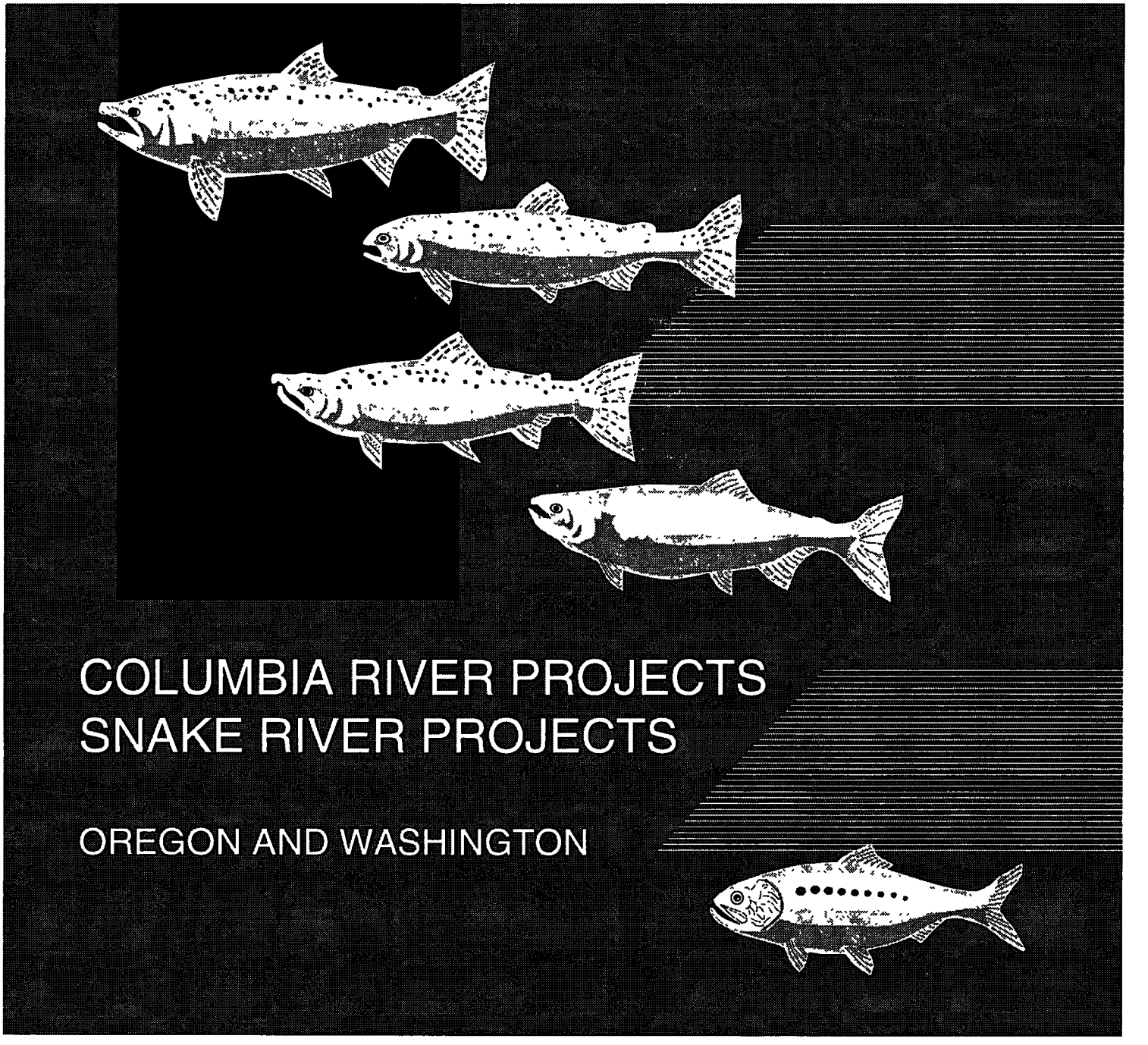
US Army Corps
of Engineers
Portland & Walla Walla District

Annual Fish Passage Report
1993



COLUMBIA RIVER PROJECTS
SNAKE RIVER PROJECTS

OREGON AND WASHINGTON

1993

ANNUAL FISH PASSAGE

REPORT

COLUMBIA AND SNAKE RIVERS

FOR

SALMON, STEELHEAD AND SHAD

BONNEVILLE DAM
THE DALLES DAM
JOHN DAY DAM
NcNARY DAM
ICE HARBOR DAM
LOWER MONUMENTAL DAM
LITTLE GOOSE DAM
LOWER GRANITE DAM
PRIEST RAPIDS DAM
ROCK ISLAND DAM
ROCKY REACH DAM
WELLS DAM

NORTH PACIFIC DIVISION
U.S. ARMY CORPS OF ENGINEERS

Prepared By:
U.S. Army Engineer Districts
Portland and Walla Walla

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ANNUAL FISH PASSAGE REPORT

COLUMBIA

and SNAKE RIVER PROJECTS

CALENDAR YEAR 1993

BONNEVILLE DAM

Fish Counting Schedule

1 Jan - 14 Mar	No counting.
15 Mar - 31 Mar	Fish were counted in both ladders for one 8-hour shift each day by direct observation, 0800-1600 hours Pacific Standard Time.
1 Apr - 31 Oct	Fish were counted in both ladders for two 8-hour shifts each day by direct observation, 0400-2000 hours Pacific Standard Time.
1 Nov - 15 Nov	Fish were counted in both ladders for one 8-hour shift each day by direct observation, 0800-1600 hours Pacific Standard Time.
16 Nov - 31 Dec	No counting by direct observation.

Beyond the counting described above, there was additional counting for the purposes explained below. These counts are presented separately. To preserve comparability, they have not been added to the other tables of this report.

(1) Counting was done in the summer to complete 24 h/d counting during the sockeye passage season. This was done by video monitoring from 2000 through 0400 hours Pacific Standard Time daily, starting the evening of 31 May and ending the morning of 16 August.

(2) Video monitoring was done in the winter to provide 16 h/d counts to monitor winter steelhead passage. Video counting was done 8 h/d from 1 November through 15 November 0400-0800 and 1600-2000 hours (supplementing

regular counting described above), and 16 h/d 0400-2000 hours from 16 November through the end of the year (continuing until regular counting began in 1994).

Adult Fish Facilities Operating Schedule

Bradford Island Fish Ladder:

20 Dec - 22 Dec Ladder was out of service for annual maintenance.

Bradford Is. A-branch:

20 Dec - 22 Dec Branch was out of service while entire system was down for annual maintenance.

Bradford Is. B-branch:

29 Nov - 22 Dec Branch was out of service for annual maintenance.

Second Powerhouse Fish Ladder:

1 Jan - 14 Jan Annual maintenance. Upstream Migrant Transportation (UMT) channel was drained through this time also.

Fishway auxiliary water supply turbines (F1 & F2) were in service continuously with the following exceptions:

4 Jan - 4 Feb	F1	Overhaul (749.8 hours).
4 Jan - 14 Jan	F2	Overhaul (249.3 hours).
24 Jan	F2	Water in turbine bearing (3.2 hours).
10 Feb - 12 Feb	F2	Oil leak repair (57.8 hours).
11 Mar	F2	Loss of field trip (.3 hours).
13 Mar - 14 Mar	F1	HC pump discharge hose (3.3 hours at night).
5 Apr - 6 Apr	F2	Loss of field trip (1.3 hours).
6 May	F1	AC regulator trouble (3.6 hours).
3 Jun	F1	3D cam repair (.7 hour).
15 Jun	F2	Trash rack raking (.8 hours).
20 Jul	F1	3D cam repair (4.8 hours).
27 Jul	F1	ZJ-1 switching (.1 hour).
28 Jul	F1	ZJ-1 switching (.1 hour).
29 Jul	F2	Slip ring maintenance (2.3 hours).

3 Aug	F2	ZJ2 switching (.9 hours).
4 Aug	F2	ZJ2 switching (.2 hours).
22 Sep	F1	Lost head gate oil pressure (1.3 hours).
22 Sep	F2	Lost head gate oil pressure (1.2 hours).
30 Oct	F2	Undetermined excitation trouble (.2 hours).
29 Nov - 31 Dec	F1	Overhaul (787 hours).
8 Dec - 31 Dec	F2	Clam trash in front of unit and pull trash racks (563 hours).

Cascades Island Fish Ladder:

19 Jan - 5 Feb	Annual maintenance.

Downstream Migrant Facilities Operating Schedule.

First Powerhouse:

1 Jan - 15 Feb	Out of service for annual maintenance.
30 Nov - 31 Dec	Out of service for annual maintenance.

Second Powerhouse:

1 Jan - 18 Feb	Out of service for annual maintenance.
1 Dec - 31 Dec	Out of service for annual maintenance.

Fishway Activities

The Corps of Engineers' fish transportation program initially used the Bradford Island fish release facility to release truck hauled fish transported from collection facilities at McNary, Little Goose and Lower Granite dams. However, later in the season, fish were hauled past Bonneville and were released from a barge downstream. This helped released fish avoid heavy predation by squawfish, which occurs when fish are released near the shoreline.

The Corps of Engineers' Portland District Fisheries Field Unit conducted three activities at Bonneville.

They continued evaluating the operation of fishways. The work was done to identify problem areas related to fish passage at the dam and recommend long-term solutions.

They tested split-beam hydroacoustics inside a turbine unit at the second powerhouse. This is part of their work in determining and evaluating non-lethal methods of determining Fish Guiding Efficiency of juvenile bypass system submersible traveling screens.

They observed fish passage through ladder orifices at the second powerhouse by underwater video. The information was provided to the NMFS for their use in developing a PIT tag detector for use in ladders on adult migrating fish.

The Columbia River Inter-Tribal Fish Commission again used the second powerhouse Adult Fish Collection and Monitoring Facility to collect salmonids. The work is being done to satisfy a requirement of the US - Canada Pacific Salmon Treaty to identify "indicator stocks". These stocks are monitored to annually evaluate the success of a program designed to rebuild depressed Columbia River salmon populations. Fish trapped were returned immediately to the fish ladder and there was no impact to the official fish count. Trapping began on April 8 and continued on selected days of each week through 4 August. Through the year they trapped 679 spring chinook, 411 summer chinook, and 733 sockeye.

The Oregon Department of Fish and Wildlife worked cooperatively with the CRITFC in the activity described above. They trapped steelhead to determine the hatchery to wild ratio and age composition as called for in the Columbia River Fish Management Plan. All fish trapped were returned to the fish ladder. After CRITFC work ended, the ODFW continued through October 13. Through the year they trapped 2,187 steelhead. This work has continued annually since 1984.

The Fish Passage Center continued to coordinate a fishway inspection program which involved once per month fishway inspections by a National Marine Fisheries Service inspector at Bonneville.

The National Marine Fisheries Service used the juvenile bypass system fish sampling facilities at both powerhouses to monitor passage of downstream migrants. The monitoring period was 17 March through 24 November. Monitoring at the first powerhouse was 24 h/d and 3 d/w at the second powerhouse. With relatively low flow passed through the second powerhouse and therefore fewer juvenile fish passing, the effort at the second powerhouse was primarily done to monitor fish condition rather than to estimate passage numbers.

The Pacific States Marine Fisheries Commission used a PIT tag detector again this year. The device automatically detected and recorded tags carried by fish after they

had been processed by the NMFS samplers at the first powerhouse. PSMFC maintains a PIT tag information system to monitor salmonids in the Columbia River Basin.

The National Marine Fisheries Service conducted research to measure the survival and condition of juvenile fish passing through the first powerhouse bypass system. Tests were done in late February, late April, late July and during a period of low tailwater in late October - early November. Test fish were released into the juvenile bypass channel and were recovered in the tailrace by a net located at the outlet of the bypass conduit.

The National Marine Fisheries Service conducted tests at the second powerhouse in late October to evaluate the effects of passage through the collection channel and energy dissipation area at the dewatering screen and through the downwell conduit. Fish were recovered by use a net attached directly to the juvenile bypass outlet in the tailrace.

The National Marine Fisheries Service conducted Fish Guiding Efficiency studies at the second powerhouse to confirm that the improvements (lowered intake screens, streamlined trash racks, and turbine intake extensions) perform as expected across the entire powerhouse. Tests were conducted in two sessions, intermittently from April 20 though June 4 and July 7 through 17. Tests were done with varying numbers of turbine units operating to learn how fish guiding efficiency changed as flow through the powerhouse changed.

The following agencies participated at Bonneville Dam in the BPA funded squawfish management and research program.

- The Oregon Department of Fish & Wildlife coordinated much of the program, including the work described here for other agencies' squawfish work. They participated directly in sampling squawfish populations by boats and in sampling the catch of the CRITFC dam anglers.

- The Columbia River Intertribal Fish Commission removed squawfish by angling from various locations on the dam. Squawfish are predators on juvenile salmonids and are believed to cause significant impact, particularly at locations such as the first powerhouse forebay, because prey and predators collect in large numbers.

- The Oregon State University collected and removed the squawfish caught by dam angling.

- The Washington Department of Wildlife implemented the sport reward fishery. One of several angler registration sites on the river was located

between the second powerhouse and the boat launch downstream on Hamilton Island.

The Oregon State University Cooperative Fishery Research Unit conducted a small part of their evaluation of facilities for collection, bypass and transportation of out-migrating chinook salmon at Bonneville Dam. The work at Bonneville involved collecting a few fish from barges to measure performance of fish after barging.

The US Fish & Wildlife Service used the Adult Fish Collection and Monitoring Facility to collect early spawning (tule) fall chinook to supplement returns of adults to Spring Creek National Fish Hatchery. A total of 1,186 chinook (512 males, 60 jacks and 614 females) were trapped between 30 August and 15 September, and were transported to the hatchery. **These fish were not counted at the dam and counts were not adjusted for them**.

The US Fish & Wildlife Service collected a few hundred salmonid smolts as part of a study of factors influencing seaward migration of fall chinook salmon through the river system.

The Washington Department of Fisheries and Oregon Department of Fish & Wildlife cooperated in conducting special fish counting again this year to update information on two stock components of the upriver fall chinook run. This work has continued since 1979.

The Washington Department of Wildlife counted adult fish under contract with the US Army Corps of Engineers. Fish were counted according to the schedule above for 50 minutes of each hour. The 50 minute totals were multiplied by a factor of 1.2 to estimate passage for each full hour. WDW also conducted the additional special counting by video recording that is described above in the fish counting schedule.

Survival of fish passing through turbines is assumed to be lower than for other passage routes. So, special operation was executed designed to achieve 70 percent fish passage efficiency (FPE) in the spring and 50 percent FPE in the summer. FPE is the proportion of juvenile fish passing the dam which pass through non-turbine routes. This required provision of certain levels of spill with some limitations. Spill was limited to 75,000 cfs during daytime to prevent adult fish from falling back from upstream (adult fish passage is much reduced at night).

Also, special operations were executed to protect an early release of fish from nearby Spring Creek National Fish Hatchery. This special operation occurred from 1900 hours on 19 March through 2000 hours on 26 March. During this time the first powerhouse operated at 30 kcfs and the remainder of the flow was split between the second powerhouse and spill in a way that produced 70% Fish Passage

Efficiency (FPE). Fish passage efficiency is the proportion of fish which pass through non-turbine routes.

THE DALLES DAM

Fish Counting Schedule

1 Jan - 31 Mar	No counting.
1 Apr - 31 Oct	Fish were counted in both ladders for two 8-hour shifts each day, 0400-2000 hours Pacific Standard Time.
1 Nov - 31 Dec	No counting.

Adult Fish Facilities Operating Schedule

East Fish Ladder:

1 Jan - 25 Feb	Out of service for annual maintenance.
1 Oct - 31 Dec	The south fishway portion of the east ladder was out of service for underwater diffuser grating inspection and repair, and for blade hub seal replacement in fish unit number one.
13 Oct - 14 Oct	Out of service for underwater inspection of diffuser gratings.
20 Dec - 31 Dec	Out of service for annual maintenance.

North Fish Ladder:

1 Dec - 17 Dec	Out of service for annual maintenance.

Fishway auxiliary water supply turbines (F1 & F2) were in service continuously with the following exceptions:

01 Jan - 25 Feb	F1 & F2	Annual Maintenance.
27 Aug	F1	Breaker Semiannual.
29 Aug	F2	Breaker Semiannual.
01 Oct - 31 Dec	F1	Blade hub seal replacement and annual maintenance.

20 Dec - 31 Dec	F2	Annual maintenance.

Downstream Migrant Facilities Operating Schedule

1 Jan - 31 Mar	Operated with gate-well orifice flow.
1 Apr - 31 Aug	Operated with gate-well orifice flow. Sluiceway gate 1-1, 1-2, and 1-3 open 16 hours daily including sunrise to sunset.
1 Sep - 25 Nov	Operated with gate-well orifice flow. Sluiceway gates 1-1, 1-2, and 1-3 open at least from sunrise to sunset.
26 Nov - 31 Dec	Operated with gate-well orifice flow.

Fishway Activities

The Corps of Engineers' Portland District Fisheries Field Unit continued the fishway operation evaluation identifying problem areas related to fish passage and recommending long-term solutions. In addition, studies were conducted to identify the effectiveness of spilling 1.5 kcfs from spill bay one as an attraction to anadromous fish traversing the project via the north fishway.

The Corps of Engineers in conjunction with the Fisheries Agencies and Tribes began prototype testing of guidance screens for the proposed juvenile bypass system.

The Fish Passage Center continued to coordinate a fishway inspection program involving once per month fishway inspections by an Oregon Department of Fish & Wildlife inspector at The Dalles Dam.

Operation of the Northern Wasco County People's Utility District 5MW turbine on the north fishway auxiliary water system continued this year. During unit down time, auxiliary water was supplied to the fishway via two sluice gates in the intake structure of the facility, bypassing the turbine unit and juvenile fish bypass system.

The USDA Animal Damage Control unit continued controlling gull predation on juvenile salmonids. They improved the installation of gull inhibiting lines across the river near the outfall of the ice and trash sluiceway and used noise makers, pyrotechnics and eradication techniques in an attempt to control gull populations.

The Washington Department of Wildlife counted adult fish under contract with the US Army Corps of Engineers. Fish were counted according to the schedule above for 50 minutes of each hour. The 50 minute totals were multiplied by a factor of 1.2 to estimate passage for each full hour.

The Dalles Dam was involved in the agreement to provide spill for improved juvenile fish passage again this year. Survival is better for fish passing through spill than through turbines. The agreement provides spill for this purpose between 1 May and 22 August.

The Oregon Dept. of Fish and Wildlife continued setline fishing for white sturgeon as part of a multiyear study evaluating habitat requirements and populations in the Columbia river. 1993 studies included radio telemetry activities geared at identifying preferred habitat.

The following agencies participated at The Dalles Dam in the squawfish management and research program.

1. The Oregon Department of fish & Wildlife coordinated much of the BPA funded squawfish management and research program. They also participated in sampling squawfish populations by boats and in sampling the catch of the CRITFC dam anglers.

2. The Oregon Cooperative Fisheries Research Unit continued studies on migrating juvenile salmonids by radio tagging yearling fish, releasing them at various locations around the project, and tracking their movements. This work will be used in conjunction with other squawfish work in hopes of documenting a predator/prey relationship between the two species.

3. The Columbia River Intertribal Fish Commission removed squawfish by angling from various locations on the dam. Squawfish are predators on juvenile salmonids and are believed to cause significant impact, particularly at certain locations where prey and predators collect in large numbers. Fish collected were removed from the project by Oregon State University.

JOHN DAY DAM

Fish Counting Schedule

1 Jan - 31 Mar	No counting.
1 Apr - 31 Oct	Fish were counted in both ladders for two 8-hour shifts each day, 0400-2000 hours Pacific Standard Time.
1 Nov - 31 Dec	No counting.

Adult Fish Facilities Operating Schedule

South Fish Ladder:

20 Jan - 3 March	Out of service for annual maintenance and weir modifications.

North Fish Ladder:

1 Jan - 15 Jan	Out of service for annual maintenance.
14 Dec - 29 Dec	Out of service for annual maintenance.

Auxiliary water for the fishways is supplied by three pumps at the south ladder and six pumps at the north ladder. Normal operation requires all three pumps at the south ladder and three of the six pumps at the north ladder. The following outages resulted in less than standard conditions at the respective fishway entrances.

South ladder:

20 Jan - 8 March	Pump 1	Annual maintenance.
20 Jan - 3 March	Pump 2	Annual maintenance.
20 Jan - 3 March	Pump 3	Annual maintenance.
31 March (1.6 hrs)	Pump 1	Remove debris from intake.
31 March (2 hrs)	Pump 2	Remove debris from intake.

31 March (1.6 hrs)	Pump 3	Remove debris from intake.
4 April (7.5 hrs)	All Pumps	Remove debris from intake.
23 June (8.8 hrs)	All Pumps	Remove debris from intake.
4 Aug - 11 Aug	Pump 1	Thrust bearing maintenance.
12 Aug (1 hour)	Pump 2	Replace broken wicket gate link.

North ladder:

1 Jan - 14 Jan	All pumps	Annual maintenance.
12 March (1.5 hrs)	All pumps	Navigation lock dive (safety).
13 May - 29 June	Pump 5	Oil leak on gear case.
1 Dec - 29 Dec	All pumps	Annual maintenance.

Downstream Migrant Facilities Operating Schedule

15 July (3.5 hrs)	Orifice valve replacement.
19 July (2 hours)	Orifice valve replacement.
20 July (8 hours)	Orifice valve replacement.
21 July (4 hours)	Orifice valve replacement.
14 Dec - 31 Dec	Annual maintenance and inspection.

Fishway Activities

The Corps of Engineers' Portland District Fisheries Field Unit continued the fishway operation evaluation identifying problem areas related to fish passage and recommending long-term solutions. In addition, studies were conducted to identify the effectiveness of spilling 1.8 kcfs from spill bay one as an attraction to anadromous fish traversing the project via the north fishway. Studies were also conducted on steelhead jumping and holding problems, and of recent fishway modifications.

The Corps of Engineers' Project Improvements For Endangered Species (PIES) Program modified the diffuser valve area of the south fishway in hopes of reducing steelhead holding and jumping problems identified over the last few years, and began modifications of the south fishway counting station and the juvenile bypass system.

The Fish Passage Center continued to coordinate a fishway inspection program involving once per month fishway inspections by an Oregon Department of Fish & Wildlife inspector at John Day Dam.

The National Marine Fisheries Service continued to operate an airlift fish sampling device to monitor juvenile fish passage. The sampling was done in unit 3, gatewells 'b' and 'c' from 5 April through 31 October. In addition, an adult salmonid trap was installed by NMFS in the south fishway for use by the University of Idaho. The U of I study concentrated on the migratory habitats of anadromous species.

The US Fish & Wildlife Service collected a few hundred salmonid smolts as part of a study of factors influencing seaward migration of fall chinook salmon through the river system.

The Washington Department of Wildlife conducted the 1993 fish counting under contract with the US Army Corps of Engineers. Fish were counted according to the schedule above for 50 minutes of each hour. The 50 minute totals were multiplied by a factor of 1.2 to estimate passage for each full hour.

John Day Dam was involved in the agreement to provide spill for improved juvenile fish passage, again this year. Survival is better for fish passing through spill than through turbines. The agreement calls for spill to be provided for this purpose in the summer between 7 June and 22 August.

The Oregon Dept. of Fish and Wildlife continued setline fishing for white sturgeon as part of a multiyear study evaluating habitat requirements and populations in the Columbia river. 1993 studies included radio telemetry activities geared at identifying preferred habitat.

The following agencies participated at John Day Dam in the squawfish management and research program.

1. The Oregon Department of fish & Wildlife coordinated much of the BPA funded squawfish management and research program. They also participated in sampling squawfish populations by boats, and in sampling the catch of the CRITFC dam anglers.

2. The Columbia River Intertribal Fish Commission contracted the Yakama Indian Nation to remove squawfish by angling from various locations on the dam. Squawfish are predators on juvenile salmonids and are believed to cause significant impact, particularly at certain locations where prey and predators collect in large numbers. Fish collected were removed from the project by Oregon State University.

3. The US Fish & Wildlife Service investigated predator abundance and consumption rates through much of the Columbia River system. The work at John Day involved electro-shocking and gill-netting from boats in much of the area near the dam. The information will be used to help direct predator control management in the future.

4. The Oregon Cooperative Fisheries Research Unit continued studies on migrating juvenile salmonids by radio tagging yearling fish, releasing them at various locations around the project, and tracking their movements. This work will be used in conjunction with other squawfish work in hopes of documenting a predator/prey relationship between the two species.

MCNARY DAM

Fish Counting Schedule

1 Jan - 31 Mar	No counting.
1 Apr - 31 Oct	Counting daily 0400-2000 hours Pacific Standard Time.
1 Nov - 31 Dec	No counting.

Fish Ladder Operating Schedule

North Ladder:

1 Jan - 10 Jan	In service.
11 Jan - 28 Jan	Out of service for annual inspection and maintenance.
29 Jan - 31 Dec	In service.

South Ladder:

1 Jan - 31 Jan	In service.
1 Feb - 17 Feb	Out of service for annual inspection and maintenance.
18 Feb - 31 Dec	In service.

Fishway Activities

Two 8-hour counting shifts were conducted from 0400-2000 hours from 1 April through 31 October. Both fish ladders were counted by direct observation. Fish counting at McNary and the other Corps Snake River projects in 1993 was accomplished under contract by the State of Washington Department of Wildlife.

The juvenile collection system was in operation from 14 April to 30 October. In addition, the new juvenile collection facility has been completed and will be operating in April 1994.

Installation of a new adult fishway computer control system was completed at McNary on 29 December. This system will allow the project to much more precisely control the adult fishways and maintain passage criteria.

National Marine Fisheries Service continued the fish guiding efficiency research using extended length screening devices in turbine units five and six in 1993.

ICE HARBOR DAM

Fish Counting Schedule

1 Jan - 31 Mar	No counting.
1 Apr - 30 Apr	Counting daily 0400-2000 hours Pacific Standard Time.
1 May - 31 Oct	Counting 24 hours a day Pacific Standard Time.
1 Nov - 15 Dec	Counting 24 hours a day Pacific Standard Time.
16 Dec - 31 Dec	No counting.

Fish Ladder Operating Schedule

North Ladder:

1 Jan - 16 Feb	In service.
17 Feb - 23 Feb	Out of service for annual inspection and maintenance.
24 Feb - 31 Dec	In service.

South Ladder:

1 Jan - 31 Jan	In service.
1 Feb - 16 Feb	Out of service for annual inspection and maintenance.
17 Feb - 31 Dec	In service.

Fishway Activities

Two 8-hour counting shifts were conducted from 0400-2000 hours from 1 April through 30 April. One counter counted the south ladder by direct observation and the north ladder by closed circuit television. From 1 May through 31 October, fish were counted by direct observation from 0400-2000 hours . Fish passage from

2000-0400 hours was videotaped, and the tapes were interrogated later. Fish passage was videotaped 24 hours per day from 1 November through 15 December. This additional video tape counting was to gather passage information on sockeye and chinook salmon species which are listed as endangered and threatened, respectively, under the Endangered Species Act.

The ice and trash sluiceway was operated as a juvenile bypass from 1 March to 13 January. The University of Idaho trapped adult salmonids at Ice Harbor Dam again in 1993 as part of a Corps funded Lower Snake River adult fish passage evaluation. Adult fish were radio tagged, released at the mouth of the Snake River, and monitored when passing Ice Harbor Dam.

LOWER MONUMENTAL DAM

Fish Counting Schedule

1 Jan - 31 Mar	No counting.
1 Apr - 31 Oct	Counting daily 0400-2000 hours Pacific Standard Time.
1 Nov - 30 Nov	Counting daily 0600-1600 hours Pacific Standard Time.
1 Dec - 31 Dec	No counting.

Fish Ladder Operating Schedule

North Ladder:

1 Jan - 7 Feb	In service.
8 Feb - 11 Mar	Out of service for annual inspection and maintenance.
12 Mar - 31 Dec	In service.

South Ladder:

1 Jan - 10 Feb	In service.
11 Feb - 18 Feb	Out of service for annual inspection and maintenance.
19 Feb - 31 Dec	In service.

Fishway Activities

Two 8-hour counting shifts were conducted from 0400-2000 hours from 1 April through 31 October. One counter counted the north ladder by direct observation and the south ladder by closed circuit television. In addition, direct fish counting was also conducted from 1 November through 30 November from 0600-1800 hours.

The National Marine Fisheries Service evaluated the new juvenile transportation facilities. The new juvenile collection facility was in operation from 3 May through 1 November.

The University of Idaho monitored radio tagged adult salmonids at Lower Monumental Dam in 1993 as part of a Corps funded Lower Snake River adult fish passage study.

Lower Monumental took fish pump turbine #1 out of service on 6 December for rebuild work. The two remaining fish pumps provided water to the fish ladders until the ladders were dewatered 8 and 11 February. One new pump turbine and one rebuilt turbine will be installed and operating by 15 April 1994.

LITTLE GOOSE DAM

Fish Counting Schedule

1 Jan - 14 Apr	No counting.
15 Apr - 31 Oct	Counting daily 0400-2000 hours Pacific Standard Time.
1 Nov - 30 Nov	Counting daily 0700-1700 hours Pacific Standard Time.
1 Dec - 31 Dec	No counting.

Fish Ladder Operating Schedule

Project Ladder:

1 Jan - 4 Jan	In service.
5 Jan - 28 Jan	Out of service for annual inspection and maintenance.
29 Jan - 31 Dec	In service.

Fishway Activities

Two 8-hour counting shifts were conducted from 0400-2000 hours from 15 April through 31 October. One 10-hour counting shift was conducted from 0700-1700 hours from 1 November through 30 November.

The University of Idaho monitored radio tagged adult salmonids at Little Goose Dam in 1993 as part of the Corps funded Lower Snake River adult fish passage research. The juvenile collection system was in operation from 15 April to 1 November. The National Marine Fisheries Service conducted tests of extended length traveling screens for the juvenile bypass system in units 4 and 5. Fish pump turbine #3 rebuild work was started 21 December. This fish pump turbine will be rebuilt and operating by 1 April 1994. Two fish pumps provided water to the ladder until the ladder was dewatered for maintenance 5 January .

LOWER GRANITE

Fish Counting Schedule

1 Jan - 28 Feb	No counting.
1 Mar - 31 Mar	Counting daily 0800-1600 hours Pacific Standard Time.
1 Apr - 31 Oct	Counting daily 0400-2000 hours Pacific Standard Time.
1 Nov - 15 Dec	Counting daily 0600-1600 hours Pacific Standard Time.
16 Dec - 31 Dec	No counting.

Fish Ladder Operating Schedule

Project Ladder:

1 Jan - 3 Jan	In service.
4 Jan - 4 Feb	Out of service for annual inspection and maintenance.
5 Feb - 31 Dec	In service.

Fishway Activities

One 8-hour counting shift was conducted from 0800-1600 hours from 1 March through 31 March. Two 8-hour counting shifts were conducted from 0400-2000 hours from 1 April through 31 October. One 10-hour counting shift was conducted from 0600-1600 hours from 1 November through 15 December.

The University of Idaho monitored radio-tagged adult salmonids at Lower Granite Dam in 1993 as part of the Corps funded Lower Snake River adult fish passage research.

The National Marine Fisheries Service operated the adult trap as part of the juvenile fish transportation program evaluation. The juvenile collection facility was in operation from 15 April to 1 November.

PRIEST RAPIDS DAM

Fish Counting Schedule

1 Jan - 14 Apr	No counting
15 Apr	Fish Counter training and review
16 Apr - 15 Nov	Counting daily 0000-2400 hours Pacific Standard Time.
16 Nov - 31 Dec	No counting.

