	139
840519	2	20	57
840520	1	10	34
840521	2	20	55
840522	1	10	51
840523	2	20	79
840524	2	20	64
840525	2	20	89
840526	2	20	72
840527	1	10	28
840528	0	0	
840529	0	0	
840530	0	0	
840531	0	0	
840601	1	10	52
840602	0	0	
840603	0	0	
840604	0	0	
840605	0	0	
840606	0	0	
840607	1	10	37
840608	0	0	
840609	0	0	
840610	0	0	
840611	0	0	

BRAND RECAPTURE SUMMARY

MCNARY DAM

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EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
840612	0	0	
840613	1	10	33
TOTALS	75	780	2,690

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
RA F 1 MARKED CHINOOK O'S	RELEASED AT BELCH PRIEST CN 840613 -		
	BY USFWS		
840613	2	40	0
840619	3	60	0
840620	11	220	0
840621	13	260	0
840622	3	60	0
840623	10	200	0
840624	16	320	0
840625	9	180	0
840626	13	260	0
840627	9	180	0
840628	7	140	0
840629	6	120	0
840630	2	40	0
840701	3	60	0
840702	14	280	0
840703	10	102	0
840704	3	80	0
840705	3	30	0
840706	1	10	0
840707	2	20	0
840708	0	0	0
840709	1	10	0
840710	0	0	0
840711	1	10	0
840712	4	44	0
840713	5	53	0
840714	26	295	0
840715	44	539	0
840716	17	236	0
840717	15	211	0
840718	5	72	0
840719	4	53	0
840720	3	43	0
840721	3	32	0
840722	2	29	0
840723	2	29	0
840724	0	0	0
840725	2	29	0
840726	1	14	0
840727	0	0	0
840728	2	29	0
840729	2	29	0
840730	3	43	0
840731	1	14	0
840801	1	14	0
840802	1	14	0

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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RA F 1 MARKED CHINOOK O'S RELEASED AT BELOW PRIEST CN 840613 -
BY USFWS

			(CONT)
840803	3	43	0
840804	1	14	0
840805	1	14	0
840806	0	0	,
840807	0	0	
840808	0	0	
840809	2	29	0
840810	0	0	
840811	2	29	0
840812	2	29	0
840813	1	14	0
TOTALS	302	4,676	0

LA S 1 MARKED CHINOOK O'S RELEASED AT BELOW WELLS CN 840530 -
BY USFWS

840607	1	10	0
840608	0	0	
840609	0	0	
840610	0	0	
840611	0	0	
840612	0	0	
840613	0	0	
840614	0	0	
840615	0	0	
840616	0	0	
840617	0	0	
840618	0	0	
840619	1	20	0
840620	0	0	
840621	0	0	
840622	0	0	
840623	2	40	0
840624	1	20	0
840625	3	60	0
840626	5	100	0
840627	3	60	0
840628	1	20	0
840629	1	20	0
840630	1	20	0
840701	0	0	
840702	10	200	0
840703	3	31	0

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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LA S 1 MARKED CHINOOK O'S RELEASED AT BELCH WELLS CN 840530 -
BY USFWS

(CONT)

840704	2	20	0
840705	3	30	0
840706	1	10	0
840707	1	10	0
840708	2	20	0
840709	3	30	0
840710	1	20	0
840711	0	0	
840712	3	33	0
840713	6	64	0
840714	6	68	0
840715	10	122	0
840716	6	83	0
840717	7	98	0
840718	3	43	0
840719	14	187	0
840720	23	329	0
840721	22	234	0
840722	14	200	0
840723	11	157	0
840724	4	57	0
840725	4	57	0
840726	10	145	0
840727	3	43	0
840728	11	157	0
840729	7	100	0
840730	2	29	0
840731	1	14	0
840801	0	0	
840802	1	14	0
840803	3	43	0
840804	3	43	0
840805	0	0	
840806	1	14	0
840807	0	0	
840808	1	14	0
840809	3	43	0
840810	1	14	0
840811	3	43	0
840812	0	0	
840813	0	0	
840814	0	0	
840815	1	14	0
840816	1	14	0
840817	1	14	0
840818	1	14	0

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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LA S 1 MARKED CHINOOK O'S RELEASED AT BELOW WELLS ON 840530 -
BY USFWS

(CONT)

840819	2	29	0
840820	0	0	
840821	0	0	
840822	0	0	
840823	0	0	
840824	0	0	
840825	1	14	0
840826	0	0	
840827	0	0	
840828	2	29	0
840829	1	14	0
840830	0	0	
840831	0	0	
840901	1	14	0
840902	0	0	
840903	0	0	
840904	0	0	
840905	0	0	
840906	0	0	
840907	0	0	
840908	0	0	
840909	1	14	0
TOTALS	240	3,357	0

RA 3 1 MARKED CHINOOK O'S RELEASED AT BELCH FRIEST ON 840613 -
BY USFWS

840618	1	20	0
840619	7	140	0
840620	14	280	0
840621	9	180	0
840622	5	100	0
840623	10	200	0
840624	20	400	0
840625	8	160	0
840626	10	200	0
840627	14	280	0
840628	8	160	0
840629	7	140	0
840630	5	100	0
840701	13	260	0
840702	10	200	0
840703	18	184	0

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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RA 3 1 MARKED CHINOOK O'S RELEASED AT BELOW PRIEST ON 840613 -
BY USFWS

			(CONT)
840704	4	40	0
840705	3	30	0
840706	1	10	0
840707	1	10	0
840708	0	0	
840709	0	0	
840710	1	20	0
840711	2	20	0
840712	7	77	0
840713	15	159	0
840714	44	500	0
840715	53	710	0
840716	27	375	0
840717	15	211	0
840718	10	145	0
840719	11	147	0
840720	7	100	0
840721	3	32	0
840722	5	71	0
840723	5	71	0
840724	4	57	0
840725	2	29	0
840726	4	57	0
840727	3	43	0
840728	2	29	0
840729	2	29	0
840730	2	29	0
840731	1	14	0
840801	3	43	0
840802	5	71	0
840803	10	143	0
840804	0	0	
840805	0	0	
840806	0	0	
840807	2	29	0
840808	0	0	
840809	6	86	0
840810	0	0	
840811	2	29	0
840812	1	14	0
840813	0	0	
840814	0	0	
840815	0	0	
840816	1	14	0
840817	3	43	0
840818	1	14	0

EFFECTIVE DATES: 4/10/84 THRU 9/28/84

DATE	NUMBER SAMPLED	NUMBER COLLECTED	ESTIMATED PASSAGE
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RA 3 1 MARKED CHINOOK O'S RELEASED AT BELCH FRIEST CN 840613 -
BY USFWS

(CONT)

840819	0	0	
840820	0	0	
840821	0	0	
840822	0	0	
840823	0	0	
840824	0	0	
840825	0	0	
840826	0	0	
840827	0	0	
840828	0	0	
840829	0	0	
840830	0	0	
840831	0	0	
840901	0	0	
840902	0	0	
840903	0	0	
840904	0	0	
840905	0	0	
840906	0	0	
840907	1	14	0
TOTALS	433	6519	0

Appendix I:
1984 Mark Recoveries

C. JOHN DAY DAM

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
LA IM 1 MARKED SOCKEYE	RELEASED AT PRIEST RAP.	CN 840516 - 840525 BY NMFS ADCLIP

840522	1	0
840523	2	0
840524	1	0
840525	4	0
840526	4	0
840527	0	0
840528	0	0
840529	1	0
840530	0	0
840531	1	0
840601	0	0
840602	1	0
TOTALS	15	0

LA IR 1 MARKED SOCKEYE	RELEASED AT PRIEST RAP.	CN 840506 - 840515 BY NMFS ADCLIP
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840513	1	0
840514	0	0
840515	2	0
840516	2	0
840517	10	0
840518	3	0
840519	6	0
840520	11	0
840521	7	0
840522	7	0
840523	9	0
840524	2	0
840525	2	0
840526	2	0
840527	2	0
840528	0	0
840529	1	0
TOTALS	67	0