Fish Ladder Operating and Maintenance Schedule

Left Bank Ladder:

1 Jan - 12 Feb	Out of service for annual inspection, maintenance and rehabilitation project.
13 Feb - 5 Dec	In-service.
6 Dec - 31 Dec	Out of service for annual inspection, maintenance rehabilitation project.

Right Bank Ladder:

1 Jan - 28 Jan	Out of service for annual inspection, maintenance and rehabilitation project.
29 Jan - 31 Dec	In-service.

Fishway Activities

Public Utility District No. 2 of Grant County continued another year of the special 24-hour fish counts using three 8-hour shifts from 16 April through 15 November 1993. Both ladders were counted by direct observation.

The PUD conducted a fishway rehabilitation project to install automated controls, and to repair and upgrade existing equipment.

The PUD participated in a mid-Columbia PUD and Corps of Engineers radio telemetry study. Spring and summer chinook were radio tagged at John Day Dam and the mid-Columbia River portion tracked to their spawning grounds. At Priest Rapids Dam, 41 adults were radio tagged on 24 & 25 May and 118 chinook tagged during the period 7 September to 27 October.

The Priest Rapids Hatchery trapped 3,944 chinook and 41 steelhead from their volunteer trap between 14 April and 15 June. The fish were released into the Priest Rapids Dam reservoir. There is an extra table to reflect these daily counts. See Table 138.

The Washington Department of Wildlife trapped and examined steelhead once a week from 1 August through 27 October.

No fish were trapped by the Washington Department of Fisheries.

Fish Counting Schedule

Daily counting occurs between mid-April and 15 November every year. Counting occurs between 0400-2000 in two 8-hour shifts at Rocky Reach Dam. Starting in 1992, the District has counted the three ladders at Rock Island Dam with video taping on a 24-hour basis.

Fish Ladder Operating and Maintenance Schedule

Ladder maintenance varies from year to year, but occurs between the window of 1 December and 15 March.

The right ladder was out of operation from 2 December 1992 to 17 April 1993 at Rock Island Dam. In addition to the normal yearly maintenance, permanent concrete fills were made to replace temporary fiberglass panels which were added to improve flow from the entrance.

Fishway Activities

Public Utility District of Chelan County has conducted the fish counting at Rock Island Dam since 1973 and at Rocky Reach Dam since 1962. Fish are counted by direct observation at the one ladder at Rocky Reach Dam.

WELLS DAM

Fish Counting Schedule

1 Jan - 30 Apr	No counting.
1 May - 30 Oct	Counting daily 0500-2100 hours Pacific Daylight Time.
31 Oct - 15 Nov	Counting daily 0400-2000 Pacific Standard Time.
16 Nov - 31 Dec	No counting.

Fish Ladder Operating and Maintenance Schedule

Left Bank Ladder:

1 Jan - 29 Apr	In-service.
30 Apr - 7 May	Emergency maintenance due to problems with the flow diffusion grate.
8 May - 1 Dec	In-service.
2 Dec - 31 Dec	Out of service for annual inspection and maintenance.

Right Bank Ladder:

1 Jan - 31 Dec	In-service.

Fishway Activities

Douglas County Public Utility District operated the two ladders at Wells Dam as per agreement between the fisheries agencies and Tribal agencies. Fish counting at Wells is accomplished using close circuit television. Fish are counted fifty minutes out of each hour with a ten minute break period. The ladders were left open 24 hours a day. In 1993, from 2100-0500, passage of adult fish using the ladders was recorded on a slow speed video recorder. On a weekly basis, the video tapes were

reviewed and fish passage by species was enumerated. The percentage of fish that passed the project during the night counting hours were 13%, 9% and 6 % for steelhead, sockeye and chinook respectively.

The Washington Department of Fisheries operated a trap in the east ladder to collect summer chinook broodstock for the East Bank and Wells Hatcheries. The trap is operated no more than three days a week between 28 June and 27 August. The Columbia River Inter-Tribal Fish Commission coordinated a sockeye sampling program during the summer chinook brood collection. The Washington Department of Wildlife operated a trap in the west ladder from 1 August through 31 October for the collection of summer steelhead broodstock.

TABLE 1

FISH ESCAPEMENT AT MAIN STEM DAMS
COLUMBIA AND SNAKE RIVERS 1989-1993

SPECIES	BONNEVILLE	THE DALLES	JOHN DAY	MCNARY	ICE HARBOR	LOWER MONUMENTAL	LITTLE GOOSE	LOWER GRANITE
1989								
CHINOOK*	416,117	282,168	208,254	176,407	27,234	25,590		19,557
Spring	87,259	53,014	37,773	35,954	17,029	18,286		14,504
Summer	32,975	30,555	23,868	24,708	4,215	4,386		4,071
Fall	295,883	198,599	146,613	115,745	5,990	2,918		982
Jacks	42,912	28,671	25,092	24,908	3,767	3,916		2,727
STEELHEAD	287,798	235,639	193,460	170,467	151,101	129,618		132,579
SOCKEYE	41,884	39,672	39,374	41,318	4	9		2
COHO*	39,281	12,611	9,663	3,383		17		
Adults	27,418	7,830	6,051	1,925		3		
Jacks	11,863	4,781	3,612	1,458		14		
SHAD	1,877,404	2,971,017	1,773,938	1,076,467	119,199	43,043		1,310
1990								
CHINOOK*	340,990	207,556	156,313	147,439	31,841	28,215		23,345
Spring	96,252	57,424	43,127	44,499	20,730	20,076		17,549
Summer	28,021	22,615	20,532	22,248	5,794	5,738		5,221
Fall	216,717	127,517	92,654	80,692	5,317	2,401		575
Jacks	44,443	32,794	22,195	26,280	2,229	1,615		552
STEELHEAD	183,027	129,271	107,849	95,061	54,758	44,907		56,859
SOCKEYE	49,581	40,230	42,077	46,145	1			
COHO*	24,845	4,645	3,023	2,059	1	1		
Adults	11,627	2,305	1,520	1,054	1	1		
Jacks	13,218	2,340	1,503	1,005				
SHAD	2,947,865	3,706,856	1,641,943	866,940	90,164	25,891		2,804
1991								
CHINOOK*	274,622	153,023	118,921	114,841	23,175	18,210	13,737	13,618
Spring	61,228	32,359	21,847	22,631	11,288	9,697	7,774	7,603
Summer	21,953	18,467	16,872	17,588	5,861	5,268	4,750	4,988
Fall	191,441	102,197	80,202	74,622	6,026	3,245	1,213	1,027
Jacks	48,211	36,820	28,646	32,131	3,790	3,104	2,379	2,556
STEELHEAD	274,545	199,853	160,257	168,962	123,762	98,315	96,830	100,381
SOCKEYE	76,481	63,405	63,760	69,365	9	6	10	8
COHO*	64,057	9,601	8,021	2,272	1	5	1	
Adults	58,868	8,548	6,692	1,609	1	2	1	
Jacks	5,189	1,053	1,329	663		3		
SHAD	1,914,417	2,191,077	1,382,009	674,483	58,571	20,484	3,889	722
1992								
CHINOOK*	256,299	168,507	132,025	135,707	36,021	30,145	26,746	26,193
Spring	90,582	58,451	45,457	50,590	26,114	24,129	22,226	21,924
Summer	19,245	14,976	13,910	14,414	4,377	3,523	3,091	3,312
Fall	146,472	95,080	72,658	70,703	5,530	2,493	1,429	957
Jacks	36,611	27,160	22,084	23,984	1,932	1,255	1,195	933
STEELHEAD	314,975	232,179	195,194	194,026	160,614	130,419	117,698	121,459
SOCKEYE	84,992	66,384	69,731	68,737	33	15	12	15
COHO*	18,126	3,825	2,633	1,801				
Adults	14,369	2,586	1,710	1,196				
Jacks	3,757	1,239	923	605				
SHAD	2,551,439	2,824,313	1,963,060	1,635,089	171,607	123,037	72,629	22,298
1993								
CHINOOK*	277,657	184,953	141,705	143,412	34,991	34,195	32,384	30,446
Spring	112,172	69,356	56,144	59,556	24,935	24,506	23,683	21,218
Summer	23,616	20,063	18,364	20,374	6,919	7,349	7,222	8,019
Fall	141,869	95,534	67,197	63,482	3,137	2,340	1,479	1,209
Jacks	18,320	12,298	9,621	10,315	673	561	590	352
STEELHEAD	188,386	124,829	95,642	9,318	73,107	70,992	59,740	66,699
SOCKEYE	80,178	62,252	61,218	66,485	17	18	16	12
COHO*	11,732	4,360	2,995	481				
Adults	10,642	3,944	2,679	360				
Jacks	1,090	416	316	121				
SHAD	2,166,674	2,394,394	647,097	701,404	48,801	15,896	3,938	927

ASSUMED DATES FOR CHINOOK RUN **(MAY VARY FROM PREVIOUS YEARS)**

SPRING	1 MARCH - 31 MAY	1 APRIL - 3 JUNE	1 APR - 5 JUN	1 APR - 8 JUN	1 APR - 11 JUN	1 APR - 13 JUN	15 APR - 15-Jun	1 MAR - 17 JUN
SUMMER	1 JUN - 31 JUL	4 JUN - 3 AUG	6 JUN - 5 AUG	9 JUN - 8 AUG	12 JUN - 11 AUG	14 JUN - 13 AUG	16 JUN - 15-Aug	18 JUN - 17 AUG
FALL	1 AUG - '15 NOV	4 AUG - 31 OCT	6 AUG - 31 OCT	9 AUG - 31 OCT	12 AUG - 31 OCT	14 AUG - 30 NOV	16 AUG - 30 NOV	18 AUG - 15 DEC

*Includes Jack Counts.

TABLE 2

FISH ESCAPEMENT AT PUBLIC UTILITY DISTRICT PROJECTS 1989 -1993

SPECIES	PRIEST RAPIDS	ROCK ISLAND	ROCKY REACH	WELLS
1989				
CHINOOK*	49,246	37,614	13,090	6,500
Spring	11,991	10,690	3,168	1,732
Summer	20,162	18,574	4,938	3,333
Fall	17,093	8,350	4,984	1,435
Jacks	3,099	2,573	832	424
STEELHEAD	10,730	9,351	6,039	4,600
SOCKEYE	45,301	37,360	16,176	15,895
COHO*	32	287 *	155 *	14 *
Adults	30			
Jacks	2			
SHAD	30,836			
1990				
CHINOOK*	36,257	27,251	9,108	4,755
Spring	12,288	7,720	1,909	660
Summer	15,976	14,232	4,361	3,356
Fall	7,993	5,299	2,838	739
Jacks	2,410	2,925	1,157	406
STEELHEAD	7,830	6,946	5,033	3,737
SOCKEYE	46,331	44,143	9,296	7,597
COHO*	31	104 *	62 *	25 *
Adults	28			
Jacks	3			
SHAD	23,602			
1991				
CHINOOK*	31,482	21,493	6,628	3,644
Spring	8,008	5,781	1,323	785
Summer	15,173	11,024	3,274	2,046
Fall	8,301	4,688	2,031	813
Jacks	4,240	3,374	1,106	610
STEELHEAD	13,939	10,927	7,645	7,785
SOCKEYE	71,245	62,533	27,439	27,482
COHO*	22	166 *	41 *	19 *
Adults	15			
Jacks	7			
SHAD	27,638			
1992				
CHINOOK*	37,752	29,921	8,383	5,064
Spring	20,036	15,634	2,714	1,573
Summer	9,896	9,711	3,010	1,974
Fall	7,820	4,576	2,659	1,472
Jacks	5,286	4,747	2,153	1,364
STEELHEAD	13,733	12,476	7,516	7,073
SOCKEYE	80,857	68,359	41,804	41,951
COHO*	1	49 *	74 *	28 *
Adults	1			
Jacks				
SHAD	121,547			
1993				
CHINOOK*	54,566	37,198	11,295	7,421
Spring	29,342	19,943	4,128	2,626
Summer	17,176	13,403	4,843	3,574
Fall	8,048	3,852	2,324	1,221
Jacks	1,703	1,080	504	355
STEELHEAD	5,493	4,831	2,815	2,400
SOCKEYE	82,924	65,630	28,319	27,849
COHO*	1	6 *	4 *	7 *
Adults	1			
Jacks				
SHAD	15,443			

ASSUMED DATES FOR CHINOOK RUNS

SPRING	16 APR - 13 JUN	15 APR - '17 JUN	18 APR - 19 JUN	1 MAY - 28-Jun
SUMMER	14 JUN - 13 AUG	18 JUN - '17 AUG	20 JUN - 19 AUG	29 JUN - 28-Aug
FALL	14 AUG - 15 NOV	18 AUG - 15 NOV	20 AUG - 15 NOV	29 AUG - 15 NOV

*Includes Jack Counts.

1992 and 1993 counting at Priest Rapids Project was 24 hours a day. All other years are two 8-hour shifts per day with one 8-hour shift in April and November.

STEELHEAD OVER COLUMBIA AND SNAKE RIVER DAMS 1953 - 1993

BY RUN-YEAR (1 JUNE - 31 MAY)

Estimating the size of the upriver steelhead run has previously been hampered because of the calendar year approach used in the summary tables. Problems in accountability arise due to overwintering behavior of summer steelhead; especially Snake River stocks, which often have sizeable proportions of the run remaining below mainstem Projects during the winter months. Movement of these steelhead commences again the following spring when warming reservoir temperatures trigger upstream movement. For this reason, an additional table has been prepared which summarizes steelhead trout counts at each Project on a "fish year" basis; 1 June - 31 May. Because all stocks of Steelhead cross Bonneville Dam during the calendar year, those summary counts have not been modified.

RUN-YEAR	THE DALLES	JOHN DAY	MCNARY	ICE HARBOR	LOWER MONUMENTAL	LITTLE GOOSE**	LOWER GRANITE
1953-54			8,252	*			
1954-55			72,913				
1955-56			84,434				
1956-57	3,531	*	40,660				
1957-58	128,124		105,136				
1958-59	120,170		87,413				
1959-60	155,892		111,288				
1960-61	110,955		95,556				
1961-62	134,740		104,679	9,474	*		
1962-63	163,125		163,333	108,186			
1963-64	118,899		113,676	76,788			
1964-65	110,509		99,872	58,025			
1965-66	142,376		120,469	62,566			
1966-67	144,267	*	144,461	64,987			
1967-68	122,231	6,598	83,948	47,536			
1968-69	147,844	122,649	107,806	85,273	16,240	*	
1969-70	111,617	81,623	74,933	58,172	63,269		
1970-71	99,319	81,238	68,598	54,445	58,430	54,257	*
1971-72	151,329	117,402	110,450	66,196	68,704	70,867	
1972-73	135,730	149,704	95,837	63,584	66,650	63,033	
1973-74	100,924	93,951	62,158	37,245	38,288	37,099	
1974-75	71,336	40,868	26,191	12,170	14,851	13,818	2,789 *
1975-76	57,695	33,640	25,150	15,895	17,236	15,177	16,592
1976-77	83,194	59,368	54,409	24,140	21,801	21,109	22,562
1977-78	133,096	102,193	86,962	54,911	48,160	47,617	57,029
1978-79	58,995	43,554	34,580	27,252	19,849	24,050	26,473
1979-80	86,317	59,825	54,213	26,790	20,073	23,816	28,758
1980-81	93,309	77,113	63,957	47,778	32,599	36,680	37,996
1981-82	112,265	96,663	62,955	43,274	37,755	**	42,420
1982-83	116,178	105,438	72,246	70,236	60,775		72,384
1983-84	172,033	157,602	126,706	90,030	82,555		88,760
1984-85	221,299	204,595	142,246	101,008	92,947		104,417
1985-86	274,826	245,087	181,635	123,187	104,400		116,147
1986-87	280,671	234,651	193,096	142,273	121,107		129,983
1987-88	219,822	172,290	151,587	77,565	64,717		71,280
1988-89	197,669	163,283	150,361	98,950	81,324		87,137
1989-90	236,584	193,951	170,014	149,361	131,050		131,420
1990-91	128,123	107,117	94,522	54,370	44,518	**	56,865
1991-92	199,244	105,650	168,156	122,874	97,454	96,421	99,052
1992-93	233,430	161,311	171,869	128,914	103,845	118,949	128,265
Total	5,177,668	3,017,364	3,821,128	2,203,455	1,508,597	622,893	1,320,329
10-Year Average	216,370	174,554	155,019	108,853	92,392	21,537	101,333

*Because counting started at each dam early in the year after construction was complete, these figures are for the latter part of the run year only. That part of the run year starting after June 1st of of the previous year passed the dams without being counted.

**1981 was the last year visual counts were made at Little Goose Project until 1991. The 10-yr. average shown is for the years 1971-72 through 1980-81.

TABLE 4

STEELHEAD OVER COLUMBIA RIVER PUD PROJECTS 1959 - 1993

BY RUN-YEAR (1 JUNE - 31 MAY)

RUN-YEAR	PRIEST RAPIDS	ROCK ISLAND	ROCKY REACH	WELLS
1959-60	810 *			
1960-61	7,277			
1961-62	8,970			
1962-63	9,408			
1963-64	8,808			
1964-65	6,137			
1965-66	9,055			
1966-67	13,159			
1967-68	8,402			
1968-69	9,672			
1969-70	6,140			
1970-71	5,764			
1971-72	11,331			
1972-73	6,006			
1973--74	6,881			
1974-75	2,955			
1975-76	2,558			44 *
1976-77	9,490			4,636
1977-78	9,632			5,464
1978-79	4,479			1,475
1979-80	8,704			3,771
1980-81	8,308			3,363
1981-82	9,122	7,607 *	5,567 *	4,107
1982-83	10,948	9,737	6,037	7,805
1983-84	32,103	29,885	19,864	19,540
1984-85	26,566	25,287	17,349	16,663
1986-86	34,007	31,813	22,621	19,712
1986-87	22,332	22,766	15,060	13,251
1987-88	14,054	12,887	7,243	5,565
1988-89	10,138	9,100	5,573	4,358
1989-90	10,720	9,244	5,991	4,577
1990-91	7,858	6,926	5,023	3,842
1991-92	14,047	11,125	7,788	7,823
1992-93	13,593	12,382	7,429	7,029
Total	368,624	188,759	125,545	133,025
10-Year Average	18,542	17,142	11,394	10,236

*Partial year

TABLE 5

MONTHLY COUNT OF WILD STEELHEAD
Corps of Engineers Projects
1993

PROJECT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
BONNEVILLE			246	449	235	1,118	10,389	14,736	7,787	622	72		35,654
THE DALLES				621	72	430	5,604	5,524	8,615	2,209			23,075
JOHN DAY				1,068	237	336	2,017	2,743	7,567	3,740			17,708
MCNARY				1,569	115	175	2,146	2,746	6,553	4,391			17,695
ICE HARBOR*				2,159	121	39	1,018	2,049	3,609	3,359			12,354
LWR MONUMENTAL				2,113	124	42	884	1,973	2,737	3,397	348		11,618
LITTLE GOOSE				649	205	50	754	1,837	2,666	4,189	431		10,781
LWR GRANITE				2,319	259	16	517	1,791	2,245	3,852	421	27	11,447

These numbers are included in the monthly totals of steelhead for each project.
They represent the number of steelhead that were wild.
*There were additional wild steelhead counted at night; see Tables 79 through 86.

TABLE 6

STEELHEAD KELT COUNT
PORTLAND and WALLA WALLA DISTRICT PROJECTS

The majority of steelhead migrating up the Columbia River past Corps of Engineers dams are summer-run steelhead. Most of these fish enter freshwater between March and October and migrate upstream toward their place of origin. During the spawning run, a steelhead's feeding is greatly diminished and it must rely on stored fat reserves for sustenance while in freshwater. Since most of these fish are spring spawners (March - June), their original body weight is reduced by up to 40 % after spawning. After a steelhead has completed spawning, it is called a "kelt". If a steelhead kelt can successfully reach the ocean and survive, it may return to freshwater to spawn again.

Washington Department of Wildlife fish-counting staff have observed a downstream movement of kelts at Corps of Engineers projects. Peak downstream migration of kelts occurs in May and they are sighted most often at McNary and John Day Dams. These fish are emaciated, gaunt, and weak. The torpedo-shape, characteristic of a steelhead fresh from the ocean, has deteriorated into a snake-like shape with a large head. Most kelts appear to be females. They are oriented into the current but allow the current to carry them downstream past the counting window. After a meeting with the Corps of Engineers, fisheries agencies, and tribal biologists in 1989, it was agreed that the Washington Department of Wildlife fish-counting staff would count kelts. The downstream movement of steelhead kelts is presented in the following Table 6.

TABLE 6

STEELHEAD KELT COUNT - 1993
PORTLAND AND WALLA WALLA DISTRICT PROJECTS

	MAR		APR		MAY		JUN		JUL		AUG		SEP				
PROJECT	FL	FR	FL	FR	FL	FR	FL	FR	FL	FR	FL	FR	FL	FR	TOTAL	FL	FR
BONNEVILLE	0	0	0	0	1	0	0	0	0	0	0	0			1	1	0
THE DALLES			0	1	0	7	0	4	0	0	0	0			12	0	12
JOHN DAY			2	2	6	9	2	0	0	1	0	0			22	10	12
MCNARY			29	51	35	89	25	48	26	17	0	2	13	1	336	128	208
ICE HARBOR			0	0	1	0	1	0	0	0	0	0	0	0	2	2	0
LWR MONUMENTAL			0	0	4	36	0	7	0	1	0	0	0	0	48	4	44
LITTLE GOOSE			48		17		14		7		0		0		86	86	0
LWR GRANITE	0		0		0		0		0		0		0		0	0	0

FL is the Oregon, south or east ladder and FR is the Washington or north ladder.
Lower Granite and Little Goose count a single ladder.

COLUMBIA RIVER TABLES

YEARLY TOTALS OF SALMONIDS COUNTED OVER BONNEVILLE DAM

1938 - 1993

YEAR	CHINOOK*	STEELHEAD	SOCKEYE	COHO*	CHUM	PINK	TOTAL SALMONID
1938	271,799	107,003	75,040	15,185	2,117		471,144
1939	286,189	122,032	73,382	14,383	1,168		497,154
1940	391,587	185,174	148,807	11,917	1,729		739,214
1941	461,443	118,089	65,741	17,911	5,269	4	668,457
1942	401,942	151,800	55,464	12,402	1,865	11	623,484
1943	313,123	92,133	39,845	2,547	788		448,436
1944	240,764	100,518	15,072	4,207	954	1	361,516
1945	297,478	120,133	9,501	790	728	1	428,631
1946	446,052	142,807	74,376	3,898	1,178	2	668,313
1947	480,377	135,444	171,139	11,174	199	3	798,336
1948	419,555	139,062	131,541	4,081	3,636	2	697,877
1949	277,697	119,285	51,444	1,004	2,028	6	451,464
1950	357,375	114,087	77,993	10,151	1,069	8	560,683
1951	331,788	140,689	169,428	5,201	1,044	7	648,157
1952	420,879	260,990	184,645	7,768	1,505	9	875,796
1953	332,479	223,914	235,215	13,018	1,728	10	806,364
1954	320,947	176,260	130,107	4,062	1,569	4	632,949
1955	359,853	198,411	237,748	3,725	318	9	800,064
1956	300,917	131,116	156,418	6,127	693	4	595,275
1957	403,286	139,183	82,915	4,675	569	12	630,640
1958	426,419	131,437	122,389	3,673	455	6	684,379
1959	345,028	129,026	86,560	2,695	906	22	564,237
1960	256,049	113,676	59,713	3,268	1,026		433,732
1961	281,980	139,719	17,111	3,456	896	12	443,174
1962	286,625	164,025	28,179	14,788	1,013	27	494,657
1963	278,560	129,418	60,319	12,658	739	34	481,728
1964	344,422	117,252	99,856	53,602	632	45	615,809
1965	317,957	166,453	55,125	76,032	496	64	616,127
1966	340,111	143,661	156,661	71,891	872	58	713,254
1967	366,237	121,872	144,158	96,488	352	50	729,157
1968	341,154	106,974	108,207	63,488	79	21	619,923
1969	507,543	140,782	59,636	49,378	143	86	757,568
1970	384,780	113,510	70,762	80,116	209	150	649,527
1971	405,702	193,966	87,447	75,989	29	176	763,309
1972	394,456	185,886	56,323	65,932	1	51	702,649
1973	398,635	157,823	58,979	54,609	43	12	670,101
1974	366,759	137,054	43,837	60,955	23	2	608,630
1975	425,566	85,540	58,212	58,307	11	309	627,945
1976	507,773	124,177	43,611	53,150	11	2	728,724
1977	366,657	193,437	99,829	19,408	17		679,348
1978	394,600	104,431	18,436	52,590	28		570,085
1979	276,306	113,979	52,628	45,328	1	23	488,265
1980	245,518	129,254	58,882	22,052	44		455,750
1981	285,650	159,270	56,037	30,510	4	20	531,491
1982	322,809	157,640	50,219	73,832	12		604,512
1983	244,346	218,439	100,545	15,173	50	52	578,605
1984	324,425	315,560	152,541	29,487	64	8	822,085
1985	463,873	343,987	166,340	56,857	97	147	1,031,301
1986	570,881	379,891	58,123	130,853	77	23	1,139,848
1987	547,494	303,081	116,993	27,635	147	20	995,370
1988	494,025	279,072	79,714	39,620	60	6	892,497
1989	416,117	287,798	41,884	39,281	16	12	785,108
1990	340,990	183,027	49,581	24,845	26		598,469
1991	274,622	274,545	76,481	64,057	5	550	690,260
1992	256,299	314,975	84,992	18,126	39	24	674,455
1993	277,657	188,386	80,178	11,732	17	15	557,985
Total	20,193,555	9,467,153	4,946,309	1,756,087	38,794	2,120	36,404,018
10-Year Average	396,638	287,032	90,683	44,249	55	81	818,738

*Jacks included

TABLE 8

MONTHLY TOTALS OF SALMONID AND SHAD COUNTED OVER BONNEVILLE DAM
1993

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CHINOOK*			226	77,174	34,772	15,968	7,648	37,893	97,693	6,036	247		277,657
STEELHEAD			771	1,744	2,691	9,923	34,148	64,062	69,129	5,531	387		188,386
SOCKEYE					7	49,667	30,377	127					80,178
COHO*							15	448	8,191	2,786	292		11,732
MINI-JACKS**				(1)	26	2,505	3,955	888	463	137	7		7,980
CHUM							1			5	11		17
PINK							1			13	1		15
TOTAL			997	78,917	37,496	78,063	76,145	103,418	175,476	14,508	945		565,965
SHAD			11	10	111,459	1,883,831	167,900	3,463					2,166,674

*Jacks included

**Salmonid fish under 12 inches in length.

TABLE 9

DISCHARGE AND WATER QUALITY DATA

BONNEVILLE PROJECT - 1993

JANUARY

DATE	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1	143.0	0.0	5.2	43.0
2	135.8	0.0	5.5	43.0
3	145.5	0.0	5.5	43.0
4	146.4	8.6	5.5	43.0
5	156.9	8.8	5.5	43.0
6	178.2	8.9	7.0	43.0
7	178.7	8.7	7.0	43.0
8	181.3	8.9	6.0	43.0
9	172.6	8.9	6.5	43.0
10	166.5	8.9	6.5	43.0
11	187.6	8.5	6.5	43.0
12	160.6	8.5	6.5	43.0
13	178.3	8.5	6.5	43.0
14	167.1	8.5	7.0	43.0
15	146.5	0.0	7.5	43.0
16	127.5	0.0	7.2	43.0
17	103.1	0.0	6.8	43.0
18	127.2	0.0	5.5	43.0
19	154.3	0.0	5.0	43.0
20	116.4	0.0	5.0	43.0
21	106.4	0.0	6.0	42.0
22	119.7	0.0	1.5	42.0
23	135.6	0.0	3.0	42.0
24	101.8	0.0	5.5	42.0
25	116.1	0.0	5.5	42.0
26	134.0	0.0	5.0	42.0
27	136.2	0.0	3.0	43.0
28	115.6	0.0	3.5	42.0
29	102.1	0.0	3.5	42.0
30	118.0	0.0	3.5	43.0
31	104.2	0.0	3.5	42.0
AVG.	140.7	3.1	5.4	42.7

FEBRUARY

DATE	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1	127.0	0.0	6.0	37.0
2	130.8	0.0	5.5	36.0
3	137.2	0.0	5.5	36.0
4	130.2	0.0	4.5	36.0
5	119.1	0.0	4.5	37.0
6	104.0	0.0	4.9	38.0
7	98.0	0.0	5.3	38.0
8	111.6	0.0	5.0	38.0
9	107.2	0.0	6.0	38.0
10	114.0	0.0	5.8	38.0
11	107.1	0.0	6.0	38.0
12	122.1	0.0	6.5	39.0
13	118.3	0.0	6.9	37.0
14	90.5	0.0	6.2	39.0
15	133.9	0.0	5.5	40.0
16	135.6	0.0	5.0	40.0
17	172.0	0.0	5.0	39.0
18	164.1	0.0	5.5	38.0
19	149.4	0.0	5.5	39.0
20	138.5	0.0	5.5	38.0
21	116.7	0.0	6.0	37.0
22	148.8	0.0	6.0	38.0
23	139.6	0.0	4.3	38.0
24	150.8	0.0	4.5	38.0
25	150.9	0.0	6.2	38.0
26	145.1	0.0	4.5	38.0
27	114.6	0.0	5.0	36.0
28	120.8	0.0	5.0	36.0
29	167.7	0.0	3.4	45.0
AVG.	129.8	0.0	5.4	38.0

TABLE 9

TABLE 10

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

BONNEVILLE PROJECT

MARCH 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1											117.5	0.0	5.0	36.0
2											139.8	0.0	5.2	35.0
3											103.7	0.0	5.0	36.0
4											100.3	0.0	5.0	36.0
5											98.3	0.0	5.5	36.0
6											93.2	0.0	5.2	36.0
7											102.6	0.0	5.0	36.0
8											118.0	0.0	5.0	37.0
9											135.1	0.0	5.0	38.0
10											111.6	0.0	2.0	38.0
11											105.4	0.0	2.0	38.0
12											118.6	0.0	1.7	38.0
13											109.7	0.0	1.8	39.0
14											108.5	0.0	2.2	39.0
15	1							37	0		124.3	0.0	2.6	39.0
16	0							61	0		142.5	0.0	2.5	39.0
17	0							36	0		134.9	0.0	2.4	39.0
18	0							30	0		133.3	0.0	2.2	40.0
19	2							54	1		143.2	10.6	2.3	40.0
20	5							24	2		167.4	71.4	4.0	40.0
21	13							78	8		204.9	78.7	2.5	41.0
22	24							61	0		202.8	85.0	1.7	43.0
23	10							-4	0		221.7	92.6	1.7	42.0
24	3							28	0		243.9	102.5	1.5	40.0
25	16							72	0		240.7	101.2	1.5	42.0
26	4							63	0		225.6	71.3	2.3	43.0
27	5							42	0		192.4	0.0	2.4	44.0
28	15							40	0		194.3	0.0	2.2	45.0
29	23							68	0		182.3	0.0	2.0	46.5
30	51							31	0		174.3	0.0	1.9	47.0
31	54							50	0		159.5	0.0	2.0	46.0
TOTAL	226							771	11					
AVG	13							45			150.0	19.8	3.0	39.8

TABLE 11

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

BONNEVILLE PROJECT

APRIL 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1	212			0				99	0	0	151.0	0.0	2.5	47.0
2	147			0				56	0	0	144.1	0.0	1.5	46.0
3	178			1				88	0	0	159.4	0.0	2.8	46.0
4	224			1				101	0	0	161.1	0.0	2.8	46.0
5	476			0				60	0	0	188.0	0.0	2.5	47.0
6	562			0				48	0	0	181.2	0.0	2.6	47.0
7	327			0				93	0	0	198.7	0.0	2.8	47.0
8	255			1				70	0	0	184.0	0.0	2.8	47.0
9	400			1				63	0	0	189.0	0.0	2.4	48.0
10	505			2				30	0	0	163.3	0.0	3.0	48.0
11	624			1				55	0	0	173.8	0.0	3.0	48.0
12	711			2				69	0	0	179.8	0.0	2.5	49.0
13	1,033			6				77	0	0	167.1	0.0	3.0	49.0
14	3,097			6				81	0	0	164.8	0.0	2.5	49.0
15	5,560			12				67	0	0	133.5	11.9	2.5	50.0
16	4,798			6				58	0	0	148.1	74.3	3.4	50.0
17	4,230			3				37	0	0	158.3	80.0	3.4	50.0
18	3,241			4				48	0	0	148.1	75.1	3.2	50.0
19	4,036			7				58	0	0	152.5	71.5	3.3	50.0
20	4,202			21				55	1	0	156.9	73.8	2.8	50.0
21	5,315			36				71	0	0	160.1	73.5	2.5	51.0
22	4,900			40				62	0	0	152.6	68.4	3.6	51.0
23	5,464			30				44	0	0	160.4	70.6	3.7	51.0
24	5,083			20				45	0	0	136.2	61.6	3.7	51.0
25	2,853			9				24	0	0	132.9	59.6	4.0	51.0
26	5,318			43				36	0	0	163.8	77.5	3.0	52.0
27	4,307			47				45	0	0	168.7	73.5	3.1	52.0
28	3,665			24				25	3	1	162.2	75.5	3.2	53.0
29	2,514			12				36	2	0	174.5	81.1	2.9	53.0
30	2,584			18				43	4	-2	169.3	84.0	2.8	54.0
TOTAL	76,821			353				1,744	10	(1)				
AVG	2,561			12				58			162.8	37.1	2.9	49.4

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	77,047	353

STEELHEAD	SHAD	MINI-JCK
2,515	21	(1)

TABLE 11

TABLE 12

TABLE 12

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

BONNEVILLE PROJECT

MAY 1993

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1	1827			17			0	11	1	0	217.2	99.9	2.6	54.0
2	2041			15			0	29	8	0	191.0	103.3	2.2	54.0
3	3420			36			0	25	34	1	193.0	94.0	2.6	54.0
4	2418			43			0	22	1	1	206.0	101.2	2.5	54.0
5	1784			39			0	39	48	1	228.5	106.1	2.6	54.0
6	2308			47			0	31	47	0	216.2	110.6	3.0	54.0
7	1354			50			0	47	14	1	251.7	119.0	2.0	55.0
8	1315			44			0	49	6	0	253.4	120.4	2.8	57.0
9	920			34			0	80	32	0	266.2	126.1	2.3	55.0
10	852			38			0	63	163	0	259.1	128.0	2.8	57.0
11	1244			33			0	102	86	-1	272.9	133.0	2.8	56.0
12	1183			41			0	109	184	-1	272.7	122.6	1.8	56.0
13	1265			59			0	114	99	0	276.4	110.7	2.0	57.0
14	871			52			0	106	54	0	306.2	109.3	2.0	56.0
15	705			48			0	96	118	-1	329.5	130.5	1.8	57.0
16	823			41			0	118	130	0	351.2	134.0	1.5	57.0
17	843			58			0	110	229	1	385.7	143.7	1.5	57.0
18	853			23			0	121	315	0	393.6	152.4	1.5	58.0
19	682			36			0	124	325	4	369.0	137.6	1.8	58.0
20	729			22			0	107	678	0	374.0	142.2	1.8	58.0
21	553			29			0	81	458	0	372.5	130.7	1.8	58.0
22	604			28			0	92	839	0	367.4	145.2	2.0	58.0
23	608			26			0	116	2778	1	368.9	137.2	2.5	58.0
24	673			36			0	144	15610	0	363.9	136.2	2.5	59.0
25	852			29			0	109	17030	5	344.2	127.5	2.2	59.0
26	571			18			0	98	13174	1	319.3	128.2	2.5	59.0
27	587			23			1	108	14157	4	313.8	120.1	2.5	59.0
28	560			9			1	118	11403	1	310.7	128.2	3.0	59.0
29	392			9			0	90	9631	1	310.6	136.6	3.0	59.0
30	408			7			2	128	10607	4	293.0	128.3		
31	528			9			3	104	13200	3	279.8	134.1	3.0	59.0
TOTAL	33,773			999			7	2,691	111,459	26				
AVG	1,089			32				87	6,966	2	298.6	125.1	2.3	56.8

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	110,820	1,352

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
7	5,206	111,480	25

TABLE 13

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

BONNEVILLE PROJECT

JUNE 1993

FISH COUNTS / **RIVER CONDITIONS**

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1		721		13			3	147	17083	5	278.9	128.2	2.7	59.0
2		651		7			2	172	27036	4	280.3	128.7	2.5	60.0
3		514		9			5	140	17844	3	278.1	123.7	2.5	60.0
4		426		10			16	139	38562	6	286.4	134.1	2.8	59.0
5		484		11			29	161	60432	8	270.6	118.9	3.0	60.0
6		533		11			29	139	53314	8	225.0	112.4	3.2	61.0
7		549		2			61	131	48587	13	233.6	110.5	3.2	60.0
8		331		8			77	136	53983	23	278.4	121.4	2.8	60.0
9		441		9			135	171	58877	12	286.5	122.9	2.8	60.0
10		383		13			174	149	51345	33	253.7	119.5	2.9	60.0
11		600		7			314	168	30290	31	240.6	114.8	3.0	61.0
12		536		12			522	221	72020	39	260.7	118.5	3.2	61.0
13		474		8			767	245	142567	47	255.0	122.8	3.3	61.0
14		716		14			1254	289	148469	35	235.1	114.0	3.5	61.0
15		761		32			1710	224	78178	42	206.3	107.4	2.6	62.0
16		627		20			1720	269	48005	44	202.8	102.7	3.1	62.0
17		660		19			2052	395	99536	101	208.5	106.0	4.1	63.0
18		557		19			2380	445	101881	105	223.3	108.2	3.8	63.0
19		629		18			2582	516	11780	121	214.6	109.5	3.0	63.0
20		580		31			2597	484	122083	109	202.7	103.3	4.2	63.0
21		524		15			2299	428	76705	125	199.0	100.5	4.4	64.0
22		609		36			2917	513	33286	171	200.9	101.0	4.9	64.0
23		356		40			3233	443	24907	212	201.7	102.8	4.7	63.0
24		496		27			3090	509	43540	161	213.2	106.6	4.7	63.0
25		372		37			3072	476	71035	135	201.5	101.5	4.5	64.0
26		453		31			3914	602	65055	181	179.2	91.7	3.8	64.0
27		472		22			4248	553	43535	146	162.9	78.9	3.5	64.0
28		373		32			4553	554	32862	158	172.9	87.5	3.5	64.0
29		322		28			3180	595	17957	232	203.4	103.1	4.0	64.0
30		252		25			2732	509	19907	195	196.6	99.1	4.5	64.0
TOTAL		15,402		566			49,667	9,923	1,883,831	2,505				
AVG		513		19			1,656	331	57,022	84	228.4	110.0	3.5	61.9

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	110,820	1,352
SUMMER	15,402	566
TOTAL	126,222	1,918

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
49,674	15,129	1,995,311	2,530

TABLE 13

TABLE 14

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

BONNEVILLE PROJECT

JULY 1993

FISH COUNTS / RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1		341		22	0		2503	681	19674	256	190.2	96.4	3.1	64.0
2		353		27	0		2234	680	18501	211	185.0	96.6	3.0	64.0
3		258		36	0		2438	653	20911	204	172.3	87.2	3.1	64.0
4		297		25	0		1944	668	18837	282	154.4	80.1	3.0	64.0
5		202		28	0		2081	578	13209	158	149.9	78.4	3.5	64.0
6		240		29	0		2113	674	8821	173	176.2	78.2	4.0	64.0
7		162		39	0		1951	695	5990	137	182.2	73.6	3.5	64.0
8		215		52	1		2524	742	8967	196	179.3	83.1	3.0	65.0
9		286		37	0		2332	791	7968	126	161.0	75.0	3.3	66.0
10		247		44	2		2085	851	4779	192	157.8	73.7	4.0	65.0
11		259		39	1		1650	945	3907	121	140.0	64.9	4.0	65.0
12		223		34	0		1093	922	2795	133	163.0	76.3	3.8	65.0
13		226		18	0		922	912	3807	125	168.4	78.3	3.8	65.0
14		226		36	0		1027	1004	3316	135	170.2	79.2	3.8	65.0
15		184		47	0		850	1044	3152	108	172.4	75.1	3.8	64.0
16		240		37	7		647	1026	2856	102	142.2	78.9	4.4	63.0
17		212		18	0		382	968	3147	80	173.1	80.9	4.0	66.0
18		152		30	0		278	1065	2283	77	170.6	80.1	3.6	66.0
19		180		19	0		260	1324	2384	74	178.0	83.4	3.6	66.0
20		196		25	0		251	1080	1689	71	163.4	83.7	3.8	66.0
21		225		33	2		190	1252	1291	100	189.2	78.6	3.0	66.0
22		180		37	0		112	1568	1698	110	168.7	80.3	4.0	66.0
23		162		42	0		106	1823	2022	143	162.7	75.9	4.7	66.0
24		160		36	0		74	1698	1451	85	164.2	76.6	4.1	68.0
25		155		27	0		76	1534	1046	106	141.6	66.1	5.6	67.0
26		159		29	0		59	1407	775	107	160.7	75.0	5.6	67.0
27		132		20	1		48	1308	710	104	170.3	79.5	5.6	67.0
28		226		40	0		64	1699	662	68	158.9	76.4	4.5	67.0
29		238		43	0		52	1774	574	82	165.7	77.8	4.0	68.0
30		160		33	1		15	1431	379	63	181.1	86.4	4.0	68.0
31		147		23	0		16	1351	299	26	168.7	83.0	5.0	68.0
TOTAL		6,643		1,005	15		30,377	34,148	167,900	3,955				
AVG		214		32			980	1,102	5,416	128	167.1	79.3	3.9	65.6

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	110,820	1,352
SUMMER	22,045	1,571
TOTAL	132,865	2,923

COHO ADULT
15

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
80,051	49,277	2,163,211	6,485

PINK	CHUM
1	1

One Chum was identified in the Bradford Isl. ladder on the 13th and one Pink on the Wasington side on the 18th.

TABLE 15

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

BONNEVILLE PROJECT

AUGUST 1993

FISH COUNTS / RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1			291	25	0	0	32	1738	365	34	126.8	61.0	4.5	68.0
2			261	34	0	0	18	1991	437	64	133.8	64.9	4.5	69.0
3			295	40	0	0	11	2003	355	68	165.2	77.2	5.0	70.0
4			292	24	1	0	17	2058	245	75	157.1	72.7	3.6	70.0
5			372	26	2	0	11	2197	271	49	148.3	71.6	3.2	70.0
6			436	30	0	4	8	2473	143	33	157.3	73.2	4.5	71.0
7			392	37	0	0	13	2204	141	36	116.9	54.0	5.8	72.0
8			332	17	1	1	2	1795	91	25	112.4	54.8	5.0	72.0
9			368	36	2	1	5	1755	159	29	132.0	58.5	5.0	70.0
10			266	15	2	0	2	1516	141	25	114.2	53.3	4.5	70.0
11			313	27	1	0	2	1142	118	18	130.0	59.4	4.2	70.0
12			526	29	3	1	2	1238	129	37	133.2	62.8	3.3	70.0
13			826	32	0	0	0	1479	75	31	109.6	52.1	5.2	70.0
14			798	27	0	0	1	1806	46	41	105.5	50.5	5.0	70.0
15			762	42	6	0	0	1970	40	18	108.5	50.8	4.0	70.0
16			567	18	2	0	0	2075	59	19	114.5	53.6	3.8	68.0
17			394	26	5	0	0	1861	58	13	130.6	62.7	4.0	68.0
18			399	37	1	0	0	1495	30	8	154.9	72.1	4.2	69.0
19			857	41	1	0	1	2100	59	26	129.3	60.3	4.2	69.0
20			1435	102	9	0	1	2880	30	18	123.3	57.0	4.5	70.0
21			1504	84	17	1	0	3044	21	18	101.6	46.5	5.0	70.0
22			1267	87	18	2	1	2522	64	20	100.6	46.1	4.0	70.0
23			2312	108	24	1	0	3077	61	25	99.1	9.0	4.2	70.0
24			1712	93	30	9	0	2424	111	18	95.0	0.0	4.2	70.0
25			1747	69	15	7	0	1821	28	18	121.0	0.0	4.5	69.0
26			2000	117	24	1	0	1558	68	15	120.4	0.0	5.2	69.0
27			4019	167	41	10	0	2026	13	23	114.6	0.0	3.8	70.0
28			3476	210	42	10	0	2130	22	29	91.4	0.0	3.8	68.0
29			2693	176	44	6	0	2044	11	29	94.9	0.0	5.3	68.0
30			2444	196	47	6	0	2530	18	14	95.0	0.0	5.0	68.0
31			2410	155	44	6	0	3110	54	12	96.7	0.0	5.0	68.0
TOTAL			35,766	2,127	382	66	127	64,062	3,463	888				
AVG			1,154	69	12.3	2	4	2,067	112	29	120.4	42.7	4.5	69.5

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	110,820	1,352
SUMMER	22,045	1,571
FALL	35,766	2,127
TOTAL	168,631	5,050

COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK
397	66	80,178	113,339	2,166,674	7,373

PINK	CHUM
1	1

TABLE 15

TABLE 16

TABLE 16

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

BONNEVILLE PROJECT

SEPTEMBER 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1			1731	156	52	2		3059		13	109.2	0.0	5.3	68.0
2			2359	164	62	4		2723		14	114.6	0.0	5.4	70.0
3			4908	318	114	19		3522		20	111.6	0.0	5.3	70.0
4			4930	307	102	21		3574		17	95.4	0.0	6.5	70.0
5			5508	335	142	28		3667		16	89.9	0.0	5.8	69.0
6			6068	444	211	19		3781		13	83.3	0.0	6.0	69.0
7			6041	424	269	12		3751		6	99.2	0.0	6.5	69.0
8			4149	450	287	34		3131		17	113.0	0.0	5.4	70.0
9			4041	420	116	6		2998		18	116.2	0.0	6.0	70.0
10			4323	474	214	18		3179		16	119.7	0.0	6.5	71.0
11			3791	494	214	25		3440		12	105.5	0.0	6.5	72.0
12			2923	331	164	17		2700		12	83.0	0.0	6.5	71.0
13			2773	366	161	16		2836		14	101.3	0.0	6.2	70.0
14			2428	328	155	20		2314		8	83.7	0.0	5.8	70.0
15			2995	348	163	13		2318		23	101.2	0.0	5.5	68.0
16			4172	486	300	24		2304		21	97.3	0.0	5.5	69.0
17			4573	540	522	18		2436		12	91.0	0.0	5.8	68.0
18			3155	518	528	17		2196		13	82.7	0.0	6.0	68.0
19			3121	459	508	18		2262		8	76.2	0.0	6.0	68.0
20			2599	513	558	37		2031		13	77.3	0.0	6.0	67.0
21			1819	371	392	27		1298		25	102.0	0.0	6.0	67.0
22			956	382	358	16		1272		16	114.4	0.0	5.0	66.0
23			1192	424	441	30		1387		20	108.3	0.0	6.0	66.0
24			1029	486	431	30		1474		22	95.7	0.0	6.0	66.0
25			661	324	265	21		1152		24	75.4	0.0	6.0	65.0
26			1323	378	270	35		1317		12	74.6	0.0	5.5	65.0
27			1019	361	200	29		998		15	100.2	0.0	5.6	65.0
28			750	345	150	17		745		16	106.5	0.0	6.2	66.0
29			472	262	119	15		618		21	108.0	0.0	6.0	66.0
30			452	224	118	17		646		6	118.5	0.0	5.0	65.0
TOTAL			86,261	11,432	7,586	605		69,129		463				
AVG			2,875	381	253	20		2,304		15	98.5	0.0	5.9	68.1

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	110,820	1,352
SUMMER	22,045	1,571
FALL	122,027	13,559
TOTAL	254,892	16,482

COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK
7,983	671	80,178	182,468	2,166,674	7,836

PINK	CHUM
1	1

TABLE 17

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

BONNEVILLE PROJECT

OCTOBER 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	PINK	MINI-JK
1			462	221	96	18		588	0	14
2			292	116	60	12		438	0	8
3			234	78	36	11		284	0	12
4			356	97	76	5		279	0	7
5			394	131	93	3		327	0	6
6			209	102	74	13		254	0	8
7			179	109	96	14		288	0	2
8			141	78	57	19		201	0	6
9			165	66	62	15		180	0	7
10			140	71	48	6		172	0	1
11			159	66	100	4		242	0	11
12			176	88	105	14		226	0	4
13			129	44	110	17		146	0	4
14			88	48	123	15		151	0	7
15			145	61	124	22		212	1	7
16			114	60	121	20		174	0	6
17			80	50	95	24		140	0	2
18			83	51	81	10		189	1	6
19			65	31	51	14		131	0	0
20			71	32	66	9		98	0	-1
21			69	28	68	8		117	0	5
22			45	18	89	13		119	2	2
23			60	33	82	12		107	0	2
24			70	16	58	17		73	1	1
25			54	16	64	12		82	1	5
26			70	12	60	15		65	1	2
27			85	25	59	10		67	0	0
28			42	17	51	13		37	0	0
29			30	3	62	8		69	0	2
30			42	1	36	7		51	2	0
31			6	12	84	19		24	4	1
TOTAL			4,255	1,781	2,387	399		5,531	13	137
AVG			137	57	77	13		178		4

RIVER CONDITIONS

DATE	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1	121.3	0.0	5.0	65.0
2	98.8	0.0	6.5	66.0
3	83.4	0.0	6.5	66.0
4	97.9	0.0	6.5	65.0
5	96.2	0.0	5.0	65.0
6	102.9	0.0	6.4	64.0
7	122.6	0.0	6.0	64.0
8	123.3	0.0	5.5	64.0
9	103.7	0.0	5.3	65.0
10	84.4	0.0	5.3	64.0
11	88.0	0.0	6.0	64.0
12	101.0	0.0	6.0	63.0
13	91.8	0.0	6.1	63.0
14	107.6	0.0	5.6	63.0
15	103.9	0.0	6.3	63.0
16	87.9	0.0	6.3	63.0
17	76.8	0.0	6.3	63.0
18	98.8	0.0	6.0	63.0
19	121.3	0.0	5.5	62.0
20	116.0	0.0	6.2	62.0
21	101.0	0.0	6.0	62.0
22	92.1	0.0	7.0	60.0
23	94.2	0.0	7.2	62.0
24	80.5	0.0	6.8	61.0
25	110.5	0.0	7.0	61.0
26	118.2	0.0	5.6	61.0
27	106.2	0.0	5.5	60.0
28	103.3	0.0	6.8	60.0
29	113.9	0.0	6.6	60.0
30	120.9	0.0	6.0	59.0
31	111.4	0.0	5.5	59.0
AVG	102.6	0.0	6.1	62.6

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	110,820	1,352
SUMMER	22,045	1,571
FALL	126,282	15,340
TOTAL	259,147	18,263

COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
10,370	1,070	80,178	187,999	2,166,674	7,973

PINK	CHUM
14	6

The Bradford Island ladder counted 1 Chum each on the 28th, 30th and 31st.

The Washington Shore ladder coounted one on the 23rd and one on the 31st.

TABLE 17

TABLE 18

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

BONNEVILLE PROJECT

NOVEMBER 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	CHUM	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1			13	2	29	3		38	1	3	104.8	0.0	6.6	59.0
2			15	12	17	2		24	1	1	103.5	0.0	6.5	58.0
3			25	4	25	1		21	0	0	106.3	0.0	6.0	58.0
4			34	2	24	0		39	1	-1	122.8	0.0	6.0	58.0
5			11	2	14	0		30	0	1	120.2	0.0	6.8	57.0
6			5	10	20	4		28	0	0	91.7	0.0	6.8	57.0
7			10	1	27	5		23	0	0	89.5	0.0	6.8	57.0
8			15	5	24	0		24	0	0	116.4	0.0	6.8	55.0
9			6	2	17	0		27	0	0	141.9	0.0	6.5	55.0
10			6	1	8	1		24	1	-1	109.9	0.0	6.5	55.0
11			7	3	7	1		17	0	-1	90.8	0.0	7.0	54.0
12			11	2	20	2		23	0	0	90.6	0.0	7.0	54.0
13			12	0	10	0		30	0	1	82.9	0.0	5.8	54.0
14			15	5	1	1		21	3	3	82.1	0.0	6.1	54.0
15			5	6	29	0		18	4	1	111.9	0.0	5.8	54.0
16											111.1	0.0	6.5	52.0
17											95.8	0.0	6.8	52.0
18											102.8	0.0	5.5	52.0
19											114.3	0.0	6.8	52.0
20											93.7	0.0	6.2	52.0
21											87.6	0.0	6.2	52.0
22											124.2	0.0	6.3	51.0
23											144.7	0.0	5.0	51.0
24											173.4	0.0	4.2	48.0
25											143.0	0.0	3.0	48.0
26											143.6	0.0	3.6	47.0
27											111.6	0.0	5.5	47.0
28											101.8	0.0	5.5	46.0
29											123.2	0.0	5.0	47.0
30											120.0	0.0	5.5	45.0
TOTAL			190	57	272	20		387	11	7				
AVG			13	4	18	1		26			111.9	0.0	6.0	52.7

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	110,820	1,352
SUMMER	22,045	1,571
FALL	126,472	15,397
TOTAL	259,337	18,320

COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
10,642	1,090	80,178	188,386	2,166,674	7,980

PINK	CHUM
15	17

The Bradford Island ladder counted 1 Pink on the 4th.

TABLE 19

DISCHARGE AND WATER QUALITY DATA

BONNEVILLE PROJECT - 1993

DECEMBER

DATE	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1	116.7	0.0	5.5	46.0
2	115.3	0.0	6.5	47.0
3	97.9	0.0	7.0	46.0
4	90.6	0.0	6.0	47.0
5	92.4	0.0	7.0	46.0
6	126.0	0.0	7.0	46.0
7	113.4	0.0	6.5	46.0
8	119.4	0.0	6.5	46.0
9	116.1	0.0	6.5	44.0
10	94.4	0.0	6.5	44.0
11	94.1	0.0	7.0	45.0
12	87.3	0.0	6.5	45.0
13	123.3	0.0	7.5	44.0
14	120.1	0.0	7.5	44.0
15	113.0	0.0	7.5	44.0
16	120.0	0.0	7.5	45.0
17	134.5	0.0	5.5	44.0
18	130.2	0.0	5.5	44.0
19	103.1	0.0	5.5	44.0
20	133.6	0.0	6.5	46.0
21	130.3	0.0	6.2	45.0
22	131.7	0.0	7.2	44.0
23	131.7	0.0	7.5	44.0
24	113.8	0.0	6.8	44.0
25	105.3	0.0	6.2	44.0
26	98.5	0.0	6.5	44.0
27	109.9	0.0	6.5	42.0
28	127.1	0.0	7.0	42.0
29	108.1	0.0	5.3	42.0
30	91.4	0.0	7.0	42.0
31	95.1	0.0	7.0	42.0
AVG.	112.4	0.0	6.6	44.5

TABLE 19

TABLE 20

U.S. ARMY ENGINEER DISTRICT, PORTLAND — VIDEO COUNTS; BONNEVILLE PROJECT

FISH COUNTS — JANUARY 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1						-1		15		
2						0		21		
3						0		17		
4						0		-3		
5						0		35		
6						0		16		
7						0		7		
8						0		3		
9						0		1		
10						0		1		
11						0		1		
12						0		2		
13						0		1		
14						0		0		
15						-1		-2		
16						0		0		
17						0		2		
18						0		0		
19						0		-8		
20						0		-2		
21						0		1		
22						0		2		
23						0		0		
24						0		1		
25						0		5		
26						0		9		
27						0		5		
28						0		30		
29						0		2		
30						0		6		
31						0		0		
TOTAL						-2		174		
AVG								5		

Video counting occurred between 0500 and 2000 hours.
The Washington shore ladder was out of service between 4 January and 19 January.
Cascade Island was used during this time; counting started at 0800 on 4 January and continued through 1000 on 19 January.

TABLE 21

U.S. ARMY ENGINEER DISTRICT, PORTLAND

VIDEO COUNTS; BONNEVILLE PROJECT

FISH COUNTS

FEBRUARY 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1								2		
2								0		
3								2		
4								4		
5								8		
6								8		
7								4		
8								8		
9								8		
10								14		
11								31		
12								7		
13								34		
14								1		
15								6		
16								2		
17								10		
18								7		
19								2		
20								1		
21								3		
22								3		
23								1		
24								1		
25								2		
26								0		
27								0		
28								3		
TOTAL								172		
AVG								6		
TOTALS TO DATE						COHO JACK (2)		STEELHEAD 346		

Video counting occurred between 0500 and 2000 hours.
No counts were recorded on 2 February between 0400 and 1100 because of equipment failure.

TABLE 21

TABLE 22

U.S. ARMY ENGINEER DISTRICT, PORTLAND — VIDEO COUNTS; BONNEVILLE PROJECT

FISH COUNTS — MARCH 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1	0							3		
2	0							1		
3	0							1		
4	0							4		
5	0							1		
6	0							7		
7	0							13		
8	0							20		
9	1							74		
10	0							16		
11	1							22		
12	1							8		
13	0							7		
14	0							12		
15	1							15		
16	1							8		
17	0							8		
18	1							1		
19	2							8		
20	0							7		
21	2							21		
22	2							8		
23	-1							-26		
24	1							-1		
25	3							9		
26	4							15		
27	3							8		
28	3							4		
29	12							4		
30	0							0		
31	0							0		
TOTAL	37							278		
AVG	1							9		

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK	COHO JACK	STEELHEAD
SPRING	37	0	(2)	624

Counting 1-15 March occurred between 0500 and 2000 hours.
Counting 16-29 March occurred between 0500 and 0800 hours and 1700 to 1900 hours.
No counts were recorded on 25, 27, and 28 March because of equipment failure.

TABLE 23

U.S. ARMY ENGINEER DISTRICT, PORTLAND

FISH COUNTS

NIGHT COUNTS; BONNEVILLE PROJECT

JUNE 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1		0		0						
2		23		0			0	8		0
3		1		-3			0	2		0
4		22		0			0	5		1
5		12		0			0	3		0
6		14		0			-1	1		0
7		17		0			-1	6		0
8		17		0			-3	2		-1
9		5		0			-1	5		-1
10		18		0			1	4		0
11		9		0			2	5		2
12		12		0			9	7		1
13		13		0			1	3		1
14		7		0			0	4		0
15		14		0			19	6		0
16		13		0			35	9		1
17		12		0			23	8		0
18		4		0			-2	6		0
19		22		0			51	27		0
20		11		0			73	19		0
21		10		0			46	24		0
22		7		0			36	6		0
23		8		1			59	18		1
24		19		0			75	17		2
25		10		0			77	14		3
26		11		0			76	12		0
27		9		1			96	11		0
28		3		2			140	14		9
29		3		0			108	11		11
30		10		0			82	20		19
TOTAL		336		1			1,001	277		49
AVG		11					35	10		

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	37	0
SUMMER	336	1
TOTAL	373	1

SOCKEYE	STEELHEAD	MINI-JCK
1,001	555	49

Video counts from 2000 - 0400 PST

TABLE 23

TABLE 24

TABLE 24

U.S. ARMY ENGINEER DISTRICT, PORTLAND

NIGHT COUNTS; BONNEVILLE PROJECT

FISH COUNTS

JULY 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1		8		1			123	18		4
2		6		1			40	7		5
3		8		2			68	8		5
4		2		0			74	16		3
5		5		0			88	12		3
6		-1		1			46	15		0
7		3		-1			112	5		3
8		2		0			48	8		2
9		3		0			31	16		1
10		2		0			71	14		6
11		6		-1			78	23		0
12		7		0			53	20		4
13		1		3			0	3		1
14		1		7			1	5		0
15		0		4			0	3		0
16		5		12			11	6		2
17		5		17			-1	20		0
18		2		8			2	14		2
19		9		12			0	9		4
20		5		0			16	9		-1
21		2		0			15	16		1
22		1		0			3	10		0
23		1		0			6	6		-2
24		8		1			8	14		2
25		0		0			7	17		0
26		0		0			8	14		0
27		9		0			1	11		1
28		9		2			1	13		0
29		5		1			1	27		-1
30		3		0			-1	18		1
31		5		0			2	14		1
TOTAL		122		70			912	391		47
AVG		4		2			29	13		2

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	37	0
SUMMER	458	71
TOTAL	495	71

SOCKEYE	STEELHEAD	MINI-JCK
1,913	946	96

Video counts from 2000 - 0400 PST

TABLE 25

U.S. ARMY ENGINEER DISTRICT, PORTLAND

NIGHT COUNTS; BONNEVILLE PROJECT

FISH COUNTS

AUGUST 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1			7	-1		0	0	7		1
2			11	0		0	4	11		0
3			13	-1		0	0	27		0
4			4	-1		0	0	18		0
5			21	0		0	0	53		-2
6			11	-1		0	1	51		0
7			17	0		0	0	15		-1
8			10	0		0	0	33		-1
9			14	0		0	0	13		0
10			7	0		0	0	26		0
11			13	0		0	0	9		0
12			9	0		-1	0	20		0
13			4	0		0	0	15		0
14			13	0		0	0	8		0
15			14	-1		0	0	27		0
16			10	0		0	0	28		0
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
TOTAL			178	(5)		(1)	5	361		(3)
AVG										

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	37	0
SUMMER	458	71
FALL	178	(5)
TOTAL	673	66