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
LA IU 1 MARKED SOCKEYE	RELEASED AT PRIEST RAP. ON 840501 - 840505 BY NMFS	ADCLIP

840509	1	0
840510	3	0
840511	2	0
840512	4	0
840513	4	0
840514	4	0
840515	5	0
840516	5	0
840517	4	0
840518	2	0
840519	5	0
840520	1	0
840521	1	0
840522	0	0
840523	0	0
840524	0	0
840525	0	0
840526	0	0
840527	1	0
TOTALS	42	0

LA IU 3 MARKED SOCKEYE	RELEASED AT PRIEST RAP. ON 840526 - 840606 BY NMFS	ADCLIP
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840604	3	0
840605	0	0
840606	0	0
840607	1	0
840608	0	0
840609	0	0
840610	3	0
840611	4	0
840612	1	0
TOTALS	12	0

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
LA IN 1 MARKED COHO	RELEASED AT PRIEST RAP. ON 840516 - 840525 BY NMFS	ADCLIP
840528	1	0
840529	1	0
TOTALS	2	0

BRAND RECAPTURE SUMMARY

JOHN DAY DAIRY

PAGE 4

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
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RA H 1 MARKED CHINOOK 1'S RELEASED AT PRCSSEF RM48 CN 850415 -
BY YAKIMA DC

840502	1	102
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TOTALS	1	102
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RA H 2 MARKED CHINOOK 1'S RELEASED AT PRCSSEF RM48 CN 840417 -
BY YAKIMA DC

840423	1	141
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TOTALS	1	141
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LP HH 1 MARKED CHINOOK 1'S RELEASED AT PRCSSEF RM48 CN 840515 -
BY YAKIMA VC

840524	1	158
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TOTALS	1	158
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LA IM 1 MARKED CHINOOK 1'S RELEASED AT PRIEST RAP. CN 840516 - 840525
BY NMFS ADCLIP

840522	4	654
840523	5	802
840524	7	1,106
840525	7	1,104
840526	8	1,271
840527	9	1,319
840528	4	550
840529	6	1,011
840530	5	960
840531	6	933
840601	4	645
840602	3	513
840603	0	0
840604	1	145
840605	0	0
840606	0	0
840607	1	145

TOTALS	71	11,158
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EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
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LA IR 1 MARKED CHINOOK 1'S RELEASED AT PRIEST RAP. ON 840506 - 840515
BY NMFS ADCLIP

840516	3	485
840517	1	158
840518	5	765
840519	4	615
840520	14	2,047
840521	10	1,522
840522	16	2,616
840523	17	2,726
840524	4	632
840525	5	788
840526	7	1,112
840527	4	586
840528	2	275
840529	0	0
840530	0	0
840531	0	0
840601	1	161
840602	0	0
840603	0	0
840604	0	0
840605	0	0
840606	0	0
840607	0	0
840608	0	0
840609	0	0
840610	1	132
TOTALS	94	14,620

LA IU 1 MARKED CHINOOK 1'S RELEASED AT PRIEST RAP. ON 840501 - 840505
BY NMFS ADCLIP

840512	2	259
840513	3	436
840514	1	119
840515	6	946
840516	5	806
840517	1	158
840518	7	1,071
840519	7	1,076
840520	0	0
840521	1	152
840522	4	654
840523	1	160

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
LA IU 1 MARKED CHINOOK 1'S RELEASED AT PRIEST RAP. CN 840501 - 840505 BY NMFS ADCLIP		

(CONT)

840524	1	158
840525	1	158
840526	2	318
TOTALS	42	6,473

LA IU 3 MARKED CHINOOK 1'S RELEASED AT PRIEST RAP. CN 840526 - 840606 BY NMFS ADCLIP		
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840601	1	161
840602	1	171
840603	0	0
840604	3	434
840605	0	0
840606	1	143
840607	0	0
840608	0	0
840609	0	0
840610	0	0
840611	4	525
TOTALS	10	1,434

LA IZ 1 MARKED CHINOOK 1'S RELEASED AT WINTHROP NFH CN 840423 - BY USFWS		
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840510	1	123
840511	0	0
840512	0	0
840513	0	0
840514	0	0
840515	3	473
840516	1	162
840517	1	158
840518	1	153
840519	1	154
840520	2	292
840521	2	304
840522	2	327
840523	2	321
840524	2	316
840525	2	315

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
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LA IZ 1 MARKED CHINOOK 1'S RELEASED AT WINTHRCP NFH ON 840423 -
BY USFWS

(CONT)

840526	2	318
840527	0	0
840528	1	137
840529	0	0
840530	0	0
840531	0	0
840601	0	0
840602	0	0
840603	0	0
840604	0	0
840605	0	0
840606	0	0
840607	0	0
840608	0	0
840609	0	0
840610	0	0
840611	0	0
840612	0	0
840613	0	0
840614	0	0
840615	0	0
840616	0	0
840617	0	0
840618	0	0
840619	1	172
TOTALS	24	3,725

LD J 1 MARKED CHINOOK 1'S RELEASED AT SALMON R. SF ON 840409 - 840411
BY IDFG ADCLIP

840508	1	124
840509	0	0
840510	0	0
840511	0	0
840512	0	0
840513	0	0
840514	0	0
840515	1	158
840516	0	0
840517	1	156
840518	0	0
840519	2	307
840520	4	585

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
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LD J 1 MARKED CHINOOK 1'S RELEASED AT SALMON R. SF CN 840409 - E40411
BY IDFG ADCLIP

(CONT)

840521	4	609
840522	2	327
840523	1	160
840524	1	158
840525	3	473
840526	5	953
840527	2	293
840528	2	275
840529	1	169
840530	4	640
840531	1	155
840601	2	322
840602	1	171
840603	0	0
840604	2	289
840605	0	0
840606	0	0
840607	1	145
840608	0	0
840609	0	0
840610	0	0
840611	0	0
840612	1	123
TOTALS	43	6,594

LD J 3 MARKED CHINOOK 1'S RELEASED AT SAWTEETH HAT CN E40327 - E40329
BY IDFG ADCLIP

840506	1	116
840507	0	0
840508	0	0
840509	0	0
840510	0	0
840511	1	141
840512	0	0
840513	2	290
840514	0	0
840515	0	0
840516	2	323
840517	0	0
840518	2	306
840519	1	154
840520	3	439

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE COLLECTED	NUMBER COLLECTED	ESTIMATED PASSAGE
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LD J 3 MARKED CHINOOK 1'S RELEASED AT SAWTOOTH HAT ON 840327 - 840329
BY IDFG ADCLIP

(CONT)

840521	3	457
840522	3	491
840523	3	481
840524	1	158
840525	2	315
840526	1	159
840527	1	147
840528	0	0
840529	0	0
840530	1	160
840531	0	0
840601	1	161
 TOTALS	28	4,298

RD J 1 MARKED CHINOOK 1'S RELEASED AT HELLS CANYON CN 840320 - 840321
BY IDFG ADCLIP

840412	1	111
840413	0	0
840414	0	0
840415	0	0
840416	2	233
840417	0	0
840418	0	0
840419	3	435
840420	0	0
840421	4	565
840422	3	448
840423	16	2,254
840424	19	2,563
840425	27	3,627
840426	16	2,057
840427	9	1,244
840428	6	755
840429	27	3,342
840430	21	2,276
840501	28	3,305
840502	26	2,645
840503	13	1,557
840504	27	3,465
840505	24	2,949
840506	22	2,543
840507	4	490

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
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RD J 1 MARKED CHINOOK 1'S RELEASED AT HELLS CANYON CN 840320 - E40321
BY IDFG ADCLIP

(CONT)

840508	6	992
840509	2	230
840510	2	246
840511	3	423
840512	9	1,166
840513	3	436
840514	1	119
840515	6	946
840516	2	323
840517	1	158
840518	1	153
840519	0	0
840520	0	0
840521	0	0
840522	0	0
840523	0	0
840524	0	0
840525	0	0
840526	0	0
840527	0	0
840528	0	0
840529	0	0
840530	0	0
840531	0	0
840601	0	0
840602	0	0
840603	0	0
840604	0	0
840605	0	0
840606	0	0
840607	0	0
840608	0	0
840609	0	0
840610	0	0
840611	1	131
TOTALS	337	42,187

RD J 3 MARKED CHINOOK 1'S RELEASED AT RAPID F. HAT ON 840321 - E40401
BY IDFG

840423	1	141
840424	0	0
840425	0	0

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
840426	0	0
840427	0	0
840428	1	126
840429	0	0
840430	2	217
840501	1	118
840502	2	203
840503	0	0
840504	1	126
840505	2	983
840506	9	1,040
840507	5	612
840508	4	496
840509	4	459
840510	7	560
840511	2	282
840512	8	1,037
840513	5	726
840514	2	238
840515	10	1,577
840516	6	969
840517	4	634
840518	3	459
840519	2	307
840520	0	0
840521	2	304
840522	1	164
TOTALS	90	12,080

RA MM 1 MARKED CHINOOK 1'S RELEASED AT PRCSSEF RM48 CN 840511 -
BY YAKIMA DC

840522	1	164
TOTALS	1	164

LA SU 2 MARKED CHINOOK 1'S RELEASED AT REC H. CN 831011 - 831014
BY IDFG ADDL IP

840423	1	141
840424	0	0
840425	0	0
840426	0	0
840427	0	0
840428	0	0

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
840422	0	0
840430	0	0
840501	1	118
840502	0	0
840503	0	0
840504	0	0
840505	1	123
840506	0	0
840507	0	0
840508	1	124
840509	0	0
840510	0	0
840511	0	0
840512	0	0
840513	0	0
840514	0	0
840515	0	0
840516	0	0
840517	1	158
840518	0	0
840519	2	307
840520	0	0
840521	1	152
840522	1	164
840523	0	0
840524	0	0
840525	0	0
840526	1	159
840527	0	0
840528	0	0
840529	0	0
840530	0	0
840531	0	0
840601	0	0
840602	1	171
TOTALS	11	1,617

LA SU 4 MARKED CHINOOK 1'S RELEASED AT RFD R.
BY IDFGCN 840416 - 840416
ADCLIP

840501	1	113
840502	0	0
840503	0	0
840504	0	0
840505	0	0
840506	0	0
840507	0	0
840508	1	124

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
LA SU 4 MARKED CHINOOK 10'S	RELEASED AT RED R.	
	BY IDFG	
		EN 840416 - 840416
		ADCLIP

(CONT)

840509	0	0
840511	0	0
840511	1	141
840512	0	0
840513	0	0
840514	0	0
840515	0	0
840516	0	0
840517	0	0
840518	0	0
840519	1	154
840520	0	0
840521	0	0
840522	0	0
840523	2	321
840524	2	316
840525	2	315
840526	0	0
840527	1	147
840528	2	275
840529	1	169
840530	2	320
840531	2	311
840601	0	0
840602	0	0
840603	0	0
840604	0	0
840605	0	0
840606	0	0
840607	0	0
840608	0	0
840609	0	0
840610	0	0
840611	0	0
840612	0	0
840613	0	0
840614	0	0
840615	0	0
840616	0	0
840617	0	0
840618	0	0
840619	0	0
840620	0	0
840621	1	166

TOTALS

19

2,877

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
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LA W 4 MARKED CHINOOK 1'S RELEASED AT PFCSSEF RM4E CN 840420 -
BY YAKIMA VC

840504	1	128
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TOTALS	1	128
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RA W 1 MARKED CHINOOK 1'S RELEASED AT PFCSSEF RM4E CN 840410 - E40420
BY YAKIMA DC

840515	1	145
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TOTALS	1	145
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LA 3C 1 MARKED CHINOOK 1'S RELEASED AT PFCSSEF RM4E CN 840429 -
BY YAKIMA VC

840516	1	162
840517	1	158

TOTALS	2	320
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RA 3C 1 MARKED CHINOOK 1'S RELEASED AT PFCSSEF RM4E CN 840427 -
BY YAKIMA DC

840514	1	119
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TOTALS	1	119
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RA 3L 1 MARKED CHINOOK 1'S RELEASED AT PFCSSEF RM4E CN 840427 -
BY YAKIMA DC

840519	1	154
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TOTALS	1	154
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EFFECTIVE DATES: 4/3/84 THRU 9/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
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RA 3T 1 MARKED CHINOOK 1'S RELEASED AT NACHES NL SP CN S40411 -
BY YAKIMA ADCLIP

S40515	1	158
S40516	1	162
TOTALS	2	320

RA 7K 1 MARKED CHINOOK 1'S RELEASED AT YAKIMA R. CN 840409 - E40412
BY YAKIMA ADCLIP

S40521	1	152
S40522	3	491
S40523	0	0
S40524	4	632
S40525	2	315
S40526	0	0
S40527	0	0
S40528	0	0
S40529	0	0
S40530	0	0
S40531	0	0
S40601	0	0
S40602	1	171
TOTALS	11	1,761

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSEGE
RA HH 1 MARKED STEELHEAD	RELEASED AT PFCSEF RM48 CN 840515 - BY YAKIMA	DC

840521	1	33
840522	0	0
840523	0	0
840524	0	0
840525	1	34
TOTALS	2	67

RA IJ 1 MARKED STEELHEAD	RELEASED AT TUCANNON R. CN 840509 - 840512	BY WDG
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840521	1	32
840521	2	60
840522	0	0
840523	3	104
840524	1	34
840525	0	0
840526	2	69
840527	4	126
840528	3	89
840529	2	73
840530	2	69
840531	2	67
840601	0	0
840602	2	74
840603	2	69
840604	6	187
840605	5	165
840605	3	93
840607	1	71
840608	1	31
840609	2	57
840610	1	29
840611	1	28
840612	1	27
840613	2	63
840614	1	36
840615	0	0
840616	1	34
840617	0	0
840618	1	32
840619	0	0
840620	0	0
840621	1	36

TOTALS	53	1,722
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EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE COLLECTED	NUMBER RELEASED	ESTIMATED PASSAGE
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RD IT 1 MARKED STEELHEAD RELEASED AT LYONS FERRY CN 840430 - E40509
BY WDG

(CONT)

840619	4	143
840620	3	105
840621	8	286
840622	1	37
840623	0	0
840624	0	0
840625	0	0
840626	0	0
840627	2	71
840628	1	34

TOTALS	203	E,793
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RD IT 2 MARKED STEELHEAD RELEASED AT LYONS FERRY CN 840430 - E40509
BY WDG

840425	1	29
840426	0	0
840427	0	0
840428	0	0
840429	0	0
840430	0	0
840501	1	25
840502	0	0
840503	0	0
840504	0	0
840505	0	0
840506	0	0
840507	0	0
840508	0	0
840509	0	0
840510	0	0
840511	2	61
840512	0	0
840513	1	31
840514	2	51
840515	0	0
840516	0	0
840517	1	34
840518	2	66
840519	2	66
840520	0	0
840521	0	0
840522	1	35

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE COLLECTED	NUMBER RELEASED	ESTIMATED PASSAGE
RD IT 7 MARKED STEELHEAD	RELEASED AT LYONS FERRY	ON 840430 - 840509
	BY WDG	

(CONT)