COHO JACK	SOCKEYE	STEELHEAD	MINI-JCK
(1)	1,918	1,307	93

Video counts from 2000 - 0400 PST

TABLE 25

TABLE 26

MONTHLY COUNT OF CHINOOK SALMON

BONNEVILLE DAM - 1938 - 1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL*	SPRING Jan1- May 31	SUMMER Jun 1- Jul 31	FALL Aug - Dec 31
1938					22,371	8,221	6,556	34,765	197,294	2,302	263	27	271,799	22,371	14,777	234,651
1939	6	12	121	51,410	25,159	5,602	17,828	32,909	150,851	2,197	78	16	286,189	76,708	23,430	186,051
1940			504	37,253	28,621	7,027	14,938	58,643	240,515	3,765	287	34	391,587	66,378	21,965	303,244
1941	4		1,360	51,486	19,445	7,013	9,395	12,590	351,967	7,179	866	138	461,443	72,295	16,408	372,740
1942	1	15	34	9,506	30,915	11,816	12,821	27,581	303,939	4,485	639	190	401,752	40,471	24,637	336,644
1943	11	6	43	12,172	53,268	5,440	8,044	28,985	201,414	3,354	365	21	313,123	65,500	13,484	234,139
1944	1	2	65	15,671	15,127	4,363	8,241	55,468	139,254	2,388	164	20	240,764	30,866	12,604	197,294
1945	6	4	81	17,148	26,276	11,293	16,317	32,254	189,675	4,281	137	6	297,478	43,515	27,610	226,353
1946	1	2	25	14,196	53,313	30,253	20,967	45,422	277,152	4,523	173	25	446,052	67,537	51,220	327,295
1947		2	141	83,520	49,899	25,502	13,358	43,062	260,385	3,945	526	37	480,377	133,562	38,860	307,955
1948	10		251	21,205	20,262	44,137	23,100	35,934	270,238	3,928	467	23	419,555	41,728	67,237	310,590
1949			5	5,765	44,304	24,232	22,500	41,500	137,599	1,571	215	6	277,697	50,074	46,732	180,891
1950			21	6,630	50,638	16,667	32,937	40,462	205,521	4,356	143		357,375	57,289	49,604	250,482
1951			32	28,801	86,055	54,889	24,394	33,785	97,131	6,489	212		331,788	114,888	79,283	137,617
1952			255	8,130	107,807	62,491	21,800	82,290	135,053	2,576	477		420,879	116,192	84,291	220,396
1953			1,254	126,450	42,583	27,228	30,593	27,398	75,145	1,495	333		332,479	170,287	57,821	104,371
1954		2	657	82,877	51,230	46,801	32,596	24,969	80,426	1,189	200		320,947	134,766	79,397	106,784
1955			1,391	84,436	85,769	45,502	37,437	32,833	70,558	1,803	124		359,853	171,596	82,939	105,318
1956			161	8,850	54,438	64,262	36,938	42,203	92,030	1,854	179	2	300,917	63,449	101,200	136,268
1957			328	90,984	45,128	104,243	30,790	34,829	95,457	1,352	175		403,286	136,440	135,033	131,813
1958			468	15,361	59,377	74,375	27,524	19,735	227,504	1,948	127		426,419	75,206	101,899	249,314
1959			182	26,944	34,007	39,581	49,371	24,945	168,187	1,643	168		345,028	61,133	88,952	194,943
1960			184	37,064	32,349	65,247	19,923	22,719	76,327	2,012	224		256,049	69,597	85,170	101,282
1961			476	72,526	25,693	41,302	25,159	22,675	90,688	3,108	353		281,980	98,695	66,461	116,824
1962			1,278	56,201	33,637	52,392	25,093	23,526	91,320	2,759	419		286,625	91,116	77,485	118,024
1963			2,802	43,859	28,810	36,836	27,178	28,586	104,415	5,571	503		278,560	75,471	64,014	139,075
1964			2,418	69,031	19,979	35,814	44,717	26,546	141,525	4,157	235		344,422	91,428	80,531	172,463
1965			1,238	47,083	35,945	38,482	37,515	38,727	112,664	6,074	229		317,957	84,266	75,997	157,694

TABLE 26

(Continued)

MONTHLY COUNT OF CHINOOK SALMON

BONNEVILLE DAM - 1938 - 1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL*	SPRING Jan1- May 31	SUMMER Jun 1- Jul 31	FALL Aug - Dec 31
1966			2,168	92,637	17,864	40,233	31,764	20,608	128,421	6,052	364		340,111	112,669	71,997	155,445
1967			1,620	71,957	11,358	41,847	53,812	25,760	154,323	5,405	155		366,237	84,935	95,659	185,643
1968			1,342	69,420	28,425	46,793	36,126	27,779	126,994	4,010	265		341,154	99,187	82,919	159,048
1969			1,910	65,371	106,281	59,177	42,976	38,456	187,502	5,511	359		507,543	173,562	102,153	231,828
1970			2,020	78,605	30,351	35,091	29,811	44,559	159,710	4,364	269		384,780	110,976	64,902	208,902
1971			683	60,849	63,985	37,757	40,154	26,749	166,346	8,820	359		405,702	125,517	77,911	202,274
1972			426	154,443	31,271	36,758	34,072	23,577	109,820	3,939	150		394,456	186,140	70,830	137,486
1973			1,585	128,495	12,068	24,164	21,196	31,513	170,895	8,457	262		398,635	142,148	45,360	211,127
1974			434	57,516	76,585	13,424	32,472	15,554	156,543	13,923	308		366,759	134,535	45,896	186,328
1975			162	48,295	55,647	16,989	27,362	37,907	234,145	4,847	212		425,566	104,104	44,351	277,111
1976			587	58,978	53,883	39,130	29,883	48,776	262,615	13,395	526		507,773	113,448	69,013	325,312
1977			3,569	98,710	17,229	21,790	19,233	21,992	171,303	11,805	1,026		366,657	119,508	41,023	206,126
1978			4,291	100,712	44,860	27,125	17,198	23,513	165,411	11,104	386		394,600	149,863	44,323	200,414
1979			790	29,751	20,921	15,924	18,293	41,273	142,241	6,865	248		276,306	51,462	34,217	190,627
1980			535	30,732	29,720	15,384	15,681	26,106	118,669	8,404	287		245,518	60,987	31,065	153,466
1981			1,853	41,917	21,239	13,262	13,667	32,519	154,696	6,288	209		285,650	65,009	26,929	193,712
1982			312	30,282	45,450	15,439	11,175	34,058	174,348	11,487	258		322,809	76,044	26,614	220,151
1983			144	25,423	31,154	12,793	10,665	26,147	116,879	20,458	683		244,346	56,721	23,458	164,167
1984			351	27,185	23,509	13,060	15,447	41,909	180,867	21,673	424		324,425	51,045	28,507	244,873
1985			2,036	52,145	36,780	16,763	13,107	64,899	255,020	22,099	1,024		463,873	90,961	29,870	343,042
1986			2,292	82,356	38,395	18,365	12,676	38,737	337,721	39,511	828		570,881	123,043	31,041	416,797
1987			2,727	68,866	30,214	22,728	14,979	82,500	298,865	25,614	1,001		547,494	101,807	37,707	407,980
1988			2,663	69,689	22,394	18,191	18,333	111,905	236,662	13,656	532		494,025	94,746	36,524	362,755
1989			36	56,583	30,640	15,659	17,316	102,573	181,691	11,218	401		416,117	87,259	32,975	295,883
1990			677	67,536	28,039	16,990	11,031	59,066	149,404	8,015	232		340,990	96,252	28,021	216,717
1991			601	41,431	19,196	12,755	9,198	21,959	159,068	10,116	298		274,622	61,228	21,953	191,441
1992			2,188	68,073	20,321	11,871	7,374	28,537	107,620	10,043	272		256,299	90,582	19,245	146,472
1993			226	77,174	34,772	15,968	7,648	37,893	97,693	6,036	247		277,657	112,172	23,616	141,869
TOTAL	40	45	54,003	2,979,690	2,164,956	1,666,441	1,290,679	2,112,165	9,489,706	415,419	19,866	355	20,193,365	5,198,734	2,957,120	12,037,511
10-Year Average			1,380	61,104	28,426	16,235	12,711	58,998	200,461	16,798	526		396,638	90,910	28,946	276,783

*Jacks Included

TABLE 27

MONTHLY COUNT OF SOCKEYE SALMON

'BONNEVILLE DAM; 1938 - 1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1938					1,025	17,811	53,864	2,097	235	6	2		75,040
1939				48	189	29,386	43,124	616	19				73,382
1940					206	59,639	85,885	3,063	13	1			148,807
1941				299	1,052	23,536	39,193	1,615	46				65,741
1942					13	12,624	41,301	1,477	49				55,464
1943					9	4,525	33,613	1,697	1				39,845
1944			1		16	3,099	11,171	659	126				15,072
1945			10	51	521	1,507	6,903	498	10	1			9,501
1946				9	67	7,815	64,715	1,747	21	2			74,376
1947					5	59,378	108,175	3,564	15	1		1	171,139
1948						12,023	117,652	1,849	13	4			131,541
1949					151	9,013	41,619	655	6				51,444
1950						341	75,784	1,826	42				77,993
1951					25	81,045	87,104	1,214	40				169,428
1952			7	1	3	136,939	47,188	467	30	2	8		184,645
1953			57	27	663	45,711	186,933	1,774	50				235,215
1954			1		13	52,359	76,505	1,212	17				130,107
1955					79	21,923	214,860	866	11	9			237,748
1956					10	29,649	125,185	1,564	7	3			156,418
1957					21	38,616	43,938	323	14	3			82,915
1958					25	38,736	82,719	878	23	8			122,389
1959				2	153	10,155	75,325	906	14	5			86,560
1960					4	41,758	17,615	321	15				59,713
1961				3	22	7,960	9,059	56	9	2			17,111
1962				1	21	9,713	18,310	82	47	5			28,179
1963					492	25,010	34,275	216	304	17	5		60,319
1964				3	570	32,079	66,857	213	110	10	14		99,856
1965					457	21,860	31,776	744	285	3			55,125
1966				10	338	57,509	97,845	800	155	4			156,661
1967				18	38	36,091	107,558	344	106	3			144,158
1968				54	372	74,226	33,245	199	101	9	1		108,207
1969				5	165	24,238	34,970	120	124	13	1		59,636
1970				5	269	22,977	46,062	1,147	290	12			70,762

TABLE 27

(Continued)

MONTHLY COUNT OF SOCKEYE SALMON

'BONNEVILLE DAM; 1938 - 1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1971					70	14,789	72,203	313	69	2	1		87,447
1972					614	16,505	37,939	1,254	9	2			56,323
1973					17	29,314	29,308	337	3				58,979
1974					14	8,073	35,407	340	3				43,837
1975					2	17,961	40,050	192	7				58,212
1976					94	22,532	20,661	297	26	1			43,611
1977				1	38	74,551	25,178	61					99,829
1978				1	2	12,442	5,884	101	6				18,436
1979					1	25,474	26,297	826	30				52,628
1980						22,949	35,764	164	4	1			58,882
1981					1	36,931	19,001	100	4				56,037
1982					12	20,731	29,207	264	4	1			50,219
1983						52,134	48,004	400	5	2			100,545
1984					6	106,892	45,141	494	7	1			152,541
1985				3	13	112,054	53,842	422	4	2			166,340
1986					2	27,303	30,279	475	63	1			58,123
1987					1	75,674	40,930	383	5				116,993
1988					11	44,409	35,168	121	5				79,714
1989					3	24,638	17,000	231	11	1			41,884
1990						26,141	23,244	195	1				49,581
1991						22,318	53,699	457	7				76,481
1992					20	54,292	30,409	271					84,992
1993					7	49,667	30,377	127					80,178
TOTAL			76	541	7,922	1,947,025	2,945,320	42,634	2,621	137	32	1	4,946,309
10-Year Average					6	54,339	36,009	318	10				90,683

TABLE 27

TABLE 28

MONTHLY COUNT OF COHO SALMON

BONNEVILLE DAM; 1938-1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL*	JACKS
1938	3							3,070	10,995	972	141	7	15,188	
1939	3							1,811	12,226	310	15	18	14,383	
1940	2							1,451	10,212	213	33	5	11,916	
1941								1,317	16,061	369	160	2	17,909	
1942								1,193	11,062	147			12,402	
1943								762	1,676	89	20		2,547	
1944								1,052	3,021	103	29	2	4,207	
1945							2	239	533	15		1	790	
1946		10	4				22	228	3,609	1		24	3,898	
1947	12	2	1					217	10,928	10	3	1	11,174	
1948	1						11	158	3,893	10	3	5	4,081	
1949							17	270	703	5	8	1	1,004	
1950								1,570	8,545	36			10,151	
1951								197	4,773	225	6		5,201	
1952							10	2,581	5,131	22	24		7,768	
1953							1	7,094	5,890	22	11		13,018	
1954								668	3,319	74	1		4,062	
1955								443	3,188	94			3,725	
1956							7	1,158	4,879	83			6,127	
1957								1,564	3,046	63	2		4,675	
1958								341	3,220	99	13		3,673	
1959								122	2,551	22			2,695	
1960								538	2,502	224	4		3,268	
1961								277	2,867	306	6		3,456	
1962							1	1,116	13,091	543	37		14,788	
1963							4	1,071	8,664	2,724	195		12,658	
1964							23	3,776	46,535	3,069	199		53,602	
1965						2	21	5,911	61,335	8,566	197		76,032	
1966						46	874	4,921	59,457	6,361	232		71,891	34,919
1967						33	715	3,814	87,254	4,560	112		96,488	47,893
1968						48	124	10,450	50,900	1,868	98		63,488	20,435
1969						38	443	4,671	41,176	2,998	52		49,378	25,216
1970						2	128	6,604	70,631	2,631	120		80,116	25,248

TABLE 28

(Continued)

MONTHLY COUNT OF COHO SALMON

BONNEVILLE DAM; 1938-1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL*	JACKS
1971							57	7,292	58,235	9,753	652		75,989	22,172
1972							66	9,481	52,456	3,792	137		65,932	31,716
1973							636	12,656	33,736	6,715	866		54,609	28,760
1974							539	8,805	40,761	8,631	2,219		60,955	29,350
1975							56	5,373	39,167	11,892	1,819		58,307	25,535
1976							143	5,970	40,505	5,417	1,115		53,150	16,484
1977							55	1,134	15,163	2,582	474		19,408	10,083
1978				1			2	2,643	38,308	10,531	1,105		52,590	22,312
1979							68	7,324	28,732	7,583	1,621		45,328	15,716
1980							10	781	13,601	3,327	4,333		22,052	9,078
1981							4	3,162	23,962	3,108	274		30,510	8,575
1982							79	3,687	55,743	13,182	1,141		73,832	18,016
1983							44	319	7,237	5,020	2,553		15,173	6,775
1984							41	1,394	20,174	6,229	1,649		29,487	12,728
1985			1			7	92	3,977	46,749	5,670	361		56,857	18,307
1986							181	2,502	110,714	14,436	3,020		130,853	22,204
1987							464	2,364	21,002	3,556	249		27,635	9,713
1988							78	3,377	26,303	8,614	1,248		39,620	12,566
1989							60	2,353	24,089	9,543	3,236		39,281	11,863
1990							9	587	18,202	5,230	817		24,845	13,218
1991							5	941	46,331	13,713	3,067		64,057	5,189
1992							19	222	10,304	5,953	1,628		18,126	3,757
1993							15	448	8,191	2,786	292		11,732	1,090
TOTAL	21	12	6	1	0	176	5,126	157,447	1,353,538	204,097	35,597	66	1,756,087	508,918
10 Year Average							96	1,817	33,206	7,573	1,557		44,249	11,064

*Jacks included

TABLE 29

MONTHLY COUNT OF STEELHEAD
BONNEVILLE DAM; 1938-1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL	A-Run Jan 1- Aug 25	B-Run Aug 26- Dec 31
1938					6,622	2,382	19,455	29,231	46,618	2,264	339	92	107,003	49,306	57,697
1939	23	19	570	8,110	1,587	1,490	36,681	38,062	33,891	1,264	216	119	122,032	80,096	41,936
1940	5	96	1,688	4,125	998	4,489	61,188	46,071	64,377	1,786	292	59	185,174	106,724	78,450
1941	37	76	1,641	6,392	1,518	996	21,940	29,600	50,542	3,980	1,063	304	118,089	58,109	59,980
1942	4	37	256	3,642	4,159	1,588	19,905	41,973	77,076	2,412	566	182	151,800	65,219	86,581
1943	14	18	654	3,374	4,698	1,564	7,755	29,894	41,051	2,444	573	94	92,133	41,219	50,914
1944	50	157	1,019	6,142	2,224	1,169	21,868	24,508	35,907	6,129	1,119	226	100,518	51,585	48,933
1945	1,003	1,078	3,008	4,685	1,557	1,109	24,537	40,593	40,194	1,925	302	142	120,133	72,685	47,448
1946	64	551	3,040	9,839	5,482	3,265	20,600	58,466	38,399	2,070	262	769	142,807	93,422	49,385
1947	197	321	1,968	6,889	2,025	1,595	28,134	40,819	50,025	2,905	443	123	135,444	75,035	60,409
1948	154	119	1,631	4,473	1,170	1,895	33,191	53,621	40,609	1,742	381	76	139,062	87,453	51,609
1949	1		1,689	3,293	1,712	1,264	34,314	54,281	20,786	1,161	686	98	119,285	90,762	28,523
1950	13	8	1,156	4,537	1,667	691	25,142	53,904	24,226	1,932	811		114,087	80,191	33,896
1951			375	2,338	1,568	5,187	74,980	39,712	15,357	947	225		140,689	121,100	19,589
1952			278	1,248	1,751	8,202	118,110	79,735	48,293	2,735	638		260,990	190,012	70,978
1953			1,310	5,308	1,456	5,313	106,712	64,006	36,107	2,797	905		223,914	173,135	50,779
1954		6	679	5,511	1,571	6,115	59,443	65,234	34,941	2,209	551		176,260	126,085	50,175
1955			1,006	2,100	1,149	2,418	79,124	84,746	24,239	3,361	268		198,411	161,614	36,797
1956			1,409	2,718	1,582	3,122	48,306	47,148	23,343	2,846	635	7	131,116	99,692	31,424
1957			926	2,081	760	8,434	66,738	34,915	24,029	1,069	231		139,183	105,179	34,004
1958			495	651	1,457	5,645	53,734	22,827	44,478	1,859	291		131,437	79,533	51,904
1959			219	746	1,236	2,562	60,549	38,417	23,579	1,540	178		129,026	98,198	30,828
1960			412	904	1,090	4,314	44,026	33,571	28,058	1,090	211		113,676	77,141	36,535
1961			374	1,161	692	2,246	44,379	41,237	47,409	1,561	660		139,719	79,269	60,450
1962			381	1,957	1,491	3,737	49,789	40,177	64,084	1,798	611		164,025	86,990	77,035
1963			503	1,035	1,385	4,192	51,951	31,441	35,446	2,920	545		129,418	83,858	45,560
1964			490	1,609	769	1,940	50,640	26,892	32,406	1,954	552		117,252	76,135	41,117
1965			211	1,516	1,419	4,265	89,405	29,506	37,529	1,971	631		166,453	120,560	45,893

TABLE 29

(Continued)
MONTHLY COUNT OF STEELHEAD
BONNEVILLE DAM - 1938-1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL	Jan 1-Aug 25	Aug 26-Dec 31
1966			658	2,682	2,389	13,051	57,975	25,779	37,733	2,657	737		143,661	97,545	46,116
1967			416	1,182	899	3,062	40,881	36,787	35,472	2,701	472		121,872	78,794	43,078
1968			340	861	1,315	3,664	29,773	41,006	27,865	1,645	505		106,974	68,423	38,551
1969			911	2,164	2,897	6,889	63,222	36,077	26,565	1,484	573		140,782	104,051	36,731
1970			244	1,267	1,331	4,208	30,866	46,307	27,073	1,909	305		113,510	78,106	35,404
1971			463	1,377	1,810	4,469	84,877	58,249	38,619	3,739	363		193,966	141,054	52,912
1972			492	2,562	2,137	3,444	59,933	48,223	65,523	3,432	140		185,886	107,227	78,659
1973			830	2,534	1,367	5,360	53,820	46,399	43,275	3,918	320		157,823	100,011	57,812
1974			1,292	4,127	5,547	6,349	57,212	44,266	14,654	3,080	527		137,054	84,402	52,652
1975			1,080	4,284	4,324	6,058	30,823	28,623	9,106	904	338		85,540	71,586	13,954
1976			1,285	3,459	3,677	9,130	38,907	44,204	21,084	1,953	478		124,177	92,370	31,807
1977			1,159	4,121	4,115	11,395	67,554	35,161	66,084	3,298	550		193,437	113,682	79,755
1978			1,750	3,327	4,587	10,883	25,284	25,637	30,461	2,168	334		104,431	64,188	40,243
1979			1,333	1,905	1,785	7,585	33,379	39,399	23,592	4,710	291		113,979	79,472	34,507
1980			1,139	3,378	1,409	7,790	28,448	51,073	32,277	3,233	507		129,254	85,010	44,244
1981			1,031	3,812	3,887	12,628	56,787	52,435	25,737	2,650	303		159,270	121,785	37,485
1982			1,239	4,188	5,335	8,636	39,159	51,329	44,456	3,146	152		157,640	103,159	54,481
1983			458	1,253	1,638	6,017	69,036	86,066	48,920	4,636	415		218,439	148,853	69,586
1984			579	2,106	4,216	14,454	92,546	93,866	102,877	4,463	453		315,560	189,365	126,195
1985			977	2,956	3,997	13,036	102,256	152,455	63,575	4,088	647		343,987	251,723	92,264
1986			2,712	3,674	4,500	16,655	136,622	129,089	76,532	9,280	827		379,891	279,154	100,737
1987			1,189	2,112	3,233	12,443	104,615	115,481	58,815	4,331	862		303,081	227,013	79,120
1988			1,158	3,728	5,016	13,615	72,718	113,791	63,864	4,421	761		279,072	190,030	89,042
1989			630	2,213	3,343	10,176	62,913	117,686	84,665	5,419	753		287,798	176,965	110,833
1990			966	2,563	4,501	11,643	37,140	52,327	65,813	7,522	552		183,027	89,144	93,883
1991			640	2,082	2,196	6,601	52,187	110,027	93,152	6,947	713		274,545	150,542	124,003
1992			646	1,964	3,239	9,708	55,090	135,162	103,792	4,918	456		314,975	175,218	139,757
1993			771	1,744	2,691	9,923	34,148	64,062	69,129	5,531	387		188,386	99,941	88,445
TOTAL	1,565	2,486	53,776	170,009	142,176	340,061	2,970,767	3,101,553	2,483,709	170,854	27,906	2,291	9,467,153	6,199,120	3,271,085
10-Year Average			1,027	2,514	3,693	11,825	75,024	108,395	78,221	5,692	641		287,032	182,910	104,428

TABLE 30

MONTHLY COUNT OF SHAD at BONNEVILLE DAM 1938-1993

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1938						39	3,184	1,502	527	21			5,273
1939					14	1,539	3,065	157	28				4,803
1940					48	12,931	9,178	72	1				22,230
1941					5	2,417	16,010	197	12	16			18,657
1942					2	38	11,341	1,473	5				12,859
1943						18	2,545	265	20				2,848
1944						287	16,568	248					17,103
1945						2,801	90,773	948	4				94,526
1946						3,895	16,073	415					20,383
1947					8	5,645	20,280	105	3				26,041
1948						8	6,458	1,953	2	1			8,422
1949						2,647	19,609	322	1				22,579
1950							7,265	548	3				7,816
1951						1,269	6,792	277	15				8,353
1952						487	2,595	45	4				3,131
1953						53	14,856	1,502	19				16,430
1954						34	3,848	1,136	11				5,029
1955						21	4,411	1,358	18				5,808
1956					1	67	6,838	1,168	11				8,085
1957						1,695	11,039	422	1	2			13,159
1958						3,885	6,257	59					10,201
1959					3	32	6,315	369	1				6,720
1960						35,259	57,443	594	72				93,368
1961						18,952	245,471	1,236	33	5			265,697
1962						43,689	387,554	4,657	82	4	2		435,988
1963					70	77,961	307,466	4,044	217	14			389,772
1964					19	3,203	236,321	13,008	121	2			252,674
1965					1	33,815	570,432	12,844	194	35	2		617,323
1966					94	181,187	367,643	7,988	545	51	5		557,513
1967			1	1		6,673	212,681	2,944	152	8			222,460
1968					800	107,881	183,878	1,387	121	10	1		294,078
1969			2	5	158	233,018	81,159	2,846	163	7			317,358
1970				2	250	228,519	99,659	566	262	18			329,276

TABLE 30

(Continued)

MONTHLY COUNT OF SHAD at
BONNEVILLE DAM 1938-1993

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1971					30	34,345	154,215	951	55	1			189,597
1972					38	16,689	192,608	5,301	88	1			214,725
1973					116,057	377,830	24,701	577	38	4			519,207
1974					7	6,122	91,302	1,496	17	1			98,945
1975					11	43,712	219,133	1,349	38	3			264,246
1976					4	123,053	179,994	2,112	49	7			305,219
1977					51,709	431,540	11,818	568	76	12			495,723
1978					30	802,110	57,997	991	33	5			861,166
1979					800	994,253	43,734	658	258	141	13		1,039,857
1980					1,460	766,473	170,705	685	51	15	1		939,390
1981				2	20,976	708,295	150,730	1,080	79	17			881,179
1982				1	6,888	655,037	117,325	914	37	9	1		780,212
1983					78,105	1,224,342	118,975	1,103	112	37			1,422,674
1984					553	950,406	320,526	4,097	153	55	1		1,275,791
1985					101,770	816,288	55,233	1,410	206	39	5		974,951
1986					104,724	722,443	29,622	1,164	166	47	4		858,170
1987				28	254,326	678,850	10,254	379	32	5	1		943,875
1988				20	408,822	734,635	20,146	697					1,164,320
1989				1	199,327	1,651,338	24,697	2,041					1,877,404
1990				4	532,617	2,296,098	116,799	2,347					2,947,865
1991				1	37,677	1,566,933	307,835	1,971					1,914,417
1992				256	685,939	1,767,696	93,446	4,102					2,551,439
1992			11	10	111,459	1,883,831	167,900	3,463					2,166,674
TOTAL			14	331	2,714,802	20,262,284	5,714,702	106,111	4,136	593	36		28,803,009
10 Year Average					243,721	1,306,852	114,646	2,167					1,667,491

TABLE 31

MONTHLY TOTALS OF SALMONIDS AND SHAD COUNTED OVER THE DALLES DAM

1993

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CHINOOK*				42,391	25,824	14,165	6,481	19,297	71,395	5,400			184,953
STEELHEAD				2,367	731	3,847	17,962	20,194	61,600	18,128			124,829
SOCKEYE					2	36,517	25,584	146	3				62,252
COHO*								18	3,256	1,086			4,360
CHUM													
PINK													
MINI-JACKS**						1,015	2,041	460	612	268			4,396
TOTAL				44,758	26,557	55,544	52,068	40,115	136,866	24,882			380,790
SHAD				105	122,497	2,061,273	205,501	5,018					2,394,394

*Jacks included

**Salmonid fish under 12 inches in length.

TABLE 31

TABLE 32

TABLE 32

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

THE DALLES PROJECT
APRIL 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1	8			0				144	0		137.4	0.0	1.4	45.0
2	19			0				150	0		141.7	0.0	1.5	45.0
3	15			0				145	0		142.2	0.0	2.5	45.0
4	27			0				134	0		147.2	0.0	1.5	46.0
5	37			0				148	0		174.2	0.0	2.5	46.0
6	56			0				186	0		175.4	0.0	2.0	45.0
7	45			0				116	0		185.1	0.0	2.0	46.0
8	67			1				128	0		177.3	0.0	2.0	46.0
9	74			0				147	0		181.1	0.0	2.2	45.0
10	131			1				135	0		143.7	0.0	2.0	47.0
11	220			0				116	0		164.7	0.0	2.0	48.0
12	288			0				95	0		170.3	0.0	3.0	48.0
13	391			0				76	0		159.3	0.0	3.0	48.0
14	434			0				83	0		149.4	0.0	1.5	48.0
15	398			1				46	0		110.9	0.0	1.5	48.0
16	622			0				42	0		149.5	0.0	1.5	49.0
17	1485			0				47	0		134.7	0.0	2.5	49.0
18	2431			2				51	4		141.3	0.0	2.5	50.0
19	2577			1				39	2		141.7	0.1	2.5	49.0
20	1760			1				46	1		153.2	0.0	2.5	50.0
21	3555			0				33	5		145.1	0.0	3.0	50.0
22	3455			7				30	19		152.0	0.0	3.5	50.0
23	2418			7				24	3		143.5	0.0	2.5	51.0
24	4693			14				33	5		114.6	0.0	2.5	51.0
25	2443			10				28	4		126.0	0.0	2.0	51.0
26	3618			13				36	4		153.4	0.0	3.0	51.0
27	2255			7				26	5		150.3	0.0	2.5	52.0
28	3319			3				28	8		155.1	0.0	2.5	52.0
29	2529			18				23	18		159.1	0.0	2.5	52.0
30	2913			22				32	27		154.4	0.0	1.7	53.0
TOTAL	42,283			108				2,367	105					
AVG.	1,409			4				79	4		151.1	0.0	2.3	48.5

TABLE 33

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

THE DALLES PROJECT
MAY 1993

FISH COUNTS / RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1	1645			11			0	20	10		215.8	12.8	2.2	54.0
2	2625			20			0	17	7		173.2	20.0	1.8	53.0
3	1548			16			0	12	33		185.3	17.2	2.5	55.0
4	1721			8			0	13	43		187.6	20.0	2.0	53.0
5	1325			17			0	7	36		210.7	41.8	2.0	53.0
6	1316			20			0	13	39		214.1	19.6	1.9	53.0
7	729			23			0	13	86		246.3	44.9	1.8	55.0
8	1000			26			0	11	56		238.4	37.2	2.5	53.0
9	840			30			0	15	44		261.0	82.9	1.6	55.0
10	1115			26			0	12	88		236.2	78.0	2.4	54.0
11	612			27			0	21	143		266.3	68.4	2.5	52.0
12	487			33			0	30	148		273.3	80.9	2.5	54.0
13	628			22			0	17	89		258.6	73.7	1.5	55.0
14	666			25			0	27	71		324.8	132.8	1.5	55.0
15	786			46			0	26	325		326.3	165.0	2.5	55.0
16	697			21			0	30	287		358.2	162.8	1.5	56.0
17	591			39			0	24	373		382.1	180.6	2.0	55.0
18	439			37			0	19	379		378.4	160.7	2.0	57.0
19	470			26			0	28	375		366.3	138.7	2.4	57.0
20	603			42			0	28	533		370.5	193.5	1.7	57.0
21	596			23			0	31	755		368.8	206.3	1.5	57.0
22	482			23			0	24	1029		375.6	294.6	1.7	57.0
23	661			18			0	27	708		366.6	289.0	1.5	58.0
24	463			22			0	19	3770		357.0	177.0	1.5	57.0
25	391			29			0	46	9347		337.4	160.1	1.5	58.0
26	300			25			0	30	18753		307.0	112.2	2.0	59.0
27	517			27			0	24	16569		300.6	111.6	1.5	58.0
28	373			19			0	35	16480		311.7	142.4	2.0	55.0
29	436			8			1	37	15954		296.6	104.7	2.5	58.0
30	613			15			1	47	17606		282.3	121.1	2.0	58.0
31	411			14			0	28	18361		281.7	118.5	2.0	58.0
TOTAL	25,086			738			2	731	122,497					
AVG.	809			24				24	3,952		292.2	115.1	2.0	55.6

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	67,369	846

SOCKEYE	STEELHEAD	SHAD
2	3,098	122,602

TABLE 33

TABLE 34

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

TABLE 34

THE DALLES PROJECT

JUNE 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1	419			7			1	35	18,634	0	255.0	81.1	3.0	58.0
2	333			7			3	21	14,695	0	288.5	118.1	2.5	58.0
3	371			4			8	36	32,230	0	273.4	89.7	2.0	58.0
4		388		4			4	55	24,703	0	280.7	104.5	1.5	58.0
5		384		9			6	42	41,031	0	269.5	96.8	1.5	57.0
6		465		13			18	42	60,530	0	221.2	55.4	1.7	58.0
7		400		5			21	35	57,242	1	227.7	18.3	1.7	58.0
8		330		16			35	38	65,872	7	274.5	30.1	2.0	58.0
9		369		6			49	29	75,733	2	273.2	28.1	1.9	60.0
10		380		5			25	36	71,339	8	249.6	12.6	3.0	59.0
11		365		8			91	45	68,584	22	229.6	28.4	1.9	60.0
12		406		3			140	59	40,366	6	265.0	28.6	3.0	60.0
13		480		7			241	48	68,184	16	247.2	12.7	1.8	60.0
14		375		6			445	60	144,290	17	220.5	11.5	2.5	61.0
15		568		17			714	76	110,223	15	199.9	9.8	2.2	61.0
16		608		16			971	84	98,002	27	210.8	10.7	3.0	61.0
17		645		17			1255	90	93,606	26	201.9	10.9	2.8	63.0
18		699		10			1726	101	99,979	26	219.1	12.1	3.2	62.0
19		626		14			1629	133	111,091	32	207.5	10.6	2.5	63.0
20		679		12			2055	192	118,624	50	195.8	11.4	2.8	63.0
21		681		12			2365	235	85,722	75	195.6	18.7	2.5	63.0
22		496		16			1579	241	92,758	70	197.8	14.7	3.2	64.0
23		521		12			1999	228	44,444	46	199.9	11.4	3.2	64.0
24		379		5			1877	221	40,695	45	207.8	6.1	2.5	63.0
25		416		21			3143	227	68,272	83	204.9	8.9	3.2	64.0
26		523		16			2807	284	89,308	102	163.2	7.2	2.5	63.0
27		439		13			3572	283	93,653	83	160.7	10.3	2.5	64.0
28		402		10			3756	343	56,448	79	177.2	4.2	3.0	64.0
29		384		15			3280	281	39,549	90	196.5	9.2	2.5	64.0
30		314		14			2702	247	35,466	87	185.8	8.1	2.5	63.0
TOTAL	1,123	12,722		320			36,517	3,847	2,061,273	1,015				
AVG.	462			11			1,217	128	68,709	34	223.3	29.3	2.5	61.1