840523	1	35
840524	0	0
840525	4	136
840526	1	34
840527	1	32
840528	1	30
840529	3	109
840530	2	59
840531	2	67
840601	3	104
840602	0	0
840603	0	0
840604	2	62
840605	0	0
840606	2	62
840607	1	31
840608	0	0
840609	0	0
840610	0	0
840611	2	57
840612	3	0
840613	0	0
840614	1	36
840615	1	28
840616	0	0
840617	0	0
840618	1	32
840619	1	37
840620	2	70
840621	1	36
840622	0	0
840623	0	0
840624	0	0
840625	0	0
840626	0	0
840627	1	35
 TOTALS	46	1,500

RA IV 1 MARKED STEELHEAD	RELEASED AT TUCANNON R.	ON 840422 - 840426
	BY WDG	

840512	2	56
840513	0	0

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
840514	0	0
840515	0	0
840516	0	0
840517	3	103
840518	4	132
840519	5	165
840520	5	158
840521	9	296
840522	2	71
840523	3	104
840524	5	170
840525	5	170
840526	2	59
840527	2	63
840528	1	30
840529	2	73
840530	0	0
840531	1	34
840601	4	139
840602	2	74
840603	2	69
840604	13	405
840605	12	398
840606	5	154
840607	0	0
840608	3	94
840609	3	86
840610	1	29
840611	0	0
840612	1	27
840613	0	0
840614	1	36
840615	2	56
840616	5	170
840617	0	0
840618	0	0
840619	3	111
840620	0	0
840621	1	36
840622	2	74
TOTALS	111	3,653

RA IV 3 MARKED STEELHEAD RELEASED AT TUCANNON R. CN 840422 - 840426
BY WDG

840510	2	53
840511	2	61

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE COLLECTED	NUMBER RELEASED	ESTIMATED PASSAGE
RA IV 3 MARKED STEELHEAD	RELEASED AT TUCANNEN R.	CN 840422 - 840426
	BY WDG	

(CONT)

840512	1	28
840513	0	0
840514	0	0
840515	1	34
840516	0	0
840517	1	34
840518	2	66
840519	5	166
840520	3	95
840521	3	263
840522	3	106
840523	0	0
840524	4	136
840525	5	170
840526	4	137
840527	4	126
840528	1	30
840529	0	0
840530	3	104
840531	4	134
840601	2	70
840602	1	37
840603	1	35
840604	10	312
840605	9	298
840606	6	185
840607	2	63
840608	2	63
840609	2	57
840610	0	0
840611	5	141
840612	2	53
840613	2	63
840614	4	143
840615	1	28
840616	3	102
840617	0	0
840618	1	32
840619	2	74
840620	2	70
840621	2	71

TOTALS

112

3,640

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
LA J 1 MARKED STEELHEAD	RELEASED AT DECKER FLAT ON 840416 - 840417	
	BY IDFG	ADCLIP

840526	1	34
840527	0	0
840528	0	0
840529	0	0
840530	1	35
840531	1	34
840601	0	0
840602	1	37
840603	0	0
840604	1	31
840605	1	33
840606	0	0
840607	0	0
840608	0	0
840509	0	0
840610	0	0
840511	1	28
840512	0	0
840613	0	0
840614	0	0
840615	0	0
840616	0	0
840617	0	0
840618	0	0
840619	0	0
840620	0	0
840621	1	36
TOTALS	6	268

LA J 3 MARKED STEELHEAD	RELEASED AT DECKER FLAT ON 840416 - 840417	
	BY IDFG	ADCLIP

840525	1	34
840526	1	34
840527	0	0
840528	0	0
840529	1	36
840530	0	0
840531	0	0
840601	0	0
840602	0	0
840603	0	0
840604	0	0

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
840605	0	0
840605	0	0
840607	0	0
840609	1	31
840609	0	0
840611	0	0
840611	2	57
840612	1	27
840613	0	0
840614	0	0
840615	0	0
840616	0	0
840617	0	0
840618	0	0
840619	1	37
TOTALS	2	256

RA J 1 MARKED STEELHEAD RELEASED AT DWURSHAK HAT ON 840504 -
BY IDFG

840515	1	74
840516	2	70
840517	9	308
840518	13	594
840519	7	232
840520	10	315
840521	4	131
840522	5	176
840523	5	173
840524	0	0
840525	2	68
840526	2	69
840527	1	32
840528	1	30
840529	1	36
840531	0	0
840531	0	0
840601	1	35
840602	1	37
840603	0	0
840604	1	31
840605	0	0
840606	0	0
840607	0	0
840608	0	0
840609	0	0
840610	0	0
840611	2	57

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE COLLECTED	NUMBER RELEASED	ESTIMATED PASSAGE
RA J 1 MARKED STEELHEAD	RELEASER AT DWORSHAK HAT ON 840504 - BY IDFG	

(CONT)

840612	0	0
840613	0	0
840614	0	0
840615	0	0
840616	0	0
840617	0	0
840618	1	32
840619	1	37

TOTALS	75	2,497
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RA J 3 MARKED STEELHEAD	RELEASER AT HELLS CANYON ON 840430 - BY IDFG	ADCLIP
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840517	1	34
840518	0	0
840519	0	0
840520	0	0
840521	0	0
840522	0	0
840523	1	35
840524	0	0
840525	0	0
840526	0	0
840527	0	0
840528	0	0
840529	0	0
840530	0	0
840531	0	0
840601	0	0
840602	0	0
840603	0	0
840604	0	0
840605	0	0
840606	0	0
840607	0	0
840608	0	0
840609	1	29
840610	0	0
840611	0	0
840612	0	0
840613	0	0
840614	0	0
840615	0	0

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
840616	0	0
840617	0	0
840618	0	0
840619	1	37
840620	0	0
840621	1	36
840622	0	0
840623	0	0
840624	0	0
840625	0	0
840626	1	36
TOTALS	6	207

LA S 1 MARKED STEELHEAD RELEASED AT LYONS FERRY ON 830501 - 830520 BY WDG

840418	1	30
840419	0	0
840420	0	0
840421	0	0
840422	0	0
840423	0	0
840424	0	0
840425	0	0
840426	2	53
840427	1	30
840428	1	27
840429	0	0
840430	0	0
840501	0	0
840502	1	22
TOTALS	6	164

RA S 1 MARKED STEELHEAD RELEASED AT LYONS FERRY ON 830509 - 830513 BY WDG

840513	1	31
840514	0	0
840515	0	0
840516	0	0
840517	0	0
840518	0	0
840519	0	0
840520	0	0
840521	1	33

EFFECTIVE DATES: 4/3/64 THRU 8/31/64

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
RA S 1 MARKED STEELHEAD	RELEASED AT LYONS FERRY	CN 830509 - 830513
	BY WDG	

(CONT)

840522	0	0
840523	0	0
840524	0	0
840525	1	34
840526	0	0
840527	0	0
840528	0	0
840529	0	0
840530	0	0
840531	0	0
840601	0	0
840602	0	0
840603	0	0
840604	0	0
840605	0	0
840606	0	0
840607	1	31
840608	0	0
840609	0	0
840610	0	0
840611	0	0
840612	1	27

TOTALS	5	156
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RA S 2 MARKED STEELHEAD	RELEASED AT LYONS FERRY	CN 830509 - 830513
	BY WDG	

840613	1	27
TOTALS	1	27

LA T 2 MARKED STEELHEAD	RELEASED AT NACHES R.	CN 840416 - 840419
	BY WDG	ADCCLIP

840425	2	58
840426	3	83
840427	3	89
840428	0	0
840429	2	53
840430	7	164
840501	9	229

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE COLLECTED	NUMBER RELEASED	ESTIMATED PASSAGE
LA T 2 MARKED STEELHEAD	AT NACHES R. BY WDG	CN 840416 - E40419 ADCLIP

(CONT)

840502	0	0
840503	3	77
840504	2	55
840505	0	0
840506	0	0
840507	0	0
840508	0	0
840509	0	0
840510	0	0
840511	5	152
840512	1	28
840513	0	0
840514	0	0
840515	1	34
840516	0	0
840517	0	0
840518	5	165
840519	5	166
840520	2	63
840521	2	66
840522	0	0
840523	0	0
840524	0	0
840525	2	68
840526	1	34
840527	1	32
840528	0	0
840529	0	0
840530	0	0
840531	0	0
840601	0	0
840602	0	0
840603	0	0
840604	0	0
840605	0	0
840606	0	0
840607	0	0
840608	0	0
840609	0	0
840610	0	0
840611	1	28

TOTALS	57	1,644
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EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
LA T 4 MARKED STEELHEAD	RELEASED AT NACHES R.	EN 840416 - E40419
	BY WDG	ADCLIP

840425	2	58
840426	4	111
840427	0	0
840428	2	54
840429	2	53
840430	4	94
840501	3	76
840502	3	66
840503	5	129
840504	0	0
840505	0	0
840506	0	0
840507	1	26
840508	0	0
840509	0	0
840510	0	0
840511	1	30
840512	0	0
840513	1	31
840514	0	0
840515	0	0
840516	0	0
840517	1	34
840518	3	99
840519	1	33
840520	0	0
840521	5	164
840522	5	106
840523	2	59
840524	0	0
840525	2	68
840526	2	69
840527	0	0
840528	0	0
840529	0	0
840530	0	0
840531	0	0
840601	0	0
840602	0	0
840603	0	0
840604	1	31
840605	0	0
840606	0	0
840607	0	0
840608	1	31
840609	0	0

EFFECTIVE DATES: 4/3/34 TENU 8/31/34

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
840610	0	0
840611	0	0
840612	0	0
840613	1	31
TOTALS	50	1,463

LA 3C 1 MARKED STEELHEAD RELEASED AT PRESSER RM48 CN 840429 -
BY YAKIMA VC

340523	1	35
TOTALS	1	35

LA 3C 2 MARKED STEELHEAD RELEASED AT PRESSER RM4E CN 840503 -
BY YAKIMA VC

840513	2	66
840519	0	0
840520	0	0
840521	1	33
TOTALS	3	99

RA 3L 2 MARKED STEELHEAD RELEASED AT PFCSSEF RM48 ON 840503 -
BY YAKIMA DE

840521	1	32
TOTALS	1	32

LA 7C I MARKED STEELHEAD RELEASED AT METHOW R. CN 940423 -
BY USEWS

840506	2	55
840505	21	557
840506	62	1,546
840507	34	895
840508	30	803
840509	10	248
840510	21	557
840511	26	790

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED FASSAGE
LA 7C 1 MARKED STEELHEAD	RELEASED AT METHOW R.	ON 840423 -
	BY USFWS	

(CONT'D)

840512	12	335
840513	10	313
840514	9	231
840515	4	136
840516	9	314
840517	14	478
840518	13	429
840519	12	398
840520	13	410
840521	14	460
840522	14	494
840523	11	380
840524	6	205
840525	7	238
840526	2	69
840527	6	190
840528	1	30
840529	1	36
840530	3	104
840531	2	67
840601	1	35
840602	0	0
840603	0	0
840604	0	0
840605	0	0
840606	0	0
840607	0	0
840608	0	0
840609	2	57
TOTALS	372	10,863

LA 7C 3 MARKED STEELHEAD	RELEASED AT METHOW R.	ON 840427 -
	BY USFWS	

840507	1	26
840508	10	268
840509	14	347
840510	55	1,458
840511	63	1,915
840512	49	1,370
840513	27	846
840514	21	539
840515	15	544

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE COLLECTED	NUMBER COLLECTED	ESTIMATED PASSAGE
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LA 7C 3 MARKED STEELHEAD RELEASED AT METHOW R. CN 840427 -
BY USFWS

(CONT)

840515	17	592
840517	15	513
840518	20	660
840519	13	431
840521	14	442
840521	12	394
840522	13	535
840523	11	380
840524	15	511
840525	13	442
840526	7	240
840527	7	221
840528	0	0
840529	3	109
840530	0	0
840531	1	34
840601	2	70
840602	2	74
840603	0	0
840604	0	0
840605	1	33
840606	0	0
840607	0	0
840608	1	31
840609	1	29

TOTALS	429	13,154
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LA 7P 1 MARKED STEELHEAD RELEASED AT BELOW PRIEST CN 840501 -
BY USFWS

840507	6	158
840508	9	241
840509	5	124
840510	13	345
840511	12	365
840512	5	140
840513	0	0
840514	2	51
840515	0	0
840516	1	35
840517	0	0
840518	4	132
840519	1	35

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
LA 7P 1 MARKED STEELHEAD	RELEASED AT BELOW PRIEST ON 340501 - BY USFWS	

(CONT)

840520	0	0
840521	1	33
840522	1	35
840523	2	69
840524	2	68
840525	1	34
840526	2	69
840527	3	95
840528	0	0
840529	0	0
840530	0	0
840531	1	34
840601	0	0
840602	1	37

TOTALS	72	2,098
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LA 7P 2 MARKED STEELHEAD	RELEASED AT BELOW PRIEST ON 640503 - BY USFWS
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840508	1	27
840509	4	92
840510	32	845
840511	17	517
840512	9	252
840513	3	251
840514	1	26
840515	2	68
840516	2	70
840517	1	34
840518	0	0
840519	2	66
840520	0	0
840521	1	33
840522	0	0
840523	0	0
840524	2	68
840525	0	0
840526	1	74
840527	1	32
840528	0	0
840529	0	0
840530	0	0
840531	0	0

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
840601	0	0
840602	0	0
840603	0	0
840604	0	0
840605	0	0
840606	0	0
840607	0	0
840608	0	0
840609	0	0
840610	0	0
840611	1	28
TOTALS	95	2,453

LA 7P 3 MARKED STEELHEAD RELEASED AT BELOW FRIEST CN 840502 -
BY USFWS

840508	10	268
840509	9	223
840510	26	689
840511	19	576
840512	11	308
840513	4	125
840514	3	77
840515	1	34
840516	1	35
840517	0	0
840518	0	0
840519	1	33
840520	1	32
840521	1	33
840522	1	35
840523	1	35
840524	0	0
840525	2	65
840526	1	34
840527	0	0
840528	0	0
840529	1	36
TOTALS	93	2,643

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
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RA 7P 1 MARKED STEELHEAD RELEASED AT BELCH PRIEST CN 840504 -
BY USFWS

840510	19	504
840511	26	790
840512	5	224
840513	6	188
840514	3	77
840515	3	102
840516	1	35
840517	0	0
840518	1	33
840519	2	66
840520	0	0
840521	1	33
840522	1	75
840523	0	0
840524	0	0
840525	2	68
TOTALS	73	2,155

RA 7P 2 MARKED STEELHEAD RELEASED AT BELCH PRIEST CN 840505 -
BY USFWS

840511	9	274
840512	23	643
840513	10	313
840514	4	103
840515	6	204
840516	1	35
840517	5	171
840518	2	66
840519	1	33
840520	1	32
840521	0	0
840522	0	0
840523	2	69
840524	0	0
840525	0	0
840526	2	69
840527	0	0
840528	0	0
840529	0	0
840530	0	0
840531	0	0
840601	0	0

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
840602	0	0
840603	0	0
840604	0	0
840605	0	0
840605	1	31
TOTALS	67	2,043

RA 7P 3 MARKED STEELHEAD RELEASED AT BELOW PRIEST ON 840507 -
BY USFWS

840510	1	27
840511	0	0
840512	1	28
840513	19	595
840514	22	564
840515	10	340
840516	5	174
840517	4	137
840518	3	99
840519	3	99
840520	1	32
840521	0	0
840522	0	0
840523	1	35
840524	1	34
840525	3	102
840526	1	34
840527	0	0
840528	0	0
840529	1	36
TOTALS	76	2,336