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	68,492	864
SUMMER	12,722	302
TOTAL	81,214	1,166

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
36,519	6,945	2,183,875	1,015

TABLE 35

MONTHLY FISH PASSAGE SUMMARY

U.S. ARMY ENGINEER DISTRICT, PORTLAND

THE DALLES PROJECT

JULY 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1		329		19			2140	340	30093	77	195.4	8.5	2.5	65.0
2		281		27			1948	269	17530	98	190.7	14.5	3.0	64.0
3		350		24			1702	398	16375	96	159.1	8.0	3.0	65.0
4		261		17			1822	341	15042	107	147.0	8.2	3.5	64.0
5		289		34			1803	406	19886	137	155.0	8.0	3.0	65.0
6		223		19			1432	345	12957	108	177.1	3.9	3.0	65.0
7		186		26			1795	363	12724	114	173.6	7.9	2.5	65.0
8		175		21			1434	372	10757	82	174.2	4.4	2.2	65.0
9		157		17			1715	418	10103	102	159.3	7.5	2.0	65.0
10		214		26			1721	357	9780	88	158.6	8.1	2.5	65.0
11		274		20			1642	397	6868	77	122.5	8.6	2.5	65.0
12		203		26			1151	466	4978	57	168.3	3.3	2.0	65.0
13		207		14			1015	495	3891	103	159.9	9.3	3.5	66.0
14		162		20			677	503	4447	60	158.5	6.9	3.5	65.0
15		177		22			550	398	4558	78	166.2	6.0	2.6	65.0
16		191		26			680	493	3030	80	154.3	8.4	2.5	65.0
17		128		12			451	505	2441	17	177.5	9.5	3.0	66.0
18		236		20			480	765	2297	46	173.4	12.1	3.0	66.0
19		171		15			327	662	2770	45	164.4	4.0	2.5	66.0
20		167		5			238	805	1911	30	160.9	9.1	3.0	66.0
21		143		12			166	629	1869	39	169.6	8.3	3.0	66.0
22		172		14			152	683	1811	58	172.8	11.3	3.0	67.0
23		132		10			85	551	1520	37	173.0	9.3	3.5	67.0
24		143		33			126	824	1470	76	163.8	9.2	3.0	67.0
25		149		18			70	1047	1408	36	135.1	6.9	4.0	67.0
26		138		17			72	984	1286	24	157.6	8.0	3.7	67.0
27		115		13			49	868	1206	21	167.6	7.3	4.9	68.0
28		95		26			40	833	877	65	160.4	6.5	2.7	68.0
29		101		17			42	828	421	35	157.3	8.8	3.5	68.0
30		137		15			43	827	588	27	179.4	10.3	3.0	68.0
31		169		21			16	790	607	21	160.0	8.0	3.0	68.0
TOTAL		5,875		606			25,584	17,962	205,501	2,041				
AVG		190		20			825	579	6,629	66	164.3	8.1	3.0	65.9

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	68,492	864
SUMMER	18,597	908
TOTAL	87,089	1,772

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
62,103	24,907	2,389,376	3,056

TABLE 35

TABLE 36

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

THE DALLES PROJECT

AUGUST 1993

FISH COUNTS / **RIVER CONDITIONS**

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1		179		21	0	0	21	818	717	47	106.0	6.7	2.8	66.0
2		134		10	0	0	17	617	543	19	148.9	8.8	3.5	68.0
3		197		17	0	0	18	826	514	20	163.5	8.2	2.5	68.0
4			199	24	0	0	17	810	456	30	147.2	8.2	3.5	69.0
5			150	17	0	0	18	720	382	21	149.0	7.3	3.5	68.0
6			238	18	0	0	13	721	267	20	150.0	8.2	3.5	68.0
7			235	13	0	0	8	616	273	21	110.8	6.0	4.3	69.0
8			260	18	0	0	8	629	244	20	108.8	7.8	3.0	69.0
9			282	12	0	0	0	619	213	8	117.9	5.9	4.5	68.0
10			202	11	0	0	6	497	150	13	109.3	5.8	4.3	68.0
11			147	11	0	0	6	288	154	13	129.6	6.5	4.0	69.0
12			89	16	0	0	2	393	126	7	132.4	6.7	4.0	69.0
13			227	9	0	0	5	360	116	8	92.3	5.3	2.3	70.0
14			252	23	0	0	2	355	60	14	107.7	5.3	3.0	69.0
15			558	11	0	0	0	419	72	12	101.7	6.7	2.6	69.0
16			484	11	0	0	0	551	55	16	111.6	6.2	3.0	69.0
17			522	18	0	0	0	627	70	8	130.6	8.5	3.6	69.0
18			444	12	0	0	0	649	56	11	142.5	7.7	3.6	69.0
19			213	5	0	0	0	415	89	2	127.2	7.5	3.5	69.0
20			174	12	0	0	4	383	58	5	115.7	6.0	2.3	70.0
21			372	17	0	0	0	359	58	4	88.5	6.3	2.0	70.0
22			806	24	0	0	0	632	25	22	91.9	5.0	3.9	70.0
23			1135	38	0	0	0	1008	51	13	97.5	3.3	4.5	70.0
24			946	31	0	0	0	803	49	9	97.2	0.0	2.0	69.0
25			1569	59	0	0	0	864	60	20	123.2	0.0	4.0	69.0
26			738	31	1	0	0	559	33	18	119.0	1.5	4.5	69.0
27			852	43	0	0	0	792	48	12	114.3	1.5	3.7	68.0
28			1339	58	1	0	0	719	15	8	89.5	0.0	4.0	68.0
29			1942	78	4	0	0	1096	40	7	95.6	1.5	3.4	68.0
30			2368	98	8	1	0	1387	23	16	90.4	0.0	3.4	68.0
31			1195	83	2	1	1	662	1	16	98.0	0.2	3.4	69.0
TOTAL		510	17,938	849	16	2	146	20,194	5,018	460				
AVG.		170	641	56			8	1,298	293	28	116.4	5.1	3.4	68.7

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	68,492	864
SUMMER	19,107	956
FALL	17,938	801
TOTAL	105,537	2,621

COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	MINI-JCK
16	2	62,249	45,101	2,394,394	3,516

TABLE 37

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

THE DALLES PROJECT
SEPTEMBER 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1			1020	60	10	2	0	826		21	119.3	1.3	4.5	69.0
2			1232	101	10	0	0	1068		9	116.1	0.2	2.5	68.0
3			1532	148	14	4	0	1572		16	108.7	1.3	4.0	68.0
4			2550	138	26	6	1	2113		24	99.9	0.2	2.5	69.0
5			3549	204	40	5	0	1776		32	80.5	1.3	3.5	68.0
6			3960	199	31	5	1	1996		14	77.3	0.2	3.5	68.0
7			3702	199	26	5	0	1426		8	98.9	1.5	4.0	68.0
8			3602	229	29	1	0	1103		7	116.5	1.3	3.5	70.0
9			3210	291	24	8	0	1194		8	113.9	0.2	4.5	70.0
10			2135	254	41	8	0	1044		10	124.7	1.4	3.9	71.0
11			3582	284	79	19	0	1263		24	90.5	0.2	3.5	69.0
12			3002	333	72	14	0	2094		25	76.3	1.4	4.0	68.0
13			3253	300	124	24	0	2900		27	99.0	0.0	4.0	68.0
14			2130	268	88	19	1	2568		43	87.5	0.2	4.0	69.0
15			2895	294	116	22	0	2806		27	100.6	1.5	4.0	68.0
16			1793	268	59	11	0	2440		14	102.1	1.4	4.0	68.0
17			2663	347	60	7	0	2409		4	91.3	0.2	3.0	68.0
18			3072	344	102	8	0	2050		12	79.6	1.4	3.0	68.0
19			2831	469	243	15	0	2820		12	67.1	0.2	4.5	67.0
20			2165	430	223	13	0	3376		13	77.1	1.4	3.5	67.0
21			2042	318	219	29	0	3490		35	101.2	0.2	4.0	67.0
22			1838	294	205	14	0	3159		14	118.0	1.3	4.0	67.0
23			1,687	333	151	17	0	2809		44	107.2	0.2	4.5	67.0
24			488	230	105	8	0	1767		26	87.9	1.3	4.0	67.0
25			734	303	160	25	0	1834		33	87.5	0.2	5.0	66.0
26			510	296	221	17	0	2685		40	72.3	1.3	4.2	67.0
27			757	277	241	34	0	2591		34	95.1	0.2	4.5	66.0
28			638	192	82	7	0	1622		13	111.0	1.3	3.5	67.0
29			550	254	66	4	0	1624		7	112.6	0.0	3.0	67.0
30			377	239	36	2	0	1175		16	116.3	0.1	3.5	65.0
TOTAL			63,499	7,896	2,903	353	3	61,600		612				
AVG.			2,117	263	97	12		2,053		20	97.9	0.8	3.8	67.8

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	68,492	864
SUMMER	19,107	956
FALL	81,437	8,697
TOTAL	169,036	10,517

COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK
2,919	355	62,252	106,701	2,394,394	4,128

TABLE 37

TABLE 38

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

TABLE 38

THE DALLES PROJECT
OCTOBER 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1			259	170	95	7		1266		11	124.2	1.3	3.5	65.0
2			197	157	62	10		1063		36	96.6	0.2	3.4	65.0
3			101	122	41	3		936		14	70.6	1.3	3.5	65.0
4			145	112	54	6		971		26	104.9	0.2	3.8	65.0
5			225	133	65	3		1098		23	99.5	1.5	4.0	64.0
6			215	119	80	5		1168		16	100.9	1.3	4.0	65.0
7			247	122	116	4		1050		12	121.9	1.0	4.5	64.0
8			229	91	66	2		1136		6	123.1	1.0	2.7	64.0
9			145	67	41	1		612		2	106.6	1.0	3.0	63.0
10			244	63	29	1		504		6	75.4	1.0	3.0	63.0
11			105	85	17	2		560		7	94.9	1.0	3.5	63.0
12			100	61	33	4		514		12	97.3	1.0	4.0	63.0
13			105	33	18	0		319		8	89.9	1.0	3.5	62.0
14			68	44	31	0		556		5	112.6	1.0	4.0	63.0
15			81	57	35	2		555		7	97.9	1.0	4.5	63.0
16			148	40	15	1		438		8	92.6	1.1	3.5	63.0
17			146	46	36	2		705		10	63.0	1.0	4.0	63.0
18			194	32	56	3		741		9	106.7	1.0	3.5	63.0
19			88	28	13	0		501		5	121.2	1.0	3.5	63.0
20			82	30	29	0		616		9	110.7	1.0	4.5	63.0
21			68	28	7	0		322		3	101.7	1.0	4.0	63.0
22			61	28	10	0		391		0	90.3	1.0	4.0	63.0
23			44	13	5	0		241		1	95.9	1.0	2.6	62.0
24			34	12	17	0		290		4	70.5	0.9	3.0	62.0
25			38	18	14	0		311		3	106.8	1.0	3.2	61.0
26			50	20	4	0		335		6	115.6	1.0	3.2	60.0
27			46	15	6	0		206		7	105.9	0.9	3.4	60.0
28			36	8	9	0		226		2	106.2	1.0	5.0	59.0
29			37	12	8	1		220		7	110.9	1.0	4.5	59.0
30			21	5	5	0		99		1	98.2	1.0	5.0	61.0
31			60	10	8	4		178		2	91.7	1.0	3.8	58.0
TOTAL			3,619	1,781	1,025	61		18,128		268				
AVG.			117	57	33	2		585		9	100.1	1.0	3.7	62.6

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	68,492	864
SUMMER	19,107	956
FALL	85,056	10,478
TOTAL	172,655	12,298

COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	PINK
3,944	416	62,252	124,829	2,394,394	4,396	0

TABLE 39

YEARLY TOTALS OF SALMONIDS COUNTED OVER THE DALLES DAM
1957-1993

YEAR	CHINOOK*	STEELHEAD	SOCKEYE	COHO*	CHUM	PINK	TOTALS
1957	312,678	129,361	90,201	6,793	75	4	539,112
1958	301,960	121,420	111,039	2,395	31	5	536,850
1959	207,461	156,090	86,259	2,709	25	9	452,553
1960	196,962	111,189	59,441	3,000	35	5	370,632
1961	201,335	134,572	16,689	2,139		4	354,739
1962	187,132	163,301	27,127	3,696		5	381,261
1963	180,969	118,957	56,931	3,716	23	3	360,599
1964	183,842	110,033	79,042	5,978		5	378,900
1965	195,049	141,052	44,279	17,468	1	3	397,852
1966	240,671	146,172	147,886	32,279		1	567,009
1967	280,112	121,614	120,589	32,015	1	4	554,335
1968	262,975	147,481	116,897	42,687		1	570,041
1969	314,258	112,529	37,226	17,054		1	481,068
1970	261,457	99,187	77,678	23,219		4	461,545
1971	250,528	151,348	76,103	29,061		3	507,043
1972	268,628	135,303	44,671	16,562			465,164
1973	280,945	100,082	52,303	11,152		1	444,483
1974	217,181	70,875	28,827	14,655			331,538
1975	217,283	57,675	43,198	13,976			332,132
1976	216,163	82,568	27,747	19,392			345,870
1977	224,950	133,882	86,252	10,021			455,105
1978	199,228	60,485	11,845	18,877			290,435
1979	150,647	83,364	32,791	8,726		4	275,532
1980	113,951	93,963	42,088	6,326			256,328
1981	135,176	113,268	35,447	6,941		1	290,833
1982	172,682	117,434	33,331	7,383			330,830
1983	156,190	171,055	84,204	3,459	1		414,909
1984	203,920	219,123	101,177	3,142		1	527,363
1985	370,982	276,025	117,254	4,625		5	768,891
1986	443,013	281,953	48,477	4,842	3	4	778,292
1987	421,190	217,768	87,599	3,310	1	2	729,870
1988	378,080	198,499	55,802	9,226			641,607
1989	282,168	235,639	39,672	12,611			570,090
1990	207,556	129,271	40,230	4,645			381,702
1991	153,023	199,853	63,405	9,601		103	425,985
1992	168,507	232,179	66,384	3,825		3	470,898
1993	184,953	124,829	62,252	4,360			376,394
Totals	8,743,805	5,299,399	2,352,343	421,866	196	181	16,817,790
10-Year Average	281,339	211,514	68,225	6,019		12	567,109

*Jacks Included

TABLE 40

TABLE 40

MONTHLY COUNT OF CHINOOK SALMON
THE DALLES DAM 1957 - 1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL*	SPRING 1 JAN- 3 JUN	SUMMER 4 JUN- 3 AUG	FALL 4 AUG- 31 DEC	JACKS
1957			22	42,161	59,410	86,096	35,643	28,828	56,753	3,564	201		312,678	109,723	116,661	86,294	37,374
1958			114	8,268	47,862	59,955	24,381	17,211	141,262	2,788	119		301,960	61,747	80,139	160,074	19,747
1959			8	16,771	32,634	27,799	42,817	20,142	65,229	2,022	39		207,461	50,874	71,362	85,225	39,857
1960				17,073	40,091	52,577	22,549	15,225	46,453	2,720	274		196,962	58,406	75,315	63,241	30,847
1961				43,822	35,059	24,478	24,596	16,866	53,371	3,143			201,335	79,183	50,824	71,328	35,409
1962				33,069	35,629	34,488	21,515	13,461	46,135	2,835			187,132	69,139	57,007	60,986	17,835
1963				19,119	33,207	25,063	20,414	21,865	57,248	4,053			180,969	52,937	47,333	80,699	54,749
1964			340	35,551	24,447	16,801	37,697	17,452	49,811	1,743			183,842	60,691	56,360	66,791	30,900
1965			190	17,870	24,930	17,900	31,072	25,119	74,904	3,064			195,049	43,617	50,527	100,905	67,552
1966			1,068	72,267	22,837	25,530	33,712	14,978	65,380	4,899			240,671	96,628	61,062	82,981	36,482
1967				48,744	22,817	24,718	45,346	23,927	107,427	7,133			280,112	71,976	72,582	135,554	98,817
1968			100	52,144	45,057	32,827	33,272	22,361	72,209	4,800	205		262,975	98,742	67,391	96,842	64,644
1969			65	19,025	80,162	33,432	27,750	29,330	118,890	5,604			314,258	100,482	61,978	151,798	96,244
1970				53,370	29,670	22,903	23,318	34,906	93,633	3,657			261,457	83,549	48,115	129,793	85,471
1971				28,227	44,181	22,011	29,655	16,190	103,370	6,894			250,528	73,655	51,847	125,026	75,329
1972				68,955	33,508	17,354	29,756	21,828	91,666	5,561			268,628	103,107	48,660	116,861	81,668
1973				94,334	15,040	19,548	19,181	23,341	101,771	7,730			280,945	111,088	38,774	131,083	72,088
1974				13,415	41,902	7,141	22,709	13,964	103,804	14,246			217,181	56,397	30,273	130,511	79,840
1975				18,526	32,869	12,155	26,447	28,973	90,193	8,120			217,283	52,483	39,062	125,738	74,418
1976				20,266	35,434	17,828	20,129	17,278	90,933	14,295			216,163	56,570	38,733	120,860	74,275
1977				72,726	16,672	22,084	22,059	12,266	69,927	9,216			224,950	90,373	44,378	90,199	55,067
1978				52,425	30,472	19,477	15,978	11,251	57,786	11,839			199,228	84,924	34,396	79,908	32,503
1979				13,993	12,569	14,310	17,687	20,458	61,757	9,516	357		150,647	27,297	32,298	91,052	42,886
1980				12,434	15,441	7,948	12,832	12,881	43,675	8,740			113,951	28,237	21,133	64,581	20,016
1981				24,227	16,335	8,491	10,779	15,802	53,840	5,702			135,176	41,160	19,676	74,340	33,919
1982				10,569	33,296	10,058	9,554	17,466	79,487	12,252			172,682	44,750	19,342	108,590	60,165
1983				13,270	22,893	8,766	8,430	12,501	73,942	16,388			156,190	36,856	17,051	102,283	41,335
1984				9,326	23,784	9,992	12,332	23,495	105,786	19,205			203,920	33,848	22,472	147,600	70,798
1985				36,035	39,173	15,785	10,332	37,806	203,470	27,058	1,323		370,982	76,514	25,385	269,083	145,007
1986			175	48,892	36,928	14,175	10,452	22,684	264,091	45,616			443,013	87,004	24,826	331,183	176,461
1987				48,812	27,586	17,923	12,145	50,680	236,216	27,828			421,190	77,453	30,804	312,933	65,115
1988				51,680	20,756	16,644	13,494	66,509	193,490	15,507			378,080	73,663	29,892	274,525	69,631
1989				24,474	27,477	15,539	13,899	58,674	130,931	10,438	736		282,168	53,014	30,555	198,599	28,671
1990			115	36,062	20,749	13,390	9,099	22,152	96,538	9,451			207,556	57,424	22,615	127,517	32,794
1991				14,513	17,313	10,949	7,638	8,384	84,861	9,365			153,023	32,359	18,467	102,197	36,820
1992				38,141	19,414	9,595	5,797	14,589	71,281	9,690			168,507	58,451	14,976	95,080	27,160
1993				42,391	25,824	14,165	6,481	19,297	71,395	5,400			184,953	69,356	20,063	95,534	12,298
Total			2,197	1,272,947	1,143,428	809,895	770,947	850,140	3,528,915	362,082	3,254		8,743,805	2,463,677	1,592,334	4,687,794	2,124,192
10-Year Average				35,033	25,900	13,816	10,167	32,427	145,806	17,956	206		281,339	61,909	24,006	195,425	66,476

*Jacks Included

TABLE 41

MONTHLY COUNT OF SOCKEYE SALMON
THE DALLES DAM; 1957 - 1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1957					125	33,476	54,294	2,081	221	4			90,201
1958					29	28,854	80,324	1,583	248	1			111,039
1959					413	7,176	76,347	2,245	77	1			86,259
1960					2	36,907	22,228	297	7				59,441
1961					66	5,863	10,629	116	15				16,689
1962					55	8,333	18,545	180	14				27,127
1963					199	17,914	38,633	185					56,931
1964					23	9,984	68,205	758	72				79,042
1965					184	11,023	31,622	1,438	12				44,279
1966					65	36,539	109,167	2,106	9				147,886
1967					114	15,713	103,862	892	8				120,589
1968					5	77,878	38,542	462	10				116,897
1969					22	15,165	21,933	102	3	1			37,226
1970					1	18,309	56,903	2,387	75	3			77,678
1971						8,887	66,841	369	6				76,103
1972						9,276	34,924	466	5				44,671
1973					8	19,510	32,674	105	6				52,303
1974					4	3,935	24,790	98					28,827
1975						7,679	35,291	225	2	1			43,198
1976					1	10,988	16,637	121					27,747
1977					5	60,049	26,146	52					86,252
1978					24	7,158	4,559	104					11,845
1979						14,750	17,734	307					32,791
1980						11,096	30,046	927	19				42,088
1981						17,692	17,686	68	1				35,447
1982						11,430	21,742	144	15				33,331
1983					1	34,684	49,302	197	19	1			84,204
1984						62,500	37,926	745	6				101,177
1985				1	17	75,603	41,107	521	4		1		117,254
1986					12	17,224	30,686	550	4	1			48,477
1987					1	48,798	38,443	348	8	1			87,599
1988					5	30,443	25,096	208	50				55,802
1989					1	22,196	17,321	152	2				39,672
1990						17,603	22,406	218	3				40,230
1991					1	14,106	48,824	443	27	4			63,405
1992					16	38,319	27,812	232	4	1			66,384
1993					2	36,517	25,584	146	3				62,252
Total				1	1,401	903,577	1,424,811	21,578	955	19	1		2,352,343
10-Year Average					6	36,331	31,521	356	11	1			68,225

TABLE 41

TABLE 42

TABLE 42

MONTHLY COUNT OF COHO SALMON
THE DALLES DAM; 1957-1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL*	JACKS
1957							220	605	5,615	342	11		6,793	
1958								96	2,132	161	6		2,395	
1959								46	2,428	234	1		2,709	
1960								475	2,288	227	10		3,000	
1961							4	5	1,898	232			2,139	
1962							5	258	3,194	239			3,696	
1963							2	361	2,931	422			3,716	
1964								506	4,723	749			5,978	
1965							7	200	13,064	4,197			17,468	
1966							225	3,850	25,476	2,728			32,279	
1967							192	494	27,860	3,469			32,015	20,456
1968							372	3,319	36,568	2,346	82		42,687	13,035
1969							412	970	13,179	2,493			17,054	11,218
1970							96	2,064	19,983	1,076			23,219	11,327
1971							1	1,589	26,066	1,405			29,061	11,174
1972							3	1,090	14,564	905			16,562	10,272
1973								793	9,443	916			11,152	5,256
1974								522	10,715	3,418			14,655	9,054
1975								465	10,356	3,155			13,976	8,534
1976								608	14,609	4,175			19,392	13,083
1977							1	91	8,131	1,798			10,021	6,096
1978								355	13,069	5,453			18,877	13,533
1979								211	7,109	1,367	39		8,726	4,836
1980								287	5,064	975			6,326	2,970
1981								295	6,061	585			6,941	4,405
1982								336	5,792	1,255			7,383	3,047
1983								65	2,343	1,051			3,459	2,256
1984								24	2,521	597			3,142	1,282
1985							4	208	3,537	828	48		4,625	1,555
1986							2	1	3,772	1,067			4,842	1,458
1987							12	91	2,409	798			3,310	1,953
1988								232	7,082	1,912			9,226	2,701
1989								283	9,027	3,173	128		12,611	4,781
1990								60	3,229	1,356			4,645	2,340
1991								30	7,714	1,857			9,601	1,053
1992								11	3,119	695			3,825	1,239
1993								18	3,256	1,086			4,360	3,416
Total							1,558	20,914	340,327	58,742	325		421,866	172,330
10-Year Average							2	96	4,567	1,337	18		6,019	2,178

*Includes Jacks

TABLE 43

MONTHLY COUNT OF STEELHEAD

THE DALLES DAM; 1957 - 1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1957			1,603	951	977	4,782	45,445	33,319	35,396	6,545	343		129,361
1958			122	274	1,898	4,906	20,384	11,442	75,036	6,846	512		121,420
1959			1	541	502	2,227	46,271	60,841	41,026	4,502	179		156,090
1960				289	557	2,591	28,218	32,667	42,447	4,021	399		111,189
1961				305	307	1,396	21,906	17,850	87,344	5,464			134,572
1962				528	252	1,068	36,609	31,507	87,463	5,874			163,301
1963				153	451	1,361	30,485	25,360	48,066	13,081			118,957
1964			50	369	127	493	36,773	31,742	38,197	2,282			110,033
1965			36	502	484	896	60,522	21,132	53,389	4,091			141,052
1966		25	788	933	600	3,816	52,975	26,382	53,721	6,932			146,172
1967				258	183	435	27,914	22,746	56,082	13,996			121,614
1968			23	691	344	973	20,974	58,866	57,666	7,456	488		147,481
1969			54	953	414	1,442	33,952	22,963	44,146	8,605			112,529
1970				337	172	733	15,905	32,752	44,823	4,465			99,187
1971				408	233	821	40,712	31,812	69,602	7,760			151,348
1972				463	159	604	35,569	30,631	63,748	4,129			135,303
1973				723	326	1,981	29,067	25,437	38,017	4,531			100,082
1974				529	1,362	1,859	24,779	21,835	15,059	5,452			70,875
1975				1,018	1,334	1,973	18,046	20,531	11,519	3,254			57,675
1976				768	1,604	3,357	22,021	30,386	21,586	2,846			82,568
1977				1,666	1,332	5,038	42,859	13,022	61,678	8,287			133,882
1978				834	1,378	3,459	13,493	11,457	26,189	3,675			60,485
1979				478	244	1,942	23,054	21,974	20,961	14,079	632		83,364
1980				2,885	790	2,134	15,114	30,755	34,447	7,838			93,963
1981				1,389	1,632	3,768	34,242	36,537	26,837	8,863			113,268
1982				729	1,289	2,710	22,607	31,410	49,050	9,639			117,434
1983				438	324	1,492	37,029	47,521	75,210	9,041			171,055
1984				846	894	3,715	52,825	36,859	107,377	16,607			219,123
1985				2,405	1,511	5,679	41,534	102,866	107,574	13,337	1,119		276,025
1986			1,395	610	712	4,492	78,494	60,458	111,066	24,726			281,953
1987				1,069	366	3,280	55,395	58,850	76,461	22,347			217,768
1988				2,520	969	3,984	34,612	54,986	85,061	16,367			198,499
1989				1,810	849	3,950	35,167	45,694	119,322	25,880	2,967		235,639
1990			1,169	1,515	920	3,078	17,942	17,772	58,805	28,070			129,271
1991				1,826	630	1,755	25,686	37,560	104,833	27,563			199,853
1992				1,104	743	3,494	18,753	37,269	157,216	13,600			232,179
1993				2,367	731	3,847	17,962	20,194	61,600	18,128			124,829
Total		25	5,241	35,484	27,600	95,531	1,215,295	1,255,385	2,268,020	390,179	6,639		5,299,399
10-Year Average				1,607	833	3,727	37,837	47,251	98,932	20,663	409		211,514

TABLE 43

TABLE 44

MONTHLY TOTALS OF SALMONIDS AND SHAD COUNTED OVER JOHN DAY DAM

1993

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL*
CHINOOK*				26,309	28,204	13,295	6,311	10,703	51,667	5,216			141,705
STEELHEAD				3,453	808	2,845	9,434	11,018	46,447	21,637			95,642
SOCKEYE					1	30,668	30,348	198	2	1			61,218
COHO*								11	2,233	751			2,995
MINI-JACKS**						280	1,083	411	685	381			2,840
CHUM													
PINK													
TOTAL				29,762	29,013	47,088	47,176	22,341	101,034	27,986			304,400
SHAD				1	33,370	460,198	151,697	1,831					647,097

*Jacks included
**Salmonid fish under 12 inches in length

TABLE 44

TABLE 45

TABLE 45

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

JOHN DAY PROJECT

APRIL 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1	0			0				152	0		128.8	0.0	3.0	43.0
2	0			0				186	0		134.0	0.0	2.1	43.0
3	1			0				124	0		134.3	0.0	3.0	44.0
4	0			0				110	0		142.7	14.4	2.7	40.0
5	1			0				200	0		167.7	18.9	2.5	45.0
6	5			0				307	0		169.4	18.8	2.0	46.0
7	4			0				215	0		183.3	18.8	2.8	46.0
8	12			0				305	0		167.7	12.9	2.5	47.0
9	9			0				247	0		173.2	0.0	2.1	49.0
10	12			0				194	0		136.2	0.0	2.5	48.0
11	37			0				142	0		156.2	0.0	2.5	48.0
12	23			0				175	0		164.9	0.0	3.0	48.0
13	11			0				82	0		153.8	0.0	2.5	48.0
14	209			0				180	0		147.8	0.0	3.0	45.0
15	309			0				31	0		103.5	0.0	3.1	49.0
16	321			0				90	0		141.8	0.0	3.0	45.0
17	139			0				51	0		128.3	0.0	2.7	51.0
18	329			0				138	0		130.4	0.0	3.5	46.0
19	475			0				78	0		140.4	0.1	2.7	49.0
20	1526			0				77	0		145.4	0.0	3.5	48.0
21	1108			0				50	0		138.3	0.0	3.5	49.0
22	2235			1				64	0		143.7	0.0	3.5	48.0
23	2697			4				17	0		139.7	0.0	2.9	52.0
24	2666			7				22	0		109.8	0.0	3.5	55.0
25	894			6				31	0		118.7	0.0	2.5	45.0
26	2364			13				16	0		150.5	0.0	3.5	52.0
27	3800			12				30	0		144.5	0.0	2.5	52.0
28	1779			2				27	0		147.8	0.0	3.5	52.0
29	2892			2				76	0		154.1	0.0	3.0	52.0
30	2399			5				36	1		154.7	0.0	2.0	48.0
TOTAL	26,257			52				3,453	1					
AVG.	875			2				115			145.1	2.8	2.8	47.8