RA 7P 4 MARKED STEELHEAD RELEASED AT BELOW PRIEST ON * -
BY USFWS

840523	1	35
TOTALS	1	35

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE COLLECTED	NUMBER RELEASED	ESTIMATED PASSAGE
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RA F 1 MARKED CHINOOK O'S RELEASED AT BELCH PRIEST ON 840613 -
BY USFWS

840624	1	0
840625	0	0
840626	1	0
840627	5	0
840628	5	0
840629	0	0
840630	0	0
840701	0	0
840702	0	0
840703	1	0
840704	0	0
840705	0	0
840706	0	0
840707	0	0
840708	0	0
840709	0	0
840710	0	0
840711	0	0
840712	0	0
840713	0	0
840714	0	0
840715	0	0
840716	0	0
840717	0	0
840718	0	0
840719	0	0
840720	0	0
840721	0	0
840722	0	0
840723	0	0
840724	1	0
840725	4	0
840726	1	0
840727	5	0
840728	2	0
840729	1	0
840730	0	0
840731	3	0
840801	5	0
840802	1	0
840803	2	0
840804	1	0
840805	0	0
840806	4	0
840807	0	0
840808	2	0

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE COLLECTED	NUMBER RELEASED	ESTIMATED PASSAGE
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RA F 1 MARKED CHINOOK O'S RELEASED AT BELOW FRIEST CN 840613 -
BY USFWS

(CONT)

840809	6	0
840810	1	0
840811	4	0
840812	0	0
840813	0	0
840814	0	0
840815	0	0
840816	0	0
840817	0	0
840818	0	0
840819	0	0
840820	0	0
840821	1	0
840822	1	0
840823	0	0
840824	0	0
840825	0	0
840826	0	0
840827	1	0
840828	0	0
840829	0	0
840830	1	0
840831	1	0
 TOTALS	59	0

LA S 1 MARKED CHINOOK O'S RELEASED AT BELOW FELLS ON 840530 -
BY USFWS

840621	1	0
840622	0	0
840623	1	0
840624	1	0
840625	0	0
840626	1	0
840627	3	0
840628	1	0
840629	0	0
840630	0	0
840701	0	0
840702	2	0
840703	0	0
840704	0	0
840705	0	0
840706	1	0

EFFECTIVE DATES: 4/3/84 THRU 7/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
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LA S 1 MARKED CHINOOK O'S RELEASED AT BELOW FIELDS CN 840530 -
BY USFWS

(CONT)

840707	0	0
840708	0	0
840709	0	0
840710	0	0
840711	0	0
840712	0	0
840713	0	0
840714	1	0
840715	0	0
840716	0	0
840717	0	0
840718	3	0
840719	0	0
840720	0	0
840721	0	0
840722	0	0
840723	0	0
840724	0	0
840725	0	0
840726	2	0
840727	2	0
840728	0	0
840729	2	0
840730	3	0
840731	3	0
840801	1	0
840802	0	0
840803	1	0
840804	0	0
840805	0	0
840806	2	0
840807	1	0
840808	0	0
840809	0	0
840810	0	0
840811	1	0
TOTALS	30	0

RA 3 1 MARKED CHINOOK O'S RELEASED AT BELOW FRIEST CN 840613 -
BY USFWS

840625	3	0
840626	3	0

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
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RA 3 1 MARKED CHINOOK O'S RELEASED AT BELCH PRIEST CN 840613 -
BY USFWS

(CONT)

840627	2	0
840628	2	0
840629	1	0
840630	0	0
840701	1	0
840702	0	0
840703	0	0
840704	0	0
840705	0	0
840706	0	0
840707	0	0
840708	0	0
840709	0	0
840710	0	0
840711	0	0
840712	0	0
840713	0	0
840714	0	0
840715	0	0
840716	0	0
840717	0	0
840718	0	0
840719	0	0
840720	0	0
840721	0	0
840722	0	0
840723	0	0
840724	4	0
840725	6	0
840726	5	0
840727	6	0
840728	1	0
840729	1	0
840730	3	0
840731	4	0
840801	6	0
840802	2	0
840803	4	0
840804	0	0
840805	1	0
840806	4	0
840807	0	0
840808	2	0
840809	8	0
840810	3	0
840811	0	0

EFFECTIVE DATES: 4/3/84 THRU 8/31/84

DATE	NUMBER COLLECTED	ESTIMATED PASSAGE
840812	0	0
840813	0	0
840814	0	0
840815	0	0
840816	0	0
840817	0	0
840818	0	0
840819	0	0
840820	0	0
840821	2	0
840822	0	0
840823	4	0
TOTALS	78	0

Appendix II :
1984 Columbia Basin
Hatchery Releases

APPENDIX II: HATCHERY RELEASES FOR 1984 OUTMIGRATION

Agency	Hatchery	Release Date	Number Released	Species/ Stock	Brd Yr	Size #/lb	Release Site	Comments
USFWS	Dworshak NPH ¹	3/29 & 4/4	51,714	Spr Chinook /Rapid R	82	6.0 (198mm)	Kooskia NPH, Clear Creek	
		3/19-3/20	234,166	Spr Chinook /Leavenworth	82	8.14 (188mm)	Dworshak NPH, Clearwater R	
		3/26	169,787	Spr Chinook /Clear Cr, Kooskia	82	18.1 (146mm)	Kooskia NPH, Clear Creek	
		4/4	25,423	Spr Chinook /Leavenworth	82	6.3	Dworshak NPH, NF Clearwater R	
		10/3-11/3/83	75,179	Spr Chinook /Leavenworth	82	5.2- 7.7	North Fork, Clearwater R	
		4/23-5/15	1,208,319	Steelhead /Dworshak B	83	5.8- 6.3	Dworshak NPH, NF Clearwater R	All but 250K Ad clip, 40,092 CWT 5-13-35, 99,406 CWT 10-25-16 & 17, 19,969 FB RA-J-1.
		5/3-4	246,123	Steelhead /Dworshak B	83	5.0- 5.4	Clear Creek	
		4/30-5/6	506,930	Steelhead /Dworshak B	83	5.3- 5.8	S.F. Clearwater	
		3/26	47,103	Spr Chinook /Clear Cr, Kooskia	82	9.7 (162mm)	Kooskia NPH, Clear Creek	
		3/19-21	190,605	Spr Chinook /Rapid R	82	5.8 (180mm)	Kooskia NPH, Clear Creek	
Hagerman NPH ¹		3/6-21	90,650	Spr Chinook /Leavenworth	82	6.5 (12.6mm)	Dworshak NPH, NF Clearwater R	
		2/28 - 3/6	50,487	Steelhead /A	83	3.7	Hells Canyon	Surplus release
		4/16-17	40,322	Steelhead /A	83	2.1	Decker Flat, Salmon R	100% CWT 5-10-29 21,146 FB LA-J-1
		4/16-17	39,763	Steelhead /A	83	5.3	Decker Flat, Salmon R	100% CWT 5-10-28 22,238 FB LA-J-3
		4/2-5/3	397,079	Steelhead /A	83	2.5	Decker Flat, Salmon R	
		4/19-26	96,425	Steelhead /A	83	2.6	Little Salmon R	100% CWT 5-13-36

¹ All steelhead are adipose clipped, all steelhead with CWT are left ventral clipped, all chinook with CWT are adipose clipped.

HATCHERY RELEASES FOR 1984 OUTMIGRATION

Agency	Hatchery	Release Date	Number Released	Species/ Stock	Brd Yr	Size #/lb	Release Site	Comments
USFWS	Hagerman NFH ¹	3/27-4/13	393,452	Steelhead /B	83	4.4	E.F. Salmon R	
		4/19-4/26	95,624	Steelhead /B	83	4.4	Little Salmon R	56,900 CWT 10-28-6, 38,700 CWT 10-28-7
		5/8, 5/30 & 6/1	419,747	Spr Chinook /LWS	83	22.5- 41.0	Dworshak NFH, Clearwater R	Tetracycline marked, 147,780 CWT 10-26-(06-09)
		6/5 & 6/13	427,191	Fall Chinook /IH Snake FCS	83	52.8	Mouth Grande Ronde R	61,146 CWT 5-13-54
Entiat NFH		2/28	150,000	Spr Chinook /Entiat	83	761	Entiat R	Excess fry plant
		5/15-5/23	29,636	Spr Chinook /Carson	82	19	Niles Spring, Naches R	28,450 CWT & Ad Clip 5-11-47, 4,653 FB RA-3T-1
		4/9-4/11	42,552	Spr Chinook /Carson	82	24.0	Yakima R	volitional rel. by Yakima Tribe 41,573 CWT & Ad Clip 5-11-48, 6,818 FB RA-7K-1 by Yakima Tribe
		4/23	386,436	Spr Chinook /Entiat	82	16.5	Entiat R	
Leavenworth NFH		4/23	259,022	Spr Chinook /Carson	82	21.3	Entiat R	
		4/23	2,316,480	Spr Chinook /Leavenworth	82	15	Icicle Cr	
		4/06	626,400	Spr Chinook /Leavenworth	83	435	Icicle Cr	Excess fry plant
		6/5-6/6	102,837	Spr Chinook /Leavenworth	83	67	Yakima R	93,582 CWT 5-15-25 & Ad Clip, 8,124 FB LA-2-1 Rel by Yakima Tribe

¹ All steelhead are adipose clipped, all steelhead with CWT are left ventral clipped, all chinook with CWT are adipose clipped.

HATCHERY RELEASES FOR 1984 OUTMIGRATION

Agency	Hatchery	Release Date	Number Released	Species/ Stock	Brd Yr	Size #/lb	Release Site	Comments
USFWS	Winthrop NFH	12/25/83	363,200	Spr Chinook /Winthrop	82	19.0	Methow R	
		4/23	621,881	Spr Chinook /Winthrop	82	15	Methow R	Emergency release due to ice build-up on intake 20,319 FB LA-1Z-1
		4/20	281,300	Spr Chinook /Winthrop	83	197	Methow R	Excess Fry plant
	Spring Creek NFH	4/16	5,225,847	Fall Chinook /Tule	83	70	Spring Cr NFH, Columbia R	50 K CWT 5-11-46
		5/16	5,798,526	Fall Chinook /Tule	83	63	Spring Cr NFH, Columbia R	150 K CWT 5-11-(50-52)
		4/18 & 5/17	2,869,174	Fall Chinook /Tule	83	75	Big White Salmon R	
		5/30-6/19	14,117	Fall Chinook /Tule	83	55	Bonneville Dam, RM 141	
		6/15	107,532	Fall Chinook /Upriver Brights	83	250	Social Security Lake, RM 291	72,027 CWT H5/6/6
		4/20-5/15	183,408	Fall Chinook /Upriver Brights	83	159	Columbia R, RM 229, Wash. side, Rock Crk	79,610 CWT H5/6/7
		7/9	929,771	Fall Chinook /Upriver Bright	83	70	Little White Salmon R	
		6/12 & 13	510,639	Fall Chinook /Upriver Bright	83	123	Yakima R	99,522 CWT 5-15-31 103,822 CWT 5-15-26
		6/29	1,868,966	Fall Chinook /Upriver Bright	83	130	Priest Rapids area	200 K CWT 5-15-25
		5/9	26,056	Fall Chinook /Upriver Brights	83	376 & 178	Yakima R, RM 48	Rel by tribe from Wh Swan Hatch
		7/31	16,607	Fall Chinook /Tule	83	35	Spring Crk NFH, Columbia R	
	Carson NFH	6/12-6/14	539,886	Fall Chinook /Brights	83	55 & 132	Yakima R	Rel by tribe from Wh Swan Hatch
		4/12-4/13	2,886,560	Spr Chinook /Carson	82	15	Wind River at Hatchery	114,052 CWT 5-8-(58-63) 348,307 CWT 5-9-(16-27)
		4/17	101,840	Spr Chinook /Carson	82	17	Catherine Creek	

HATCHERY RELEASES FOR 1984 OUTMIGRATION

Agency	Hatchery	Release Date	Number Released	Species/ Stock	Brd Yr	Size #/lb	Release Site	Comments
USFWS	Warm Springs	10/24/83	61,864	Spr Chinook /Warm Springs	82	10	Deschutes R.	
		4/13	625,913	Spr Chinook /Warm Springs	82	18	Deschutes R.	
	Little White Salmon/Willard	4/19	212,994	Spr Chinook /Little Wh Salmon	82	12	Little White Salmon R	45 K CWT 5-11-40
		5/7 & 6/22	423,352	Spr Chinook /Little Wh Salmon	83	65	Little White Salmon R	97635 CWT 5-14-(57-58)
		6/22	150,269	Spr Chinook /Little Wh Salmon	83	39.7	Little White Salmon R	47795 CWT 5-14-59
		4/18,5/16-17 & 6/8	2,566,534	Coho /Little Wh Salmon	82	18-20	Little White Salmon R	340,180 CWT 5-12-(24-41)
		6/5	6,849,023	Fall Chinook /Tule	83	79	Little White Salmon R	
IDFG ¹	Niagara Spring	11/16-20/83	228,800	Steelhead /A	83	19.1	Pahsimeroi R	Subsmolts
		11/22-30/83	449,070	Steelhead /A	83	16.5	Snake R, Hells Canyon	Subsmolts
		4/2-4/24	724,245	Steelhead /A	83	4	Pahsimeroi R	Genetic evaluation, 41,019 CWT 10-27-46 40,919 CWT 10-25-19 39,749 CWT 10-27-44 40,122 CWT 10-27-45 21,623 FB RA-J-3
		4/30-5/4	408,430	Steelhead /A	83	4.4	Snake R, Hells Canyon	
	Red River	10/20/83	260,000	Spr Chinook /Rapid River	82	22-24	Red River	62,821 CWT 10-24-59 15,844 FB LA-SU-2
		4/16	80,000	Spr Chinook /Rapid River	82	20	Red River	40,000 CWT 10-24-63 15,000 FB LA-SU-4
	Mackay	6/6	147,000	Sockeye /Babine	83	70	Stanley Lake	
		6/6	63,000	Sockeye /Babine	83	70	Alturas Lake	

¹ All steelhead are adipose clipped, all steelhead with CWT are left ventral clipped, all chinook with CWT are adipose clipped.

HATCHERY RELEASES FOR 1984 OUTMIGRATION

Agency	Hatchery	Release Date	Number Released	Species/ Stock	Brd Yr	Size #/lb	Release Site	Comments
IDFG ¹	Magic Valley	4/2-4/18	204,170	Steelhead /A	83	2.6	Salmon R, Sawtooth	
		4/19-4/23	31,542	Steelhead /B	83	3.8	Salmon R, Slate Creek	
		4/23	10,004	Steelhead /B	83	3.8	Salmon R, Allison Creek	
		4/25	18,860	Steelhead /B	83	4.1	East Fork Salmon	
Rapid River		2/4-4/10	3,246,197	Spr Chinook /Rapid R	82	20.1	Rapid River	23,840 FB RD-J-3, Volitional release
		3/20-3/21	500,850	Spr Chinook /Rapid R	82	27	Snake R, Hells Canyon	85,664 CWT 10-24-4 & 5 85,664 FB RD-J-1
McCall		3/27-3/29	230,550	Spr Chinook /Sawtooth	82	15.9	Salmon R, Sawtooth Hatchery	104,773 CWT 10-27-8 & 9, 33,934 FB LD-J-3
		4/9-4/11	269,880	Sum Chinook /SF	82	15.6	S.F. Salmon R	51,539 CWT 10-27-38 25,555 FB LD-J-1
		6/6	30,990	Sum Chinook /SP	83	30	S.F. Salmon R	
Pahsimeroi		3/3-4/3	1,143,029	Spr Chinook /Rapid R	82	20	Pahsimeroi R	
		4/3	55,803	Sum Chinook /Pahsimeroi	82	19	Pahsimeroi R	
WDG	Lyons Ferry	10/83-1/84	92,540	Steelhead /Wells-Wallowa	84	25-119	Snake R	Surplus release
		4/18-5/1	57,815	Steelhead /Wallowa	83	3.3-5.3	Snake R at Lyons Ferry	50,450 FB RD-IT-2, Volitional release
		4/18-5/1	80,563	Steelhead /Wells	83	3.3-5.6	Snake R at Lyons Ferry	51,005 FB RD-IT-1, Volitional release
		4/12-4/20	133,235	Steelhead /Wells	83	4.6-5.6	Walla Walla	
		4/10-4/18	144,665	Steelhead /Wells	83	4.8-5.7	Touchet	
		4/18	30,510	Steelhead /Wells	83	5.4	Mill Creek	

¹ All steelhead are adipose clipped, all steelhead with CWT are left ventral clipped, all chinook with CWT are adipose clipped.