TABLE 46

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

JOHN DAY PROJECT

MAY 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1	3444			3			0	30	0		214.0	0.0	3.8	54.0
2	1797			5			0	50	1		172.7	0.0	3.5	49.0
3	2195			0			0	23	1		184.6	0.0	3.0	55.0
4	1084			8			0	5	0		186.6	0.0	2.5	52.0
5	1549			10			0	41	0		218.7	9.6	3.5	48.0
6	1356			9			0	-2	6		215.9	0.0	3.0	52.0
7	1217			15			0	41	0		242.8	0.0	2.9	50.0
8	975			16			0	22	6		249.2	6.2	3.0	52.0
9	1492			20			0	40	4		261.7	17.4	2.1	51.0
10	939			16			0	15	6		243.5	56.3	3.0	53.0
11	503			15			0	14	2		271.9	70.1	2.2	53.0
12	427			5			0	5	2		274.7	101.1	2.5	58.0
13	1045			34			0	26	6		268.9	102.0	2.8	53.0
14	760			25			0	17	8		320.0	102.8	3.0	52.0
15	1089			29			0	12	18		346.2	118.9	3.0	54.0
16	843			22			0	31	44		363.7	118.3	3.0	58.0
17	597			17			0	18	47		401.6	113.0	2.7	58.0
18	469			28			0	24	87		388.9	111.2	2.0	59.0
19	472			21			0	25	85		376.7	96.1	3.0	58.0
20	394			16			0	23	154		388.9	111.5	2.5	59.0
21	455			12			0	32	136		385.3	124.1	3.0	59.0
22	472			32			0	31	259		386.6	149.8	3.2	60.0
23	298			14			0	24	121		382.7	164.4	3.5	60.0
24	231			13			0	19	270		370.3	120.5	3.1	58.0
25	496			26			0	30	724		344.5	87.5	3.5	60.0
26	401			17			0	29	2124		316.7	49.4	3.0	58.0
27	497			17			0	44	3621		314.7	48.2	3.5	60.0
28	888			27			0	34	3464		320.3	69.9	3.5	58.0
29	530			24			0	20	5016		300.6	20.0	3.5	58.0
30	299			5			1	41	9011		286.9	17.6	3.5	51.0
31	483			6			0	44	8147		286.4	29.0	3.5	58.0
TOTAL	27,697			507			1	808	33,370					
AVG.	893			16				26	1,076		299.6	65.0	3.0	55.4

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	53,954	559

SOCKEYE	STEELHEAD	SHAD
1	4,261	33,371

TABLE 46

TABLE 47

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

JOHN DAY PROJECT

JUNE 1993

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1	299			11			0	45	7,209	1	257.1	19.7	3.5	56.0
2	205			3			0	49	4,754	0	298.0	65.9	4.0	58.0
3	245			8			0	42	3,981	0	278.2	34.8	3.5	59.0
4	363			6			5	50	11,744	0	284.4	44.4	3.5	61.0
5	486			5			2	13	14,763	0	272.7	47.1	3.0	60.0
6		409		5			6	39	13,051	0	226.8	16.6	3.0	58.0
7		383		11			6	32	7,014	2	229.4	9.1	3.0	57.0
8		239		5			5	38	3,849	1	282.8	22.3	3.0	56.0
9		188		6			3	25	8,134	0	274.6	19.9	2.0	60.0
10		337		7			30	56	8,209	0	253.8	20.2	2.8	59.0
11		382		4			33	62	5,201	1	232.7	17.7	3.4	59.0
12		356		6			65	40	11,410	1	274.0	22.6	3.4	60.0
13		497		5			96	47	18,379	4	249.7	21.3	3.0	60.0
14		405		2			152	52	8,842	1	221.6	17.9	2.5	61.0
15		418		3			306	60	13,078	2	199.3	15.9	3.4	60.0
16		392		8			541	72	12,594	6	211.3	17.8	3.0	61.0
17		358		4			641	48	25,394	1	201.0	15.6	2.7	61.0
18		453		12			933	85	22,175	6	223.9	18.3	3.0	62.0
19		563		6			1,242	75	22,142	0	205.3	17.2	3.0	61.0
20		814		5			1,610	95	41,027	2	198.9	17.1	3.0	62.0
21		629		13			2,062	158	29,804	7	191.0	15.9	3.1	62.0
22		694		13			2,033	136	19,104	14	201.6	16.6	3.5	63.0
23		252		6			1,509	117	10,358	12	209.6	17.4	3.0	63.0
24		640		4			2,196	154	17,413	12	202.4	16.9	3.1	64.0
25		430		8			1,817	108	26,652	23	212.4	16.1	3.0	64.0
26		610		17			2,811	243	27,016	25	157.2	12.8	3.4	66.0
27		672		14			3,141	253	24,605	48	160.3	10.5	3.6	66.0
28		345		18			3,334	212	13,034	25	177.6	13.5	3.0	63.0
29		583		57			2,939	272	13,818	40	197.0	14.5	3.8	63.0
30		346		30			3,150	167	15,444	46	190.1	15.1	2.8	64.0
TOTAL	1,598	11,395		302			30,668	2,845	460,198	280				
AVG.	320	456		10			1,022	95	15,340	9	225.8	21.0	3.1	61.0

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	55,552	592
SUMMER	11,395	269
TOTAL	66,947	861

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
30,669	7,106	493,569	280

TABLE 48

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

JOHN DAY PROJECT
JULY 1993

DATE	FISH COUNTS: CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	RIVER CONDITIONS: DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1		464		25			2,794	229	15,392	40	196.1	15.3	4.0	63.0
2		344		22			2,407	231	11,457	39	189.7	15.4	2.5	64.0
3		586		24			2,241	148	12,264	41	157.4	12.8	4.0	63.0
4		327		26			2,185	231	10,215	39	149.8	12.8	3.0	65.0
5		307		22			1,692	179	7,757	68	151.5	12.6	3.0	62.0
6		273		25			2,107	285	9,461	95	180.2	11.9	3.0	66.0
7		232		22			1,409	211	16,644	54	174.6	14.3	3.5	63.0
8		141		14			1,747	228	10,971	44	171.1	12.8	3.0	66.0
9		276		22			1,850	273	8,593	64	157.4	10.8	3.7	66.0
10		246		38			2,191	301	9,896	51	159.8	12.5	3.0	64.0
11		235		24			2,043	413	3,800	57	121.2	10.6	3.5	67.0
12		184		35			1,227	246	5,033	43	169.6	13.0	3.0	64.0
13		166		25			1,456	283	7,537	45	154.9	13.8	3.0	63.0
14		154		11			667	246	2,782	34	157.7	12.4	2.5	63.0
15		170		12			620	223	2,418	25	161.1	10.7	3.0	64.0
16		189		12			695	309	3,652	31	156.2	12.8	2.5	65.0
17		121		12			660	273	2,451	26	176.2	15.2	3.0	66.0
18		131		8			534	303	1,854	19	172.5	14.9	3.0	64.0
19		90		13			331	227	2,697	18	165.9	12.2	3.0	64.0
20		112		20			289	277	707	32	161.2	15.0	3.0	63.0
21		96		8			177	249	580	24	171.1	15.1	3.2	66.0
22		68		20			179	276	849	22	173.0	12.7	3.5	67.0
23		106		14			198	438	639	25	172.4	13.4	3.4	68.0
24		137		10			170	293	582	27	161.9	13.9	3.5	68.0
25		99		12			135	480	707	22	132.1	9.9	3.6	68.0
26		46		10			47	174	269	14	157.3	10.4	2.5	64.0
27		51		4			92	337	990	14	162.1	13.1	3.6	67.0
28		74		8			53	469	488	29	164.2	12.2	2.5	67.0
29		147		16			62	589	363	18	157.7	11.7	3.5	67.0
30		74		12			42	489	357	13	179.6	14.5	2.5	68.0
31		127		12			48	524	292	10	159.7	12.0	3.5	69.0
TOTAL		5,773		538			30,348	9,434	151,697	1,083				
AVG		186		17			979	304	4,893	35	163.7	12.9	3.1	65.3

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	55,552	592
SUMMER	17,168	807
TOTAL	72,720	1,399

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
61,017	16,540	645,266	1,363

TABLE 48

TABLE 49

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

JOHN DAY PROJECT
AUGUST 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1		90		24	0	0	35	570	222	24	104.3	9.5	3.0	67.0
2		63		8	0	0	21	378	225	10	146.6	11.9	4.5	69.0
3		101		11	0	0	26	691	199	32	167.3	11.4	3.9	70.0
4		35		7	0	0	7	259	100	26	145.1	10.5	4.5	74.0
5		36		14	0	0	11	458	150	18	149.0	11.3	4.2	72.0
6			83	5	0	0	19	479	74	14	146.2	11.0	5.5	70.0
7			73	22	0	0	23	617	114	23	110.3	8.4	5.0	65.0
8			292	30	0	0	13	522	89	19	108.4	9.5	4.5	69.0
9			125	7	0	0	11	459	135	8	112.9	7.2	4.5	65.0
10			160	3	0	0	7	424	65	4	108.8	6.6	3.5	70.0
11			93	10	0	0	2	316	42	8	128.3	9.3	4.0	70.0
12			159	11	0	0	4	205	23	13	129.6	8.5	3.5	70.0
13			133	12	0	0	7	137	46	12	92.3	6.5	2.8	68.0
14			106	5	0	0	3	132	11	14	106.2	8.3	3.5	69.0
15			145	12	0	0	2	114	53	7	99.8	7.6	3.8	71.0
16			131	9	0	0	1	72	28	9	111.2	8.7	4.0	70.0
17			174	6	0	0	2	185	31	2	129.6	10.0	3.5	71.0
18			280	12	0	0	2	264	43	14	139.6	9.3	3.5	72.0
19			202	6	0	0	1	186	34	5	128.4	8.1	3.5	70.0
20			151	8	0	0	0	235	23	4	116.0	9.1	3.5	70.0
21			140	8	0	0	0	211	23	6	84.7	6.3	3.8	71.0
22			212	16	0	0	1	230	21	22	88.0	7.1	3.6	70.0
23			695	36	0	0	0	333	18	13	94.4	4.7	3.5	69.0
24			602	46	0	0	0	389	2	17	97.8	0.5	3.4	70.0
25			427	33	0	0	0	320	5	13	119.0	0.0	3.2	70.0
26			724	25	0	0	0	312	16	25	118.1	1.6	3.0	65.0
27			853	29	0	0	0	351	22	12	111.6	1.9	3.8	67.0
28			622	43	0	0	0	380	5	15	87.1	0.0	3.0	65.0
29			625	32	0	0	0	414	0	5	91.3	1.2	3.8	68.0
30			1553	84	4	5	0	574	0	6	87.2	0.2	3.5	69.0
31			967	77	2	0	0	801	12	11	94.5	1.4	5.5	70.0
TOTAL		325	9,727	651	6	5	198	11,018	1,831	411				
AVG.		65	374	21			6	355	59	13	114.6	6.7	3.8	69.2

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	55,552	592
SUMMER	17,493	871
FALL	9,727	587
TOTAL	82,772	2,050

COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK
6	5	61,215	27,558	647,097	1,774

TABLE 50

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

JOHN DAY PROJECT
SEPTEMBER 1993

FISH COUNTS / **RIVER CONDITIONS**

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1			1236	113	5	0	0	602		13	115.1	0.0	3.0	65.0
2			544	57	12	5	0	761		12	113.4	0.2	6.0	70.0
3			1027	40	8	5	0	1350		16	104.5	1.3	3.5	65.0
4			2004	127	42	4	0	1721		30	99.5	0.2	5.0	70.0
5			1461	89	54	5	0	1706		19	77.8	1.5	3.5	65.0
6			2367	118	55	6	0	1169		30	72.8	1.3	5.6	71.0
7			2337	96	40	11	0	1001		18	91.6	0.0	4.0	66.0
8			1663	95	26	7	0	875		11	116.8	0.9	4.5	72.0
9			2587	132	42	29	0	980		41	112.6	0.0	6.0	70.0
10			2784	205	12	7	0	731		11	124.4	0.2	4.5	71.0
11			2535	245	42	12	0	1183		29	86.2	1.3	6.0	69.0
12			2870	303	36	14	0	1352		32	74.8	0.2	4.0	69.0
13			1847	198	54	19	0	816		37	94.7	1.3	5.5	68.0
14			1236	118	14	7	0	626		27	85.3	0.2	4.0	67.0
15			999	190	57	6	0	816		24	95.5	1.5	5.5	68.0
16			1566	201	20	8	0	1067		27	97.5	1.3	5.5	65.0
17			1388	224	14	6	0	1270		13	89.5	0.0	5.3	66.0
18			1501	272	20	7	0	1640		11	79.3	0.2	5.0	67.0
19			2645	389	75	6	0	2357		18	58.8	1.3	5.0	68.0
20			2737	288	115	11	0	2251		28	79.6	0.2	5.5	68.0
21			1323	264	129	5	0	2190		11	98.0	1.5	5.5	68.0
22			1883	314	163	5	0	2558		4	113.7	1.4	1.7	62.0
23			1391	306	213	12	0	2434		15	103.2	0.0	5.0	68.0
24			795	179	106	10	0	1861		22	86.6	0.1	3.9	67.0
25			618	287	100	0	0	1983		15	81.7	1.4	4.0	66.0
26			683	248	89	5	0	2123		47	67.9	0.1	3.8	65.0
27			441	218	100	10	0	1992		33	91.2	1.5	4.5	66.0
28			603	256	181	7	1	2756		37	109.8	1.4	3.1	66.0
29			334	175	107	2	0	2481		13	108.2	0.0	3.0	63.0
30			355	160	64	7	1	1795		41	114.2	0.1	3.6	63.0
TOTAL			45,760	5,907	1,995	238	2	46,447		685				
AVG.			1,525	197	67	8		1,548		23	94.8	0.7	4.5	67.1

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	55,552	592
SUMMER	17,493	871
FALL	55,487	6,494
TOTAL	128,532	7,957

COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK
2,001	243	61,217	74,005	647,097	2,459

TABLE 50

TABLE 51

TABLE 51

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

JOHN DAY PROJECT
OCTOBER 1993

FISH COUNTS / RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1			384	172	37	5	0	1513		30	121.8	1.5	3.0	63.0
2			191	93	32	8	1	1003		32	93.5	1.4	3.6	65.0
3			287	127	48	8	0	1393		52	68.0	0.0	5.0	68.0
4			148	95	39	7	0	761		34	101.3	0.1	3.0	64.0
5			82	39	17	6	0	678		26	99.1	1.4	4.0	67.0
6			202	103	35	4	0	966		41	97.8	0.1	4.0	62.0
7			157	53	39	7	0	932		24	121.0	1.3	3.9	62.0
8			223	122	67	1	0	964		17	120.5	0.1	3.5	62.0
9			201	98	53	3	0	1291		11	105.7	1.3	3.6	65.0
10			253	80	69	2	0	1030		10	71.4	0.1	5.5	64.0
11			146	55	24	5	0	545		8	88.9	1.5	3.5	64.0
12			117	58	18	2	0	663		8	94.8	1.4	5.5	64.0
13			99	64	20	4	0	748		29	85.8	0.1	3.4	64.0
14			60	34	22	1	0	612		22	106.9	1.4	5.5	64.0
15			35	27	11	0	0	605		0	99.1	0.0	3.5	64.0
16			136	26	11	0	0	572		7	86.6	0.1	5.0	63.0
17			143	50	31	0	0	927		6	63.1	1.5	4.0	61.0
18			62	36	22	0	0	410		0	104.9	0.1	5.5	62.0
19			100	28	23	2	0	687		7	120.2	1.6	4.0	62.0
20			87	50	17	1	0	863		2	108.7	1.4	5.0	62.0
21			72	38	9	0	0	438		6	99.2	0.0	4.0	61.0
22			54	39	13	0	0	425		1	92.2	0.1	5.0	61.0
23			68	19	2	1	0	418		1	92.9	1.5	3.1	61.0
24			34	22	2	1	0	528		1	68.2	0.2	5.0	60.0
25			29	16	2	0	0	389		1	104.3	1.4	4.0	61.0
26			31	32	5	0	0	441		0	114.6	0.1	5.0	60.0
27			24	28	2	0	0	234		0	105.7	1.4	3.2	60.0
28			44	30	1	0	0	407		1	107.8	0.1	5.0	60.0
29			25	10	2	1	0	388		2	107.8	1.5	4.0	60.0
30			37	12	5	0	0	481		0	92.4	1.4	4.8	60.0
31			21	8	0	4	0	325		2	84.2	0.1	3.7	59.0
TOTAL			3,552	1,664	678	73	1	21,637		381				
AVG.			115	54	22	2		698		12	97.7	0.8	4.2	62.4

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	55,552	592
SUMMER	17,493	871
FALL	59,039	8,158
TOTAL	132,084	9,621

COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK
2,679	316	61,218	95,642	647,097	2,840

TABLE 52

YEARLY TOTALS OF SALMONIDS COUNTED OVER JOHN DAY DAM
1968 - 1993

YEAR	CHINOOK*	STEELHEAD	SOCKEYE	COHO*	TOTAL SALMONIDS
1968	233,654	121,256	87,847	38,233	480,990
1969	276,051	86,348	39,847	13,589	415,835
1970	222,506	82,440	78,133	19,543	402,622
1971	193,881	115,977	72,232	40,830	422,920
1972	225,631	141,628	51,793	17,533	436,585
1973	249,492	101,440	64,744	13,359	429,035
1974	167,888	43,756	33,121	14,651	259,416
1975	159,079	32,651	50,774	6,305	248,809
1976	175,911	59,808	30,446	5,806	271,971
1977	194,931	102,558	85,701	1,123	384,313
1978	174,852	44,188	13,778	8,355	241,173
1979	118,154	55,877	43,630	5,061	222,722
1980	100,664	78,199	50,675	1,924	231,462
1981	114,359	95,172	46,146	2,562	258,239
1982	144,082	108,603	37,970	4,063	294,718
1983	139,866	154,425	91,917	1,640	387,848
1984	188,373	201,154	107,951	2,080	499,558
1985	337,624	247,093	124,941	1,652	711,310
1986	346,700	238,010	46,327	1,933	632,970
1987	327,752	170,654	75,529	3,355	577,290
1988	277,251	164,650	48,095	6,813	496,809
1989	208,254	193,460	39,374	9,663	450,751
1990	156,313	107,849	42,077	3,023	309,262
1991	118,921	160,257	63,760	8,021	350,959
1992	132,025	195,194	669,731	2,633	999,583
1993	141,705	95,642	61,218	2,995	301,560
TOTALS	5,125,919	3,198,289	2,157,757	236,745	10,718,710
10-Year Average	223,492	177,396	127,900	4,217	533,005

*Jacks included

TABLE 52

TABLE 53

TABLE 53

MONTHLY COUNT OF CHINOOK SALMON
JOHN DAY DAM; 1968 - 1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL*	SPRING Apr 1- Jun 5	SUMMER Jun 6- Aug 5	FALL Aug 6- Oct 31	JACKS
1968				29,973	46,272	30,702	42,212	16,726	62,709	4,851	209		233,654	77,482	75,494	80,678	67,284
1969			6	4,266	72,966	35,899	31,071	18,523	103,778	9,542			276,051	81,724	64,732	129,595	93,928
1970				35,750	35,248	20,439	21,542	24,784	80,969	3,774			222,506	72,555	43,093	106,858	74,090
1971				13,995	40,620	24,364	25,692	10,403	73,157	5,650			193,881	56,625	50,030	87,226	61,380
1972				28,535	41,882	15,833	27,484	14,208	90,181	7,508			225,631	71,569	44,542	109,520	82,646
1973				67,467	27,091	18,972	15,067	16,995	89,913	13,987			249,492	96,710	34,206	118,576	73,687
1974				5,174	38,058	8,115	18,985	8,112	77,296	12,148			167,888	46,191	25,865	95,832	61,669
1975				7,727	27,989	11,058	21,359	18,250	65,367	7,329			159,079	37,716	32,179	89,184	62,403
1976				10,428	32,985	17,836	18,506	10,114	72,467	13,575			175,911	45,419	36,037	94,455	62,793
1977				55,061	19,422	15,674	13,764	7,853	71,302	11,855			194,931	75,782	29,194	89,955	60,386
1978				34,735	35,206	15,104	16,764	8,149	52,975	11,919			174,852	72,723	30,371	71,758	36,289
1979				8,224	12,568	9,537	13,580	14,128	50,977	8,566	574		118,154	21,981	23,572	72,601	41,364
1980				7,995	18,311	7,125	12,522	9,063	37,023	8,625			100,664	27,202	19,664	53,798	25,877
1981				18,178	18,325	7,292	8,992	8,524	44,626	8,422			114,359	37,677	15,813	60,869	34,547
1982				3,396	30,444	11,031	7,359	10,881	67,271	13,700			144,082	36,530	16,360	91,192	56,966
1983				7,123	25,391	7,990	7,064	8,195	66,078	18,025			139,866	33,480	14,834	91,552	43,440
1984				4,329	26,561	9,706	12,892	15,422	96,399	22,255	809		188,373	32,035	22,795	133,543	69,874
1985				27,539	42,487	15,585	9,663	27,387	178,322	34,192	2,449		337,624	72,389	23,489	241,746	149,281
1986			21	38,075	37,959	13,227	9,703	10,797	194,928	41,990			346,700	77,884	22,051	246,765	133,827
1987				33,985	26,852	13,641	8,948	24,363	196,596	23,367			327,752	62,313	22,244	243,195	53,794
1988				33,323	20,170	14,731	9,648	37,002	147,553	14,824			277,251	55,195	23,569	198,487	51,330
1989				12,510	23,983	12,793	10,124	35,985	101,794	11,065			208,254	37,773	23,868	146,613	25,092
1990				23,689	18,854	11,209	9,199	13,542	71,508	8,312			156,313	43,127	20,532	92,654	22,195
1991				7,419	13,668	8,868	8,390	4,879	64,950	10,747			118,921	21,847	16,872	80,202	28,646
1992				27,538	16,623	9,452	5,263	7,677	58,140	7,332			132,025	45,457	13,910	72,658	22,084
1993				26,309	28,204	13,295	6,311	10,703	51,667	5,216			141,705	56,144	18,364	67,197	9,621
TOTAL			27	572,743	778,139	379,478	392,104	392,665	2,267,946	338,776	4,041		5,125,919	1,395,530	763,680	2,966,709	1,504,493
10-Year Average				23,472	25,536	12,251	9,014	18,776	116,186	17,930	326		223,492	50,416	20,769	152,306	56,574

*Jacks Included

TABLE 54

MONTHLY COUNT OF SOCKEYE SALMON
JOHN DAY DAM - 1968 - 1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1968						42,175	44,942	690	32	7	1		87,847
1969						13,383	26,174	245	37	8			39,847
1970						18,029	58,176	1,909	19				78,133
1971						5,219	66,183	787	38	5			72,232
1972						6,762	43,704	1,257	68	2			51,793
1973					2	21,283	42,588	864	6	1			64,744
1974						2,024	30,687	403	6	1			33,121
1975						6,154	44,454	163	2	1			50,774
1976						8,907	21,278	258	1	2			30,446
1977					6	52,852	32,269	537	34	3			85,701
1978						5,633	8,006	119	20				13,778
1979						13,466	29,603	560	1				43,630
1980						9,596	40,536	530	13				50,675
1981						17,064	28,975	94	13				46,146
1982						8,708	28,974	286	2				37,970
1983						27,372	63,995	506	37	7			91,917
1984						54,975	51,728	1,230	16	2			107,951
1985						78,326	46,184	421	10				124,941
1986						13,472	32,116	738		1			46,327
1987						35,022	39,983	513	11				75,529
1988						25,001	22,855	225	12	2			48,095
1989						18,883	20,330	148	12	1			39,374
1990					1	15,247	26,580	245	4				42,077
1991						10,917	52,130	699	9	5			63,760
1992					1	38,618	30,788	303	20	1			69,731
1993					1	30,668	30,348	198	2	1			61,218
TOTAL					11	579,756	963,586	13,928	425	50	1		1,557,757
10-Year Average						32,113	35,304	472	10				67,900

TABLE 54

TABLE 55

MONTHLY COUNT OF COHO SALMON
JOHN DAY DAM; 1968-1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL*
1968							4	1,311	32,882	3,848	188		38,233
1969							25	308	9,879	3,377			13,589
1970							14	1,026	17,272	1,231			19,543
1971								944	36,401	3,485			40,830
1972								1,253	14,965	1,315			17,533
1973								788	11,350	1,221			13,359
1974								730	11,253	2,668			14,651
1975								85	4,266	1,954			6,305
1976								57	3,739	2,010			5,806
1977								8	534	581			1,123
1978								6	2,676	5,673			8,355
1979							1	132	2,853	1,753	322		5,061
1980								27	1,431	466			1,924
1981								90	2,030	442			2,562
1982								145	3,032	886			4,063
1983								99	1,353	188			1,640
1984								4	1,736	331	9		2,080
1985								95	1,140	395	22		1,652
1986									1,527	406			1,933
1987							1	16	3,205	133			3,355
1988							3	241	5,170	1,399			6,813
1989								264	6,832	2,567			9,663
1990								1	1,890	1,132			3,023
1991								5	6,140	1,876			8,021
1992									2,153	480			2,633
1993								11	2,233	751			2,995
TOTAL							48	7,646	187,942	40,568	541		236,745
10-Year Average								64	3,203	947	3		4,217

*Jacks Included

TABLE 56

MONTHLY COUNT OF STEELHEAD
JOHN DAY DAM; 1968-1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1968				3,939	2,659	151	6,094	26,824	68,791	11,405	1,393		121,256
1969			314	3,986	3,691	714	12,004	13,267	40,082	12,290			86,348
1970				1,987	1,279	253	7,373	19,412	46,036	6,100			82,440
1971				1,472	592	263	17,459	19,693	63,868	12,630			115,977
1972				1,523	1,966	356	17,656	20,502	78,138	21,487			141,628
1973				8,019	3,546	785	12,134	15,608	46,566	14,782			101,440
1974				1,713	2,363	1,361	9,713	8,419	12,479	7,708			43,756
1975				760	428	648	6,251	8,583	9,977	6,004			32,651
1976				929	1,248	1,868	9,254	17,964	22,754	5,791			59,808
1977				1,319	418	2,341	18,366	7,088	56,134	16,892			102,558
1978				741	631	1,601	5,573	6,911	22,896	5,835			44,188
1979				602	136	253	8,012	10,717	16,202	18,072	1,883		55,877
1980				4,131	555	577	5,850	18,114	34,700	14,272			78,199
1981				2,061	1,539	2,515	15,999	18,283	34,098	20,677			95,172
1982				3,393	1,698	1,167	10,168	19,693	50,725	21,759			108,603
1983				1,492	434	560	15,088	31,453	83,215	22,183			154,425
1984				3,316	1,787	2,101	21,442	19,743	100,437	46,506	5,822		201,154
1985				6,821	1,723	3,583	19,631	64,456	109,488	37,227	4,164		247,093
1986			3,611	2,040	887	2,362	37,732	31,576	107,002	52,800			238,010
1987				3,926	-747	942	23,614	34,203	69,585	39,131			170,654
1988				4,290	525	2,188	17,649	25,741	81,859	32,398			164,650
1989				2,940	508	2,445	18,254	22,548	104,521	42,244			193,460
1990				3,339	600	1,902	10,544	9,445	42,888	39,131			107,849
1991				2,547	660	1,256	12,827	18,310	87,277	37,380			160,257
1992				1,334	406	2,337	10,732	17,326	143,823	19,236			195,194
1993				3,453	808	2,845	9,434	11,018	46,447	21,637			95,642
TOTAL			3,925	72,073	30,340	37,374	358,853	516,897	1,579,988	585,577	13,262		3,198,289
10-YR Average				3,401	716	2,196	18,186	25,437	89,333	36,769	999		177,396

TABLE 56

TABLE 57

TABLE 57

MISCELLANEOUS SPECIES AT BONNEVILLE, THE DALLES AND JOHN DAY

1993

BONNEVILLE	NORTHERN SQUAWFISH			STURGEON		
	OR	WA	TOTAL	OR	WA	TOTAL
MAR	0	0	0	-1	0	-1
APR	11	7	18	0	0	0
MAY	296	149	445	0	0	0
JUN	3,124	730	3,854	0	0	0
JUL	4,856	2,127	6,983	3	0	3
AUG	1,406	2,588	3,994	1	1	2
SEP	233	1,225	1,458	4	0	4
OCT	199	1,055	1,254	2	0	2
NOV	-3	31	28	0	0	0
TOTAL	10,122	7,912	18,034	9	1	10

THE DALLES	NORTHERN SQUAWFISH			STURGEON		
	OR	WA	TOTAL	OR	WA	TOTAL
APR	273	84	357	0	0	0
MAY	4,747	1,823	6570	3	0	3
JUN	13,396	9,964	23360	13	0	13
JUL	7,345	1,423	8768	31	1	32
AUG	1,320	149	1469	30	0	30
SEP	222	35	257	9	0	9
OCT	78	6	84	3	0	3
TOTAL	27,381	13,484	40,865	89	1	90

JOHN DAY	NORTHERN SQUAWFISH			STURGEON		
	OR	WA	TOTAL	OR	WA	TOTAL
APR	509	543	1052	0	0	0
MAY	464	1,275	1739	0	0	0
JUN	312	1,328	1640	0	0	0
JUL	1,105	1,550	2655	0	2	2
AUG	627	761	1388	0	3	3
SEP	139	753	892	0	1	1
OCT	81	140	221	0	2	2
TOTAL	3,237	6,350	9,587	0	8	8

Bass and Walleye were not counted this year

TABLE 58

MONTHLY TOTALS OF SALMONIDS AND SHAD COUNTED OVER MCNARY DAM
1993

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL*
CHINOOK*				18,649	37,255	14,880	8,119	8,414	48,093	8,002			143,412
STEELHEAD				5,194	588	2,197	9,692	10,003	35,287	30,222			93,183
SOCKEYE						26,492	39,607	377	9				66,485
COHO*								2	254	225			481
MINI-JACKS**				-1	2	233	1,181	365	941	367			3,088
CHUM									2				2
PINK										1			1
TOTAL				23,842	37,845	43,802	58,599	19,161	84,586	38,817			306,652
SHAD					2,601	491,948	203,315	3,540					701,404

*Jacks included

**Salmonid fish under 12 inches in length.

TABLE 58

TABLE 59

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

TABLE 59

MCNARY PROJECT

APRIL 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1	0			0				340		0	120.4	0.0	4.5	45.0
2	0			0				344		0	125.0	0.0	1.8	45.0
3	0			0				422		0	121.5	0.0	2.0	45.0
4	0			0				279		0	132.6	0.0	2.0	45.0
5	1			0				470		0	141.7	0.0	2.4	45.0
6	0			0				557		0	150.3	0.0	2.4	46.0
7	1			0				334		0	155.4	0.0	2.4	46.0
8	0			0				211		0	156.7	0.0	2.4	46.0
9	0			0				247		0	145.6	0.0	2.3	46.0
10	5			0				300		0	122.3	0.0	2.3	46.0
11	1			0				271		0	137.0	0.0	1.5	46.0
12	9			0				210		0	137.6	0.0	3.0	46.0
13	18			1				197		0	138.5	0.0	2.0	46.0
14	25			0				146		0	138.2	0.0	2.1	46.0
15	18			0				106		0	107.3	0.0	2.1	47.0
16	25			0				71		0	121.2	0.0	2.0	48.0
17	155			0				80		0	119.7	0.0	2.0	49.0
18	135			0				68		0	118.4	0.0	2.1	49.0
19	330			0				75		0	134.0	0.0	2.2	49.0
20	200			2				52		0	132.3	0.0	2.0	49.0
21	375			0				56		-1	125.1	0.0	2.0	49.0
22	511			1				46		0	125.1	0.0	2.0	49.0
23	1665			4				63		0	118.9	0.0	2.4	49.0
24	1376			4				53		0	116.7	0.0	2.9	49.0
25	1684			0				22		0	118.5	0.0	2.5	52.0
26	2745			4				29		0	134.0	0.0	2.6	52.0
27	2054			4				31		0	129.9	0.0	2.6	52.0
28	1938			12				39		0	128.4	0.0	2.6	52.0
29	1560			6				29		0	142.3	0.0	2.6	52.0
30	3752			28				46		0	150.9	0.0	2.3	52.0
TOTAL	18,583			66				5,194		-1				
AVG.	619			2				173			131.5	0.0	2.3	47.9