HATCHERY RELEASES FOR 1984 OUTMIGRATION

Agency	Hatchery	Release Date	Number Released	Species/ Stock	Brd Yr	Size #/lb	Release Site	Comments
WDG	Lyons Ferry	4/22-4/26 5/8-5/10	195,315	Steelhead /Wallowa	83	4.9-9.0	Tucannon Hatchery	63-32-(12-15) CWT & LV clip, 30,473 FB RA-IJ-1, 27,122 RA-IJ-2, 31,790 RA-IV-1, 30,930 RA-IV-3
		5/7-5/11	33,005	Steelhead /Wallowa	83	8.2	Asotin Creek	
	Wells	4/16-4/24	76,080	Steelhead /Wells	83	4.8-6.4	Similkameen R	
		4/17-5/8	391,165	Steelhead /Wells	83	4.8-7.3	Methow R System	32,137 FB LA-7C-1, 31,301 LA-7C-3
		5/1-5/7	24,923	Steelhead /Wells	83	5.5-6.7	Col R below Priest Rapids	12,704 FB LA-7P-1,2&3 12,219 RA-7P-1,2&3
Ringold Rearing Pond	Ringold	4/16-5/1	201,008	Steelhead /Ringold	83	6.8	Columbia R, Ringold	
Naches (Nelson Sp)	Naches	4/16-4/19	49,288	Steelhead /Ringold	83	8.0	Naches R, Buckskin Creek	100% Ad Clip 24,635 FB LA-T-2, 24,654 LA-T-4
		4/9-4/23	51,570	Steelhead	83	6.0	Klickitat R	
Chelan PUD		4/2-4/26	165,194	Steelhead /Wells	83	4.5-7.5	Wenatchee R System	
		4/18-4/20	47,021	Steelhead /Wells	83	5.5-7.5	Entiat R	
Turtle Rock		4/4-4/25	159,240	Steelhead /Ringold	83	6.2-8.0	Wenatchee R System	15,538 CWT 62-16-35 & Ad Clip
Skamania		4/25-4/27	40,141	Steelhead /Skamania	83	5.0-5.2	Wind R	Selective Harvest, Ad Clip
		5/1	10,141	Steelhead /Skamania	83	4.5-5.0	White Salmon R	Winter Run
		4/17-5/3	98,719	Steelhead /Skamania	83	5.4-6.7	Klickitat R	100 K Ad Clip
Vancouver		5/1	14,252	Steelhead /Skamania	83	5.6	White Salmon R.	

HATCHERY RELEASES FOR 1984 OUTMIGRATION

Agency	Hatchery	Release Date	Number Released	Species/ Stock	Brd Yr	Size #/lb	Release Site	Comments
WDF	Klickitat	3/13	500,000	Spr Chinook /Klickitat	82	10	Klickitat R	
		2/21	1,116,100	Spr Chinook /Cowlitz	83	204	Upper Klickitat R	Subyearlings
		4/17	230,400	Spr Chinook /Klickitat	83	145	Upper Klickitat R	Subyearlings
		6/7	1,195,800	Fall Chinook /Kalama & Klick	83	71	Klickitat R	
		4/24	799,300	Coho (Type S) /Grays R	82	19	Klickitat R	
		4/24	540,000	Coho (Type N) /Cowlitz	82	19	Klickitat R	
		3/22-25	950,000	Spr Chinook /Klickitat	82	7	Ringold (Spring Creek)	
Priest Rapids	Ringold Rearing Ponds	5/22	2,100,000	Fall Chinook /Upriver Brights	83	55	Ringold	
		6/11-7/10	9,742,701	Fall Chinook /Upriver Brights	83	74-84	Priest Rapids Hatchery	36,704 RA-F-1, 44,608 RA-3-1
		5/10	226,276	Fall Chinook /Upriver Brights	82	14.4	Rocky Reach	100% CWT 63-28-44
		7/10-7/11	533,800	Fall Chinook /Upriver Brights	83	117	Rocky Reach	Snake R and Priest Rapids Cross
		5/1	517,100	Coho (Type N) /Cowlitz	82	12.6	Rocky Reach	
ODFW	Wells	5/30	1,240,865	Sum Chinook /Wells	83	46	Wells Hatchery	100% CWT 63-28-45 101,653 FB LA-S-1
		3/16-3/22	222,580	Fall Chinook /Brights	82	9	Umatilla R(Meacham Cr)	94,610 CWT 07-28-29 & Ad Clp
		6/18-6/29	965,312	Fall Chinook /Brights	83	82-87	Columbia, John Day and Umatilla Rivers	195,824 CWT 07-31-24

HATCHERY RELEASES FOR 1984 OUTMIGRATION

Agency	Hatchery	Release Date	Number Released	Species/ Stock	Brd Yr	Size #/lb	Release Site	Comments
ODFW	Round Butte	1/18	23,744	Spr Chinook /Deschutes	83	448	Deschutes R	
		4/16-5/30	162,648	Spr Chinook /Deschutes	82	5-9.5	Deschutes R	100% CWT 07-28-(39-42)
		5/8-29	4,801	Spr Chinook /Deschutes	83	25-37	White R	
		4/16-5/1	170,766	Steelhead /Deschutes	83	4	Deschutes & White R	
Lookingglass	Lookingglass	3/22	29,184	Spr Chinook /Imnaha	82	32	Imnaha R	100% CWT 07-28-20
		4/5	29,874	Spr Chinook /Lookingglass	82	31	Lookingglass Creek	100% CWT 07-28-60
		6/13-14	382,500	Spr Chinook /Lookingglass	83	188	Cathrine Creek	Presmolts
		6/18-7/17	351,682	Spr Chinook /Lookingglass	83	110	Grande Ronde	Presmolts, 20,705 CWT 07-30-(03-04)
		7/12-13	243,535	Spr Chinook /Lookingglass	83	79	Lookingglass Creek	Presmolts, 107,155 CWT 07-30-(01-02)
		4/4-16	90,589	Steelhead /S. Santiam	83	3.9-5.5	Hood R	
Irrigon	Irrigon	5/8-11	57,947	Steelhead /Umatilla	83	6	Umatilla R (Meacham Cr)	
		4/30-5/2	24,606	Steelhead /Imnaha	83	7.8-10.2	Little Sheep Creek	
Wallowa	Wallowa	4/24	40,818	Steelhead /Wallowa	83	7.1-9.0	Spring Creek	
		4/23-5/3	500,274	Steelhead /Wallowa	83	6-9.3	Grande Ronde R	
		4/23	40,179	Steelhead /Wallowa	83	5.6	Little Sheep Creek	
Oxbow	Oxbow	5/16	150,810	Spring Chinook /Carson	83	148	Grand Ronde (R-2)	