TABLE 60

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

MCNARY PROJECT

MAY 1993

FISH COUNTS / RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1	3521			7				17	0	0	188.8	0.0	2.3	53.0
2	3935			19				17	0	0	145.2	0.0	2.4	52.0
3	2568			10				18	0	0	163.2	0.0	2.4	52.0
4	2227			8				24	0	0	184.6	0.0	2.3	52.0
5	1674			12				14	0	0	188.3	0.0	2.2	52.0
6	2863			25				17	0	1	206.7	12.5	2.4	52.0
7	1197			7				22	0	0	225.5	33.5	2.3	52.0
8	1146			12				9	0	0	236.8	43.2	2.4	52.0
9	1448			9				17	0	0	233.6	40.5	1.6	52.0
10	889			6				5	0	0	227.7	63.0	2.3	52.0
11	814			18				5	0	0	249.4	102.9	1.2	52.0
12	1161			17				12	2	0	267.1	109.3	1.4	52.0
13	1020			26				12	0	0	267.7	111.4	2.8	54.0
14	849			45				15	4	0	306.2	150.8	2.0	54.0
15	674			41				28	4	0	314.5	172.6	2.2	54.0
16	923			34				28	5	0	367.9	264.4	2.2	54.0
17	708			29				8	9	0	364.4	221.1	2.0	54.0
18	1062			26				14	17	0	381.8	222.3	2.0	54.0
19	894			27				12	24	0	366.7	201.5	3.1	54.0
20	826			28				26	3	0	368.5	170.3	3.1	54.0
21	571			40				24	32	1	387.5	195.3	3.1	54.0
22	425			28				9	2	0	368.8	175.0	3.0	54.0
23	412			26				28	16	0	360.8	172.9	2.2	54.0
24	414			17				17	7	0	347.4	157.5	3.0	54.0
25	740			32				20	38	0	322.9	139.5	3.0	54.0
26	540			23				15	77	0	320.1	138.3	2.5	54.0
27	491			17				34	43	0	322.6	139.7	2.8	54.0
28	736			24				39	174	0	310.2	130.7	2.8	55.0
29	420			16				28	678	0	288.7	80.4	2.7	56.0
30	682			22				33	642	0	301.2	109.1	2.7	56.0
31	758			16				21	824	0	277.5	109.7	2.5	60.0
TOTAL	36,588			667				588	2,601	2				
AVG.	1,180			22				19	84		285.9	111.9	2.4	53.6

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	55,171	733

STEELHEAD	SHAD	MINI-JCK
5,782	2,601	1

TABLE 60

TABLE 61

TABLE 61

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

MCNARY PROJECT

JUNE 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1	597			25			1	32	1432	0	259.7	96.4	2.6	56.0
2	356			19			1	22	1349	0	288.0	126.9	2.7	56.0
3	387			7			0	28	1086	0	282.2	120.9	2.8	56.0
4	486			6			0	32	2004	0	277.5	111.8	3.2	57.0
5	484			10			1	45	5258	2	253.9	78.2	3.0	57.0
6	360			10			3	27	6013	2	231.6	65.4	3.0	58.0
7	529			12			6	30	5169	1	232.4	33.5	3.2	58.0
8	364			0			5	34	2692	0	279.5	79.5	3.5	58.0
9		485		10			9	42	5606	2	270.3	69.7	3.0	58.0
10		373		1			10	27	6096	0	241.2	42.7	3.2	58.0
11		331		6			11	44	4661	1	244.0	56.4	3.2	58.0
12		293		5			41	30	2820	0	272.6	83.3	3.2	58.0
13		374		9			40	39	11012	1	239.4	45.6	3.2	58.0
14		410		10			84	50	17596	0	220.5	29.8	3.2	58.0
15		446		7			128	40	17227	2	196.7	4.3	3.4	59.0
16		505		6			126	53	10692	0	194.9	0.0	3.4	59.0
17		400		3			306	54	16265	4	193.1	4.2	3.4	59.0
18		507		9			400	57	9617	0	224.4	33.6	2.5	59.0
19		526		13			730	70	26217	2	195.2	4.7	3.8	60.0
20		492		8			1,022	76	28689	8	189.8	0.0	2.9	63.0
21		597		8			1,458	62	30749	16	198.5	1.4	3.0	63.0
22		746		14			2,027	84	15962	11	201.7	8.3	3.0	63.0
23		504		16			2,067	97	9045	13	194.8	0.0	2.5	63.0
24		586		18			2,847	160	23813	11	197.2	5.7	3.0	63.0
25		706		15			1,988	107	36734	16	197.6	4.2	3.0	63.0
26		516		7			1,758	81	41516	18	160.9	0.0	3.0	63.0
27		483		11			2,501	152	43826	23	159.5	0.0	3.0	63.0
28		546		26			2558	213	35577	27	178.8	0.0	4.0	63.0
29		684		28			3334	206	36254	28	187.0	0.0	4.0	63.0
30		482		6			3030	203	36971	45	193.2	0.0	4.0	63.0
TOTAL	3,563	10,992		325			26,492	2,197	491,948	233				
AVG.	445	500		11			883	73	16,398	8	221.9	36.9	3.2	59.8

TOTAL TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	58,734	822
SUMMER	10,992	236
TOTAL	69,726	1,058

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
26,492	7,979	494,549	234

TABLE 62

MONTHLY FISH PASSAGE SUMMARY
U.S. ARMY ENGINEER DISTRICT, PORTLAND

MCNARY PROJECT
JULY 1993

DATE	FISH COUNTS: CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	RIVER CONDITIONS: DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1		519		19			2856	210	28320	36	188.8	0.0	4.0	63.0
2		485		16			3358	257	21704	38	188.7	0.0	4.0	63.0
3		394		21			2893	184	12786	38	152.0	0.0	4.0	63.0
4		429		27			2815	190	13940	21	150.8	0.0	4.0	63.0
5		515		18			2688	195	9497	45	145.0	0.0	4.2	63.0
6		328		18			2770	218	12875	54	178.5	0.0	4.2	63.0
7		359		33			2375	254	14678	56	175.0	0.0	4.2	63.0
8		298		8			2071	271	15252	81	166.8	0.0	4.0	63.0
9		257		14			1535	255	8069	51	165.9	0.0	4.0	66.0
10		234		18			1727	263	11387	69	153.3	0.0	4.0	66.0
11		264		10			1556	287	5786	56	135.7	0.0	3.8	66.0
12		276		5			2222	323	8419	68	160.7	0.0	3.8	66.0
13		228		17			1645	308	11260	64	158.7	0.0	3.9	66.0
14		228		27			1480	275	5178	38	159.9	0.0	4.0	66.0
15		171		21			1528	258	5742	42	160.6	0.0	3.6	65.0
16		219		36			1048	372	4170	41	156.3	0.0	3.6	66.0
17		214		28			777	396	2419	41	169.1	0.0	3.6	66.0
18		203		27			845	326	2524	34	155.4	0.0	3.8	66.0
19		127		15			534	229	1728	20	181.7	0.0	3.4	66.0
20		240		19			621	275	1539	25	160.4	0.0	3.6	66.0
21		172		23			557	367	1728	22	161.2	0.0	3.4	66.0
22		159		9			316	360	1461	4	163.4	0.0	3.4	65.0
23		186		23			302	368	931	27	171.3	0.0	3.6	66.0
24		216		24			248	483	974	40	152.1	0.0	3.6	66.0
25		121		15			215	355	671	22	129.8	0.0	3.6	66.0
26		124		15			161	264	984	30	156.1	0.0	3.8	65.0
27		166		10			135	403	261	30	158.3	0.0	3.8	65.0
28		122		13			115	439	794	24	160.9	0.0	3.8	66.0
29		95		15			89	367	339	22	160.0	0.0	3.8	66.0
30		72		15			54	470	-178	19	171.0	0.0	3.8	66.0
31		130		9			71	470	-1923	23	153.2	0.0	3.8	66.0
TOTAL		7,551		568			39,607	9,692	203,315	1,181				
AVG.		244		18			1,278	313	6,559	38	161.3	0.0	3.8	65.1

TOTALS TO DATE	CHINOOK ADULT	CHINOOK ADULT
SPRING	58,734	822
SUMMER	18,543	804
TOTAL	77,277	1,626

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
66,099	17,671	697,864	1,415

TABLE 62

TABLE 63

TABLE 63

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

MCNARY PROJECT
AUGUST 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
	FISH COUNTS										RIVER CONDITIONS			
1		168		19	0	0	56	466	-19	30	109.8	0.0	3.8	66.0
2		146		8	0	0	50	361	-2030	22	144.2	0.0	3.8	67.0
3		139		16	0	0	88	340	651	20	153.2	0.0	4.8	67.0
4		127		15	0	0	45	443	620	11	146.8	0.0	4.0	67.0
5		81		9	0	0	8	357	319	4	144.7	0.0	4.0	69.0
6		106		6	0	0	16	398	-30	13	140.8	0.0	4.6	70.0
7		63		4	0	0	11	305	389	11	115.2	0.0	4.6	70.0
8		114		6	0	0	23	583	550	21	111.1	0.0	4.6	70.0
9			100	14	0	0	15	566	453	17	107.9	0.0	3.3	70.0
10			345	14	0	0	18	536	552	13	119.6	0.0	3.6	70.0
11			132	20	0	0	11	459	665	9	122.5	0.0	4.0	70.0
12			130	9	0	0	7	418	277	6	127.0	0.0	4.0	70.0
13			159	10	0	0	2	309	280	6	98.9	0.0	5.0	70.0
14			204	15	0	0	4	373	216	18	108.9	0.0	5.0	70.0
15			125	12	0	0	4	290	116	8	98.3	0.0	5.0	70.0
16			111	8	0	0	4	171	48	13	115.2	0.0	5.0	70.0
17			219	10	0	0	1	245	81	6	130.1	0.0	4.0	70.0
18			217	6	0	0	2	191	92	7	129.0	0.0	2.0	69.0
19			239	6	0	0	1	159	90	5	129.4	0.0	2.0	69.0
20			216	9	1	0	2	207	39	9	119.2	0.0	3.0	69.0
21			243	10	0	0	5	234	41	12	100.4	0.0	3.2	69.0
22			146	7	0	0	0	199	40	9	82.5	0.0	3.2	69.0
23			236	11	0	0	0	194	18	3	103.0	0.0	2.4	69.0
24			248	15	0	0	0	226	15	16	99.6	0.0	3.2	69.0
25			518	29	0	0	1	221	8	19	117.5	0.0	3.0	69.0
26			624	23	0	0	0	342	7	8	122.2	0.0	3.2	68.0
27			364	19	0	0	0	313	4	12	123.0	0.0	3.0	68.0
28			485	28	0	0	0	252	3	4	91.0	0.0	4.0	68.0
29			677	27	0	0	2	300	8	1	83.0	0.0	3.4	68.0
30			453	15	0	0	0	195	35	17	88.5	0.0	3.4	68.0
31			850	29	0	1	1	350	2	15	107.7	0.0	3.4	68.0
TOTAL		944	7,041	429	1	1	377	10,003	3,540	365				
AVG.		118	306	14			12	323	114	12	115.8	0.0	3.7	68.9

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	58,734	822
SUMMER	19,487	887
FALL	7,041	346
TOTAL	85,262	2,055

COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK
1	1	66,476	27,674	701,404	1,780

TABLE 64

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

MCNARY PROJECT
SEPTEMBER 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1			667	41	0	0	1	280		13
2			1113	90	1	0	0	522		14
3			702	43	0	0	1	486		16
4			922	60	0	1	0	475		19
5			1286	82	1	0	2	868		28
6			1907	108	2	5	0	941		28
7			994	95	0	0	0	504		6
8			1733	111	0	0	0	824		11
9			2572	196	0	0	0	1335		67
10			2832	148	0	1	1	1882		19
11			2187	109	4	2	2	1364		32
12			4287	217	18	11	0	1647		48
13			2496	165	2	5	0	1206		43
14			1245	174	0	0	0	614		61
15			1263	197	0	0	0	584		61
16			973	265	5	1	0	657		47
17			614	180	1	4	0	636		36
18			769	211	0	0	0	773		49
19			1018	284	2	1	1	910		58
20			1889	260	5	9	0	1740		47
21			1861	237	10	4	0	1838		26
22			1980	232	11	4	0	1665		16
23			1807	246	13	4	0	1480		25
24			1670	302	28	2	0	2091		34
25			1002	226	12	4	1	1723		19
26			660	263	15	1	0	1647		19
27			675	214	16	4	0	1471		8
28			655	212	10	10	0	1637		34
29			555	247	18	4	0	1982		30
30			324	220	1	2	0	1505		27
TOTAL			42,658	5,435	175	79	9	35,287		941
AVG.			1,422	181	6	3		1,176		31

RIVER CONDITIONS

DATE	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1	113.3	0.0	3.9	68.0
2	107.1	0.0	3.4	68.0
3	107.2	0.0	3.8	68.0
4	106.3	0.0	3.8	68.0
5	77.4	0.0	3.8	68.0
6	72.2	0.0	3.8	68.0
7	104.7	0.0	3.8	68.0
8	110.4	0.0	4.0	68.0
9	118.8	0.0	3.6	70.0
10	122.6	0.0	3.8	70.0
11	95.9	0.0	3.8	69.0
12	87.4	0.0	3.8	69.0
13	76.9	0.0	3.8	68.0
14	92.8	0.0	3.8	68.0
15	93.2	0.0	3.8	68.0
16	93.1	0.0	3.8	68.0
17	89.1	0.0	3.8	67.0
18	86.2	0.0	3.8	67.0
19	65.7	0.0	3.8	67.0
20	84.2	0.0	3.8	67.0
21	104.9	0.0	2.8	67.0
22	112.2	0.0	3.2	65.0
23	105.7	0.0	3.4	64.0
24	84.6	0.0	3.6	64.0
25	92.3	0.0	3.4	64.0
26	83.1	0.0	3.4	64.0
27	79.9	0.0	3.0	64.0
28	99.5	0.0	4.5	64.0
29	109.4	0.0	3.7	64.0
30	121.6	0.0	4.5	63.0
AVG.	96.6	0.0	3.7	66.8

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	58,734	822
SUMMER	19,487	887
FALL	49,699	5,781
TOTAL	127,920	7,490

COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	CHUM
176	80	66,485	62,961	701,404	2,721	2

Two chum salmon were identified in the left ladder on 28 September.

TABLE 64

TABLE 65

TABLE 65

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

MCNARY PROJECT
OCTOBER 1993

FISH COUNTS / **RIVER CONDITIONS**

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD		MINI-JK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1			443	286	10	4		1622		31	114.0	0.0	4.0	63.0
2			425	212	7	6		2368		30	92.3	0.0	3.9	63.0
3			278	178	8	0		1683		17	82.3	0.0	5.7	63.0
4			396	159	6	5		1311		30	83.3	0.0	5.5	64.0
5			342	194	7	5		1304		14	99.3	0.0	4.8	63.0
6			259	207	11	1		1585		10	102.7	0.0	4.3	64.0
7			203	252	14	2		2092		14	114.2	0.0	4.3	64.0
8			263	110	12	4		2696		14	103.2	0.0	4.3	64.0
9			195	139	12	1		1106		20	95.6	0.0	4.3	64.0
10			175	82	6	4		1131		29	78.2	0.0	4.3	63.0
11			293	90	9	1		1106		24	83.0	0.0	4.3	64.0
12			208	75	12	0		750		13	97.3	0.0	4.3	63.0
13			198	96	12	0		1165		6	87.6	0.0	3.8	63.0
14			147	71	9	1		949		18	101.7	0.0	3.4	62.0
15			122	84	6	0		1078		5	90.8	0.0	3.8	62.0
16			75	65	6	2		1148		4	84.1	0.0	3.4	62.0
17			103	64	4	2		739		4	85.4	0.0	3.6	62.0
18			151	42	4	0		626		5	98.5	0.0	3.8	62.0
19			121	70	6	0		857		10	114.1	0.0	3.8	62.0
20			73	55	4	0		575		3	97.0	0.0	3.8	62.0
21			97	49	4	0		377		11	96.5	0.0	3.8	61.0
22			92	37	0	1		578		6	84.6	0.0	3.8	61.0
23			98	31	0	0		556		7	95.4	0.0	5.0	60.0
24			113	38	7	0		706		6	71.6	0.0	5.0	60.0
25			61	32	2	2		636		10	89.9	0.0	5.0	60.0
26			60	19	1	0		304		4	110.0	0.0	5.0	60.0
27			52	24	2	0		219		2	106.7	0.0	4.5	59.0
28			30	17	2	0		226		1	105.9	0.0	4.0	58.0
29			25	15	1	0		174		10	104.6	0.0	4.8	58.0
30			43	18	-1	0		313		4	91.3	0.0	4.6	57.0
31			36	14	1	0		242		5	90.7	0.0	4.5	57.0
TOTAL			5,177	2,825	184	41		30,222		367				
AVG.			167	91	6	1		975		12	95.2	0.0	4.3	61.6

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	58,734	822
SUMMER	19,487	887
FALL	54,876	8,606
TOTAL	133,097	10,315

COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	CHUM	PINK
360	121	66,485	93,183	701,404	3,088	4	1

One pink salmon was identified in the left ladder on 19 October.
Two chum salmon were identified in the right ladder on 11 October

TABLE 66

YEARLY TOTALS OF SALMONIDS COUNTED OVER MCNARY DAM
1954-1993

YEAR	CHINOOK*	STEELHEAD	SOCKEYE	COHO*	TOTALS*
1954	126,555	75,059	108,181	950	310,745
1955	108,915	85,575	173,758	643	368,891
1956	114,342	42,554	102,145	683	259,724
1957	292,696	105,728	85,460	2,855	486,739
1958	226,092	87,890	102,397	1,350	417,729
1959	171,490	110,475	83,977	1,970	367,912
1960	176,767	96,895	55,372	1,580	330,614
1961	154,996	103,743	16,388	2,045	277,172
1962	152,756	163,181	29,372	3,195	348,504
1963	154,459	113,646	59,744	3,113	330,962
1964	167,934	100,742	83,931	3,317	355,924
1965	150,907	118,960	42,052	2,700	314,619
1966	223,141	145,130	173,028	8,525	549,824
1967	195,653	77,700	105,635	27,226	406,214
1968	200,488	112,522	101,007	39,518	453,535
1969	213,407	76,681	29,787	53,716	373,591
1970	168,892	69,759	59,636	36,399	334,686
1971	171,448	109,630	52,867	39,358	373,303
1972	168,821	93,820	26,422	45,635	334,698
1973	184,112	64,620	42,731	17,682	309,145
1974	127,858	26,932	26,505	13,746	195,041
1975	133,150	23,663	43,143	3,975	203,931
1976	163,314	54,000	24,632	7,539	249,485
1977	183,581	87,712	80,781	4,622	356,696
1978	144,148	34,740	18,511	20,356	217,755
1979	95,275	50,304	37,792	12,800	196,171
1980	80,773	66,524	44,301	571	192,169
1981	80,619	61,985	26,644	3,736	172,984
1982	102,225	75,099	15,077	3,119	195,520
1983	121,636	125,254	40,903	2,470	290,263
1984	159,071	135,515	56,906	2,841	354,333
1985	288,483	188,204	98,457	6,917	582,061
1986	342,417	193,481	46,443	1,374	583,715
1987	286,638	148,811	72,190	615	508,254
1988	243,608	151,765	50,080	2,010	447,463
1989	176,407	170,467	41,318	3,383	391,575
1990	147,439	95,061	46,145	2,059	290,704
1991	114,841	168,692	69,365	2,272	355,170
1992	135,707	194,026	68,737	1,801	400,271
1993	143,412	93,183	66,485	481	303,561
Totals	6,794,473	4,099,728	2,508,305	389,147	13,791,653
10-Year Average	203,802	153,921	61,613	2,375	421,711

*Jacks included

TABLE 66

TABLE 67

TABLE 67

MONTHLY COUNT OF CHINOOK SALMON
MCNARY DAM - 1954 - 1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL*	SPRING MAR 15- JUN 8	SUMMER JUN 9- AUG 8	FALL AUG 9- OCT 31
1954			14	919	42,625	28,510	35,993	9,287	8,626	568	13		126,555	52,014	61,065	13,476
1955				86	12,778	26,125	46,021	14,773	7,220	1,648	264		108,915	21,309	71,180	16,426
1956			7	307	10,746	34,360	50,409	11,073	5,636	1,360	444		114,342	12,717	90,335	11,290
1957			6	14,489	67,939	91,473	41,485	25,621	48,685	2,998			292,696	99,511	122,578	70,607
1958				1,864	36,684	61,898	25,140	11,120	82,890	6,496			226,092	54,910	73,654	97,528
1959				3,914	31,923	23,461	51,478	14,929	42,756	3,029			171,490	40,775	74,985	55,730
1960				4,808	44,721	49,506	25,710	13,376	35,329	3,317			176,767	52,490	76,940	47,337
1961				21,669	44,260	19,722	23,192	10,661	31,447	4,045			154,996	68,539	45,257	41,200
1962				10,527	44,053	28,621	21,008	11,751	33,541	3,255			152,756	55,884	52,756	44,116
1963				7,765	42,804	22,454	18,659	13,757	43,731	5,289			154,459	52,336	44,760	57,363
1964				19,856	33,310	10,893	39,334	14,930	45,514	4,097			167,934	54,279	55,062	58,593
1965				6,114	20,559	14,094	28,599	12,856	60,185	8,500			150,907	29,206	45,375	76,326
1966				53,484	32,282	21,161	35,895	13,811	58,275	8,233			223,141	87,195	60,827	75,119
1967				32,790	28,174	13,244	44,612	10,788	54,314	11,731			195,653	62,591	59,975	73,087
1968				13,328	51,443	20,456	37,127	15,713	53,597	8,824			200,488	67,092	60,639	72,757
1969				809	60,241	39,074	30,556	12,200	59,889	10,638			213,407	70,079	63,953	79,375
1970				28,015	34,027	18,661	23,132	13,773	44,635	6,649			168,892	63,982	43,356	61,554
1971				5,642	32,688	24,007	35,152	9,680	55,297	8,982			171,448	42,601	59,129	69,718
1972				25,911	41,609	12,553	35,322	10,154	37,131	6,141			168,821	69,023	50,491	49,307
1973				44,878	31,727	16,836	14,620	10,400	57,716	8,035			184,112	79,047	31,812	73,253
1974				1,918	34,767	7,976	18,181	6,251	45,845	12,920			127,858	40,037	25,812	62,009
1975				4,694	24,752	11,590	20,497	12,485	53,125	6,007			133,150	32,718	31,713	68,719
1976				4,868	30,435	16,714	19,821	9,143	64,863	17,470			163,314	38,505	36,818	87,991
1977				40,692	23,895	16,768	16,256	7,348	64,785	13,837			183,581	66,934	32,277	84,370
1978				27,191	37,613	14,505	18,095	7,799	30,273	7,296	1,376		144,148	68,414	31,589	44,145
1979			6	5,424	13,696	9,763	14,601	8,030	34,702	8,171	882		95,275	21,153	24,161	49,961
1980			3	3,481	18,108	6,705	12,166	7,001	24,409	8,284	616		80,773	23,001	18,862	38,910
1981			3	12,923	16,904	8,288	8,243	5,584	23,323	4,926	425		80,619	32,330	15,141	33,148
1982			3	1,638	23,487	10,357	8,749	5,091	44,276	8,624			102,225	28,352	16,574	57,299
1983				4,481	25,074	9,202	7,882	5,217	54,339	15,441			121,636	31,636	16,199	73,801
1984				1,772	23,806	9,235	12,256	8,845	79,004	23,391	767		159,076	27,474	21,201	110,401
1985			18	18,267	41,962	14,117	9,912	17,222	140,034	46,951			288,483	63,265	22,029	203,189
1986			2	28,739	44,459	14,515	12,315	9,636	168,230	64,521			342,417	76,077	25,798	240,542
1987				26,258	32,171	12,889	11,219	19,123	151,410	33,568			286,638	60,396	25,353	200,889
1988				26,267	22,245	14,605	9,282	30,714	115,878	24,617			243,608	51,178	23,621	168,809
1989				9,625	24,281	12,484	11,112	23,034	80,089	15,782			176,407	35,954	24,708	115,745
1990				19,309	23,861	11,007	11,148	7,306	61,718	13,090			147,439	44,499	22,248	80,692
1991				4,942	15,838	9,289	9,409	4,328	56,251	13,674	1,074	36	114,841	22,631	17,588	74,622
1992				25,549	22,799	9,511	6,159	5,846	51,961	13,882			135,707	50,590	14,414	70,703
1993				18,649	37,255	14,880	8,119	8,414	48,093	8,002			143,412	59,556	20,374	63,482
Total			62	583,862	1,282,001	811,509	908,766	469,070	2,259,022	474,289	5,861	36	6,794,478	2,010,280	1,710,609	3,073,589
10-Year Average				17,938	28,868	12,253	10,093	13,447	95,267	25,748	184		203,803	49,162	21,733	132,907

*Jacks Included

TABLE 68

MONTHLY COUNT OF SOCKEYE SALMON
MCNARY DAM; 1954 - 1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1954					1	1,107	93,452	11,382	2,214	25			108,181
1955					43	287	163,902	9,402	121	3			173,758
1956					1	639	94,352	6,882	262	7	2		102,145
1957					13	6,318	74,874	4,233	22				85,460
1958						12,542	82,547	5,474	1,819	15			102,397
1959					21	2,031	73,735	7,981	209				83,977
1960						9,374	43,749	2,241	8				55,372
1961						1,088	14,149	1,138	11	2			16,388
1962						1,721	27,134	511	6				29,372
1963					78	8,712	50,415	535	4				59,744
1964						770	81,536	1,617	8				83,931
1965						328	40,790	923	10	1			42,052
1966						6,202	162,267	4,548	11				173,028
1967						1,935	101,044	2,647	9				105,635
1968						28,928	70,413	1,666					101,007
1969						5,787	23,353	647					29,787
1970						7,152	47,339	5,134	11				59,636
1971						317	50,568	1,982					52,867
1972						366	24,452	1,604					26,422
1973						9,011	32,301	999	420				42,731
1974						188	25,816	486	15				26,505
1975						1,517	41,011	615					43,143
1976						4,461	19,319	415	437				24,632
1977					8	36,708	43,077	739	207	42			80,781
1978						3,211	10,376	714	1,583	2,627			18,511
1979						6,317	29,571	1,547	321	36			37,792
1980						3,400	40,469	432					44,301
1981						4,419	22,042	180	1	2			26,644
1982						812	13,489	281	292	203			15,077
1983						5,897	33,851	997	142	16			40,903
1984						18,762	37,409	637	85	11	2		56,906
1985				1		60,067	36,567	522	593	707			98,457
1986						8,362	36,863	819	348	51			46,443
1987					4	28,742	42,464	889	85	6			72,190
1988						23,466	25,984	599	14	17			50,080
1989					1	14,721	26,239	334	21	2			41,318
1990					1	8,922	36,791	427	0	4			46,145
1991					1	6,509	61,780	1,024	38	11	1	1	69,365
1992					7	30,339	37,915	448	28				68,737
1993						26,492	39,607	377	9				66,485
Total				1	179	397,927	2,013,012	84,028	9,364	3,788	5	1	2,508,305
10-Year Average						23,309	42,896	735	166	103			67,211

TABLE 68

TABLE 69

MONTHLY COUNT OF COHO SALMON
MCNARY DAM; 1954-1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS*
1954								4	751	180	14	1	950
1955									350	260	33		643
1956								16	462	157	48		683
1957							18	208	2,364	265			2,855
1958								29	1,091	230			1,350
1959								32	1,892	46			1,970
1960								24	1,432	124			1,580
1961								22	1,731	292			2,045
1962							5	106	2,884	200			3,195
1963							5	437	2,259	412			3,113
1964							3	307	2,734	273			3,317
1965							22	105	2,264	309			2,700
1966								811	7,195	519			8,525
1967							11	11	22,492	4,712			27,226
1968								1,010	36,260	2,248			39,518
1969								1,643	45,497	6,576			53,716
1970								3,576	31,161	1,662			36,399
1971								927	33,828	4,603			39,358
1972								2,433	38,747	4,455			45,635
1973							66	1,768	14,452	1,396			17,682
1974								1,160	10,052	2,534			13,746
1975							1	268	3,675	31			3,975
1976								373	5,201	1,965			7,539
1977						2		274	2,698	1,648			4,622
1978						1		138	10,445	7,459	2,313		20,356
1979				1		4	194	652	9,058	2,431	460		12,800
1980								2	180	203	186		571
1981								421	2,840	435	40		3,736
1982							141	235	2,148	595			3,119
1983								229	1,536	705			2,470
1984						6		147	2,506	154	28		2,841
1985					14	37	44	2,040	4,493	289			6,917
1986								1	851	522			1,374
1987							3	24	377	211			615
1988								17	1,210	783			2,010
1989								35	2,043	1,305			3,383
1990								1	1,007	1,051			2,059
1991									1,105	937	211	19	2,272
1992								1	1,130	670			1,801
1993								2	254	225			481
TOTAL				1	14	50	513	19,489	312,655	53,072	3,333	20	389,147
10-Year Average							5	227	1,498	615	24		2,375

*Jacks included

TABLE 70

MONTHLY COUNT OF STEELHEAD
MCNARY DAM; 1954-1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1954			376	5,569	2,307	128	2,628	20,939	26,944	11,627	2,937	1,604	75,059
1955	931	35	70	3,279	1,791	162	5,257	36,035	17,463	16,941	2,874	737	85,575
1956	66	753	563	2,365	1,218	276	5,440	14,492	8,245	6,787	2,349		42,554
1957			840	2,084	147	334	18,100	28,926	34,478	20,775	8	36	105,728
1958	62	137	1,069	877	334	1,265	9,967	6,535	50,229	17,415			87,890
1959				1,317	685	748	10,508	32,872	49,542	14,803			110,475
1960				1,579	1,236	908	8,475	22,443	51,749	10,505			96,895
1961				896	580	1,281	7,469	11,428	64,521	17,568			103,743
1962				1,650	762	1,108	11,321	28,288	98,042	22,010			163,181
1963				813	1,751	2,639	8,252	26,282	47,982	25,927			113,646
1964				1,789	805	486	7,602	25,918	53,180	10,962			100,742
1965				1,361	363	231	11,749	31,155	54,450	19,651			118,960
1966				2,279	954	1,476	18,241	26,062	71,180	24,938			145,130
1967				1,434	1,130	152	5,771	14,894	32,310	22,009			77,700
1968				5,451	3,361	247	4,058	22,268	61,167	15,970			112,522
1969				2,304	1,792	711	7,668	13,641	35,836	14,729			76,681
1970				1,347	1,001	340	5,183	15,236	39,150	7,502			69,759
1971				813	374	271	8,931	21,324	62,083	15,834			109,630
1972				1,614	393	130	8,155	20,548	46,393	16,587			93,820
1973				3,178	846	270	6,898	11,121	32,701	9,606			64,620
1974				847	715	681	4,093	5,242	8,648	6,706			26,932
1975				612	209	254	3,623	6,708	9,329	2,928			23,663
1976				936	1,372	1,949	5,772	16,145	22,423	5,403			54,000
1977				1,730	987	2,916	13,132	7,833	43,792	17,322			87,712
1978				1,266	701	1,832	3,444	4,863	15,627	5,708	1,299		34,740
1979			970	681	156	93	4,955	9,970	14,648	15,580	3,251		50,304
1980			1,753	3,355	608	381	2,740	14,431	27,706	12,776	2,774		66,524
1981			861	1,479	809	878	7,212	12,839	19,961	15,652	2,294		61,985
1982			1,530	1,764	825	321	4,279	12,621	36,282	17,477			75,099
1983				1,051	215	137	7,746	25,821	70,369	19,915			125,254
1984				1,858	860	653	13,165	14,944	68,837	33,608	1,590		135,515
1985			1,583	6,483	1,383	2,949	13,818	46,632	87,026	28,330			188,204
1986			1,282	1,184	414	1,193	27,563	32,339	74,769	54,737			193,481
1987				2,082	413	885	16,658	35,661	59,326	33,786			148,811
1988				4,176	1,095	2,117	11,609	25,875	69,259	37,634			151,765
1989				3,269	598	1,921	16,002	20,819	87,722	40,136			170,467
1990				2,754	660	1,489	9,105	10,368	33,452	37,233			95,061
1991				2,245	630	846	9,921	17,752	78,363	46,941	9,388	2,876	168,962
1992				1,427	642	1,921	10,989	15,504	127,626	35,917			194,026
1993				5,194	588	2,197	9,692	10,003	35,287	30,222			93,183
Total	1,059	925	10,897	86,392	35,710	38,776	367,191	776,777	1,928,097	820,157	28,764	5,253	4,099,998
10-Year Avg.				3,067	728	1,617	13,852	22,990	72,167	37,854			153,948

TABLE 70

SNAKE RIVER TABLES

TABLE 71

MONTHLY TOTALS OF SALMONIDS AND SHAD

COUNTED OVER ICE HARBOR DAM IN 1993

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CHINOOK*				5,776	15,879	8,705	1,405	338	2,087	801			34,991
STEELHEAD				7,418	287	745	5,896	8,086	21,614	29,061			73,107
SOCKEYE						2	11	1	3				17
COHO									1				1
PINK													
MINI-JACK**						17	419	179	45	94			754
TOTAL				13,194	16,166	9,469	7,731	8,604	23,750	29,956			108,870
SHAD					2	12,114	35,358	1,327					48,801

*Jacks included

**Salmonid fish under 12 inches in length

TABLE 72

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

ICE HARBOR PROJECT

APRIL 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1	0			0				566			65.4	11.7	2.0	48.0
2	0			0				589			62.4	9.6	2.1	48.0
3	0			0				470			68.4	13.2	2.1	50.0
4	0			0				492			71.4	16.6	2.5	50.0
5	0			0				405			81.7	26.6	2.8	51.0
6	0			0				439			93.6	38.2	2.8	52.0
7	0			0				417			87.1	32.0	2.8	52.0
8	0			0				472			80.8	25.7	3.0	52.0
9	1			0				432			80.2	25.1	3.0	50.0
10	1			0				337			81.1	27.1	3.0	52.0
11	1			0				348			72.2	17.6	3.0	52.0
12	0			0				317			70.8	16.4	2.0	52.0
13	4			0				274			69.2	14.9	1.5	52.0
14	1			0				256			64.5	10.1	1.5	52.0
15	6			0				162			62.2	15.9	1.5	52.0
16	7			0				216			60.9	15.0	1.5	52.0
17	8			0				110			65.5	11.7	2.0	52.0
18	14			0				137			63.9	10.1	1.1	52.0
19	42			0				126			72.6	18.4	1.1	52.0
20	79			0				107			67.4	13.3	2.3	53.0
21	80			0				90			63.6	9.7	2.0	53.0
22	109			0				95			64.7	10.7	2.0	53.0
23	182			0				97			63.0	10.7	2.0	53.0
24	345			0				51			65.1	13.7	2.0	53.0
25	682			0				96			66.3	15.2	2.0	53.0
26	803			0				52			70.1	18.2	2.0	53.0
27	839			1				30			72.2	19.5	2.0	53.0
28	954			0				55			72.1	22.6	2.0	54.0
29	685			13				147			67.9	20.6	2.2	54.0
30	918			1				33			68.2	23.2	2.8	54.0
TOTAL	5,761			15				7,418						
AVG.	192			1				247			70.5	17.8	2.2	52.0

TABLE 73

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

ICE HARBOR PROJECT
MAY 1993

FISH COUNTS / RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1	743			2				29	0		88.0	33.1	2.7	52.0
2	1112			6				33	0		82.8	27.1	2.7	52.0
3	1423			4				21	0		82.5	28.5	2.0	52.0
4	1153			8				17	0		96.7	41.3	2.0	52.0
5	566			2				19	0		108.9	50.1	2.0	53.0
6	340			2				8	0		106.1	36.8	2.0	53.0
7	887			8				12	0		107.4	38.3	1.2	53.0
8	532			8				13	0		107.7	38.3	1.2	53.0
9	699			3				18	0		105.4	35.7	1.4	53.0
10	1182			3				15	0		96.8	27.4	1.4	53.0
11	715			1				12	0		96.4	20.6	1.8	53.0
12	203			1				5	0		103.6	27.9	2.0	53.0
13	462			7				3	0		128.8	46.4	2.0	53.0
14	150			1				5	0		153.3	70.4	2.1	53.0
15	73			5				2	0		159.5	76.5	2.0	53.0
16	165			7				5	0		171.1	86.3	2.0	54.0
17	238			10				5	0		163.1	74.4	2.5	54.0
18	453			11				5	0		163.4	56.7	2.4	54.0
19	99			2				9	0		160.5	62.7	2.2	55.0
20	62			1				2	0		173.9	82.2	2.0	57.0
21	51			2				2	0		167.3	74.3	2.0	55.0
22	286			9				1	0		156.4	59.1	2.0	55.0
23	184			7				4	0		166.1	70.8	2.0	56.0
24	775			20				2	0		144.3	51.4	2.5	56.0
25	622			17				7	0		124.2	39.5	2.7	56.0
26	526			9				9	0		118.0	35.2	2.7	56.0
27	97			6				4	0		147.0	47.5	2.8	56.0
28	352			9				2	0		134.8	30.9	2.8	57.0
29	399			6				6	0		142.6	35.8	2.8	57.0
30	545			6				1	0		143.0	35.4	2.7	57.0
31	600			2				11	2		124.1	24.9	2.8	57.0
TOTAL	15,694			185				287	2					
AVG.	506			6				9			129.8	47.3	2.2	54.3

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	21,455	200

STEELHEAD	SHAD
7,705	2

TABLE 74

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

ICE HARBOR PROJECT
JUNE 1993

FISH COUNTS / **RIVER CONDITIONS**

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1	541			10			0	7	24	0	117.5	29.8	2.6	57.0
2	337			6			0	1	8	0	130.8	40.2	3.2	58.0
3	284			6			0	1	21	0	113.6	27.9	3.2	58.0
4	165			6			0	8	25	0	116.7	29.7	2.5	58.0
5	254			2			0	5	26	0	95.8	20.2	2.5	58.0
6	279			5			0	5	38	0	96.8	24.2	3.0	58.0
7	267			0			0	4	108	0	100.0	20.1	3.0	58.0
8	197			1			0	4	52	0	132.3	50.4	3.0	58.0
9	306			6			0	5	119	0	120.3	29.0	3.0	58.0
10	230			0			0	4	48	0	113.5	26.9	3.0	58.0
11	378			0			0	2	44	0	117.4	29.6	2.5	58.0
12		278		0			0	6	36	0	125.4	33.4	2.5	58.0
13		244		2			0	12	37	0	131.4	38.1	2.5	58.0
14		176		2			0	9	109	0	118.7	27.5	3.7	58.0
15		207		4			0	1	39	0	117.3	30.1	3.7	58.0
16		302		4			0	11	61	0	107.4	21.5	3.7	58.0
17		264		0			0	8	150	0	109.0	21.9	4.0	58.0
18		334		0			0	16	228	0	109.4	22.0	4.1	58.0
19		281		0			0	11	176	0	104.8	24.5	4.1	58.0
20		365		0			0	14	135	0	99.9	24.4	4.1	59.0
21		354		5			0	32	383	0	102.3	18.5	3.8	59.0
22		351		6			0	29	169	0	92.4	15.2	4.0	59.0
23		380		6			0	28	279	0	90.7	12.8	4.0	59.0
24		237		4			0	36	395	0	89.5	12.7	4.0	60.0
25		361		1			0	44	496	0	76.2	19.7	4.5	60.0
26		314		12			0	67	1249	2	64.7	17.2	5.0	60.0
27		325		0			1	67	1224	1	79.4	22.9	5.0	60.0
28		234		0			0	72	1737	2	64.7	20.4	4.0	61.0
29		199		3			0	109	1579	2	61.2	16.9	4.0	61.0
30		166		4			1	127	3119	10	50.5	12.3	5.0	62.0
TOTAL	3,238	5,372		95			2	745	12,114	17				
AVG.	294	283		3				25	404		101.7	24.7	3.6	58.7

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	24,693	242
SUMMER	5,372	53
TOTAL	30,065	295

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
2	8,450	12,116	17

CHUM
1

A chum salmon ws identified in the north ladder on the 20th.

TABLE 75

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

ICE HARBOR PROJECT
JULY 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1		174		4			0	111	3564	2
2		120		2			0	99	3014	6
3		125		2			0	108	2316	1
4		28		0			2	72	1207	7
5		36		1			0	50	1309	1
6		35		2			0	66	1387	6
7		31		0			1	69	1175	9
8		59		2			1	77	1356	10
9		87		1			0	168	1428	20
10		68		2			2	214	1550	30
11		56		0			0	277	1523	32
12		71		1			0	184	2078	25
13		11		1			1	167	2214	20
14		5		1			0	204	1194	16
15		5		1			0	198	1133	18
16		33		1			0	173	1358	14
17		32		1			0	189	1104	14
18		32		3			0	211	938	16
19		34		3			0	192	898	16
20		31		4			0	237	447	24
21		28		0			0	134	534	13
22		20		4			1	191	797	14
23		13		1			1	220	648	17
24		17		0			2	267	528	10
25		18		0			0	220	290	5
26		6		0			0	202	271	10
27		10		0			0	210	279	7
28		5		0			0	250	214	8
29		18		1			0	341	157	17
30		10		0			0	407	246	17
31		10		0			0	388	201	14
TOTAL		1,367		38			11	5,896	35,358	419
AVG.		74		1				190	1,141	14

RIVER CONDITIONS

DATE	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1	52.3	12.5	5.0	62.0
2	49.5	12.5	5.0	62.0
3	44.3	12.7	5.0	62.0
4	55.4	12.8	4.5	62.0
5	55.1	12.6	5.1	62.0
6	56.5	12.5	5.1	62.0
7	55.0	12.6	4.8	62.0
8	49.8	12.6	4.8	62.0
9	51.4	12.7	4.8	62.0
10	46.7	12.6	4.8	63.0
11	43.1	12.6	4.8	64.0
12	48.1	12.5	4.8	64.0
13	52.1	12.5	4.8	64.0
14	49.5	12.5	5.8	64.0
15	51.7	12.7	4.8	65.0
16	57.3	12.8	5.6	65.0
17	54.2	12.7	6.0	65.0
18	55.7	12.8	6.0	65.0
19	53.8	12.5	5.2	65.0
20	52.3	12.6	5.3	65.0
21	55.5	12.6	5.0	65.0
22	49.4	13.5	5.8	65.0
23	49.3	12.6	5.8	65.0
24	50.5	12.8	5.8	66.0
25	51.2	12.4	5.0	66.0
26	51.4	12.5	5.2	66.0
27	63.6	12.9	5.2	66.0
28	53.3	12.6	5.2	66.0
29	52.0	12.7	5.8	65.0
30	47.2	12.6	5.8	65.0
31	38.7	12.6	6.5	65.0
AVG.	51.5	12.6	5.3	64.1

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	24,693	242
SUMMER	6,739	91
TOTAL	31,432	333

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
13	14,346	47,474	436

CHUM
1

TABLE 75

TABLE 76

TABLE 76

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

ICE HARBOR PROJECT
AUGUST 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1		7		0			0	283	164	5	50.1	12.6	6.8	65.0
2		12		2			0	215	110	11	49.2	12.6	7.4	65.0
3		5		3			0	261	159	8	52.0	12.6	7.5	65.0
4		7		1			0	244	103	7	48.2	12.6	7.5	66.0
5		12		0			0	282	119	10	50.1	12.6	7.6	66.0
6		7		0			0	302	64	7	47.7	12.5	7.6	66.0
7		6		0			0	365	101	7	45.8	12.7	7.6	66.0
8		5		0			0	253	101	13	44.5	12.6	7.4	66.0
9		9		2			0	412	45	7	39.5	12.5	7.2	66.0
10		2		0			0	337	44	11	35.6	12.5	7.2	67.0
11		9		0			0	464	67	8	32.9	12.4	6.4	67.0
12			7	3			1	534	48	4	30.1	12.6	6.4	67.0
13			10	0			0	414	35	12	27.1	12.5	7.2	67.0
14			19	1			0	372	12	1	28.2	12.5	7.1	67.0
15			10	0			0	312	16	3	20.8	12.0	7.3	68.0
16			6	0			0	249	37	2	32.9	11.7	7.3	68.0
17			8	0			0	250	28	0	39.3	11.2	5.7	68.0
18			4	0			0	186	22	6	41.0	10.0	5.7	68.0
19			12	0			0	158	24	6	34.0	9.7	5.7	68.0
20			9	0			0	243	13	6	33.5	10.8	5.7	68.0
21			9	0			0	165	7	5	33.1	11.4	5.7	68.0
22			15	0			0	178	6	4	24.0	11.4	5.7	68.0
23			11	0			0	148	0	5	20.6	9.5	5.7	68.0
24			14	0			0	133	0	5	18.0	8.4	6.1	68.0
25			7	0			0	184	0	1	29.7	10.9	6.5	68.0
26			12	0			0	139	0	5	33.6	12.6	6.5	68.0
27			22	0			0	175	1	6	21.1	7.4	6.2	68.0
28			18	0			0	195	1	4	25.1	8.6	6.0	67.0
29			8	0			0	201	0	2	21.5	6.7	6.0	67.0
30			12	0			0	170	0	2	15.3	7.2	7.3	67.0
31			32	0			0	262	0	6	25.9	9.9	6.4	67.0
TOTAL		81	245	12			1	8,086	1,327	179				
AVG.		7	12					261	43	6	33.9	11.1	6.7	67.0

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	24,693	242
SUMMER	6,820	99
FALL	245	4
TOTAL	31,758	345

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
14	22,432	48,801	615

CHUM
1

TABLE 77

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

ICE HARBOR PROJECT
SEPTEMBER 1993

FISH COUNTS / RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1			30	0	0		0	334		0	23.1	3.3	6.8	67.0
2			22	1	0		0	215		4	23.2	0.0	7.4	67.0
3			17	0	0		0	158		2	21.0	0.0	7.4	67.0
4			32	1	0		0	243		0	22.1	0.0	7.4	67.0
5			16	5	0		0	265		2	22.4	0.0	7.4	67.0
6			28	0	0		0	287		1	18.3	0.0	7.4	67.0
7			41	0	0		0	274		5	23.8	0.0	7.0	67.0
8			34	0	0		0	431		1	22.6	0.0	7.0	67.0
9			50	0	0		0	522		0	22.5	0.0	7.0	68.0
10			101	0	0		1	533		0	25.0	0.0	7.0	68.0
11			120	2	0		0	676		0	23.0	0.0	7.0	68.0
12			114	7	0		0	866		0	19.7	0.0	7.0	68.0
13			136	2	0		0	682		0	18.3	0.0	7.0	68.0
14			148	4	0		0	579		1	11.9	0.0	6.0	68.0
15			77	0	0		0	498		1	13.3	0.0	6.9	67.0
16			71	2	0		0	388		0	12.7	0.0	6.9	67.0
17			51	3	0		0	292		1	13.5	0.0	7.1	67.0
18			72	6	0		0	394		1	15.7	0.0	7.1	67.0
19			66	5	0		0	487		4	17.5	0.0	7.0	66.0
20			38	2	0		0	711		1	14.5	0.0	7.0	65.0
21			84	4	0		1	827		1	18.2	0.0	7.0	67.0
22			94	5	1		0	949		5	17.9	0.0	7.0	66.0
23			80	2	0		0	1048		1	13.8	0.0	7.0	66.0
24			113	7	0		0	1215		2	24.9	0.0	7.3	66.0
25			77	4	0		0	1144		3	13.9	0.0	7.3	65.0
26			62	6	0		0	898		1	19.4	0.0	7.3	65.0
27			66	3	0		0	1134		0	19.8	0.0	7.3	65.0
28			72	11	0		1	1828		4	18.0	0.0	7.0	65.0
29			37	4	0		0	1600		2	30.2	0.0	7.6	65.0
30			47	5	0		0	2136		2	27.9	0.0	7.2	65.0
TOTAL			1,996	91	1		3	21,614		45				
AVG.			79	3				720		2	19.6	0.1	7.1	66.6

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	24,693	242
SUMMER	6,820	99
FALL	2,241	95
TOTAL	33,754	436

COHO ADULT
1

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
17	44,046	48,801	660

CHUM
1

TABLE 78

TABLE 78

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

ICE HARBOR PROJECT
OCTOBER 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1			34	9				1620		0	26.0	0.0	7.0	64.0
2			27	16				1374		1	33.5	0.0	6.8	64.0
3			27	8				1059		2	28.9	0.0	6.8	64.0
4			45	7				1555		5	25.2	0.0	6.0	64.0
5			37	8				1244		5	31.4	0.0	7.0	65.0
6			59	7				1903		6	28.0	0.0	6.0	64.0
7			30	2				991		0	25.5	0.0	6.0	64.0
8			25	12				1027		5	30.2	0.0	6.0	64.0
9			17	7				665		2	31.1	0.0	6.0	64.0
10			25	8				1799		12	19.0	0.0	6.0	64.0
11			20	16				1448		10	23.0	0.0	6.0	63.0
12			18	12				1635		5	24.7	0.0	6.0	63.0
13			16	8				1236		6	28.4	0.0	6.0	63.0
14			13	11				1125		0	25.7	0.0	6.0	63.0
15			6	9				962		1	32.9	0.0	6.0	63.0
16			15	4				1315		0	31.2	0.0	6.0	62.0
17			15	7				987		2	27.1	0.0	6.0	62.0
18			15	5				1088		4	25.1	0.0	6.0	62.0
19			20	6				709		5	22.9	0.0	5.6	61.0
20			9	3				913		4	20.7	0.0	5.8	61.0
21			6	5				549		2	22.7	0.0	5.5	61.0
22			10	12				808		2	17.0	0.0	5.0	61.0
23			14	8				666		0	21.5	0.0	5.0	61.0
24			21	13				454		1	13.6	0.0	5.0	61.0
25			5	12				313		2	19.5	0.0	5.0	61.0
26			7	2				396		1	19.2	0.0	7.0	61.0
27			10	3				325		0	14.7	0.0	6.9	62.0
28			9	5				306		0	17.3	0.0	5.6	59.0
29			3	4				219		4	18.0	0.0	5.6	59.0
30			3	6				222		2	19.6	0.0	5.6	59.0
31			3	2				148		5	17.5	0.0	5.6	59.0
TOTAL			564	237				29,061		94				
AVG.			18	8				937			23.9	0.0	6.0	62.2

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	24,693	242
SUMMER	6,820	99
FALL	2,805	332
TOTAL	34,318	673

COHO ADULT
1

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
17	73,107	48,801	754

CHUM
1

TABLE 79

SPECIAL FISH PASSAGE REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

EXTRA NIGHTTIME VIDEO COUNTS FOR ICE HARBOR

MAY 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1	15			0				1		
2	28			0				4		
3	27			0				0		
4	12			0				0		
5	2			0				0		
6	23			0				0		
7	13			0				0		
8	6			0				0		
9	42			0				0		
10	53			0				1		
11	14			0				1		
12	35			0				0		
13	16			0				0		
14	6			0				0		
15	3			0				1		
16	0			0				0		
17	36			0				1		
18	6			0				1		
19	9			0				1		
20	0			0				0		
21	0			0				0		
22	9			0				0		
23	15			0				0		
24	33			0				1		
25	16			0				3		
26	17			2				0		
27	7			2				0		
28	11			0				0		
29	19			0				0		
30	26			0				0		
31	30			1				0		
TOTAL	529			5				15		

AVG. 17

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	529	5

STEELHEAD
15

There were 11 wild steelhead in May.

These fish were counted by video recorder between the hours of 2000 and 0400 PST.

TABLE 80

SPECIAL FISH PASSAGE REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

EXTRA NIGHTTIME VIDEO COUNTS FOR ICE HARBOR

JUNE 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1	20			0				0	0	0
2	10			0				0	3	0
3	8			0				0	0	0
4	12			0				0	1	0
5	17			0				0	6	0
6	24			0				0	10	0
7	14			0				0	7	0
8	5			0				0	14	0
9	13			0				0	15	0
10	10			0				0	12	0
11	8			0				0	12	0
12		3		0				0	7	0
13		4		0				0	11	0
14		7		0				0	25	0
15		5		0				0	8	0
16		13		0				0	16	0
17		10		3				0	23	0
18		3		0				0	50	0
19		7		0				0	50	0
20		8		0				0	28	0
21		5		0				0	65	0
22		5		0				0	137	0
23		1		0				0	106	0
24		5		1				1	107	1
25		9		0				0	100	0
26		9		0				0	192	0
27		3		0				1	223	0
28		8		0				1	249	0
29		5		0				0	459	0
30		7		0				3	510	0
TOTAL	141	117		4				6	2,446	8
AVG.	13	6							82	

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	670	5
SUMMER	117	4
TOTAL	787	9

STEELHEAD	SHAD	MINI-JCK
21	2,446	8

There were no wild steelhead.

These fish were counted by video recorder between the hours of 2000 and 0400 PST.

TABLE 81

SPECIAL FISH PASSAGE REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

EXTRA NIGHTTIME VIDEO COUNTS FOR ICE HARBOR

JULY 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1		3		0			0	1	723	3
2		3		0			0	3	780	1
3		5		0			0	0	580	0
4		4		0			0	0	491	1
5		1		0			0	2	386	0
6		4		0			0	0	628	0
7		1		0			0	0	299	2
8		1		0			0	2	311	2
9		7		0			0	5	322	6
10		2		0			0	2	549	4
11		2		1			0	1	252	4
12		1		0			0	2	321	4
13		2		0			0	1	303	3
14		1		0			0	1	315	2
15		0		0			0	2	209	1
16		0		0			0	1	223	1
17		0		0			0	1	300	4
18		0		0			0	0	148	1
19		1		0			0	3	299	0
20		0		0			2	3	152	0
21		0		0			0	0	134	0
22		0		0			0	3	254	0
23		1		0			0	3	408	1
24		2		0			0	2	212	1
25		1		0			0	6	168	0
26		0		0			0	7	95	1
27		0		0			0	3	97	0
28		0		0			0	6	97	0
29		1		0			0	8	111	0
30		1		0			0	1	110	0
31		1		0			0	4	88	2
TOTAL		47		1			2	73	9,365	44
AVG.		1						2	302	1

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	670	5
SUMMER	164	5
TOTAL	834	10

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
2	94	11,811	52

There were 18 wild steelhead.

These fish were counted by video recorder between the hours of 2000 and 0400 PST.

TABLE 81

TABLE 82

TABLE 82

SPECIAL FISH PASSAGE REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

EXTRA NIGHTTIME VIDEO COUNTS FOR ICE HARBOR

August 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1		1		0				3	65	2
2		2		1				7	108	0
3		3		1				16	52	0
4		0		1				6	41	2
5		0		0				9	62	1
6		1		0				8	32	0
7		1		0				5	41	1
8		0		0				5	54	0
9		0		0				7	67	0
10		0		0				8	43	0
11		4		0				13	37	2
12			0	0				11	48	2
13			1	0				3	30	3
14			0	1				2	12	2
15			0	0				5	27	0
16			2	0				6	52	0
17			0	0				3	21	1
18			2	0				2	5	2
19			1	0				3	12	1
20			0	0				2	12	0
21			1	0				2	27	1
22			0	0				9	10	0
23			1	0				2	4	0
24			1	0				2	23	0
25			0	1				2	40	5
26			1	0				6	8	0
27			0	0				5	22	6
28			0	0				2	12	2
29			0	0				5	10	3
30			1	0				7	6	4
31			1	0				3	8	3
TOTAL		12	12	5				169	991	43
AVG.								5	32	1

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	670	5
SUMMER	176	8
FALL	12	2
TOTAL	858	15

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
2	263	12,802	95

There were 52 wild steelhead.

These fish were counted by video recorder between the hours of 2000 and 0400 PST.

TABLE 83

SPECIAL FISH PASSAGE REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

EXTRA NIGHTTIME VIDEO COUNTS FOR ICE HARBOR

September 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1			0	1				6		3
2			1	0				7		1
3			0	0				8		1
4			1	0				9		0
5			2	0				14		2
6			6	0				9		3
7			2	0				15		3
8			3	0				28		1
9			8	0				34		2
10			3	0				20		0
11			3	0				65		0
12			5	1				68		1
13			2	0				43		1
14			1	0				58		0
15			6	0				32		0
16			6	0				30		0
17			4	0				21		1
18			4	1				32		2
19			7	0				73		4
20			3	0				52		1
21			4	1				102		1
22			3	0				94		0
23			8	1				135		0
24			0	2				86		1
25			5	0				138		2
26			5	0				107		0
27			4	0				135		0
28			3	0				114		1
29			3	0				132		2
30			1	1				91		0
TOTAL			103	8				1,758		33
AVG.			4					59		1

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	670	5
SUMMER	176	8
FALL	115	10
TOTAL	961	23

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
2	2,021	12,802	128

There were 248 wild steelhead.

These fish were counted by video recorder between the hours of 2000 and 0400 PST.

TABLE 83

TABLE 84

SPECIAL FISH PASSAGE REPORT

EXTRA NIGHTTIME VIDEO COUNTS FOR ICE HARBOR

U.S. ARMY ENGINEER DISTRICT, PORTLAND

October 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1			4	1				86		
2			3	0				71		
3			3	0				66		
4			2	1				92		
5			4	1				107		
6			1	0				79		
7			0	0				113		
8			3	0				56		
9			3	0				141		
10			0	0				73		
11			3	0				112		
12			1	0				82		
13			1	0				68		
14			0	0				61		
15			1	0				118		
16			0	0				113		
17			2	1				89		
18			2	0				69		
19			0	0				58		
20			2	0				81		
21			6	0				90		
22			0	0				57		
23			1	1				54		
24			2	0				57		
25			0	0				46		
26			1	0				33		
27			0	0				39		
28			3	0				15		
29			1	0				21		
30			0	0				27		
31			2	0				14		
TOTAL			51	5				2,188		
AVG.			2					71		

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	670	5
SUMMER	176	8
FALL	166	15
TOTAL	1,012	28

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
2	4,209	12,802	128

There were 289 wild steelhead.

These fish were counted by video recorder between the hours of 2000 and 0400 PST.
31 October recording occurred between 2000-2400 hours (4 hours); 1 November began at 0000 hours.

TABLE 84

TABLE 85

SPECIAL FISH PASSAGE REPORT — 24-HOUR VIDEO COUNTS — ICE HARBOR PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND — November 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1			6	5			0	240		1
2			1	2			0	202		1
3			4	1			0	415		1
4			0	2			0	171		0
5			3	0			0	152		3
6			3	0			0	99		1
7			6	4			0	194		2
8			4	0			0	78		0
9			1	2			0	120		0
10			0	1			0	89		1
11			2	0			0	122		0
12			2	0			0	81		0
13			0	0			0	84		4
14			3	0			0	80		2
15			2	1			0	62		1
16			1	1			0	55		0
17			2	0			0	88		0
18			3	0			0	45		0
19			2	0			0	69		0
20			1	0			0	51		2
21			0	0			0	74		0
22			0	0			1	40		2
23			5	0			0	33		0
24			0	0			0	59		2
25			1	0			0	47		0
26			0	0			0	49		1
27			1	0			0	44		0
28			0	0			0	25		0
29			1	0			0	12		0
30			0	0			0	22		0
TOTAL			54	19			1	2,902		24
AVG.			2					97		

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	670	5
SUMMER	176	8
FALL	220	34
TOTAL	1,066	47

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
3	7,111	12,802	152

There were 440 wild steelhead in November.

Counted by video recorder from 0000 until 2400 PST.

TABLE 86

SPECIAL FISH PASSAGE REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

TABLE 86

24-HOUR VIDEO COUNTS

ICE HARBOR PROJECT

December 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1			0					20		0
2			1					16		2
3			0					11		0
4			0					17		0
5			0					43		0
6			0					25		0
7			0					29		1
8			0					54		0
9			0					59		1
10			0					83		0
11			0					84		0
12			0					89		0
13			0					69		0
14			0					55		1
15			0					79		1
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
TOTAL			1					733		6
AVG.								49		

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	670	5
SUMMER	176	8
FALL	221	34
TOTAL	1,067	47

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
3	7,844	12,802	158

There were 142 wild steelhead.

Counted by video recorder from 0000 until 2400 PST through 15 December.
Video equipment was out of service from 9 December at 2300 hours until 12 December at 0700 hours; a total of 56 hours.

TABLE 86

TABLE 87

YEARLY TOTALS OF SALMONIDS COUNTED OVER ICE HARBOR DAM 1962-1993

YEAR	CHINOOK*	STEELHEAD	SOCKEYE	COHO*	TOTALS*
1962	94,301	115,796	38	3,207	213,342
1963	61,190	74,539	1,118	1,933	138,780
1964	60,097	58,860	1,276	2,071	122,304
1965	39,233	62,873	317	320	102,743
1966	75,882	65,798	278	878	142,836
1967	84,930	44,205	717	3,770	133,622
1968	98,681	82,383	1,165	6,227	188,456
1969	100,514	63,889	745	5,316	170,464
1970	77,698	53,870	797	3,636	136,001
1971	70,248	67,029	532	2,969	140,778
1972	82,632	63,593	363	2,522	149,110
1973	81,821	38,311	233	2,443	122,808
1974	32,444	12,528	204	1,334	46,510
1975	31,686	16,218	243	1,559	49,706
1976	36,556	23,885	771	1,991	63,203
1977	56,514	54,820	582	1,561	113,477
1978	61,352	27,142	86	652	89,232
1979	13,929	23,117	30	398	37,474
1980	14,717	50,221	36	58	65,032
1981	22,092	41,290	142	82	63,606
1982	22,646	73,405	174	348	96,573
1983	20,259	88,475	216	465	109,415
1984	17,757	94,030	105	22	111,914
1985	47,981	128,481	24	10	176,496
1986	52,615	144,292	20		196,927
1987	47,477	74,491	13		121,981
1988	48,066	99,714	22		147,802
1989	27,234	151,101	4		178,339
1990	31,841	54,758	1	1	86,601
1991	23,175	123,762	9	1	146,947
1992	36,021	160,614	33		196,668
1993	34,991	73,107	17		108,115
Totals	1,606,580	2,306,597	10,311	43,774	3,967,262
10-Year Average	36,716	110,435	25	3	147,179

*Jacks included

TABLE 87

TABLE 88

MONTHLY COUNT OF CHINOOK SALMON
ICE HARBOR DAM; 1962 - 1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL*	SPRING 1 APR-11 JUN	SUMMER 12 JUN-11 AUG	FALL 12 AUG-31 OCT
1962				2,579	28,951	23,250	8,315	3,547	20,578	7,081			94,301	33,613	30,639	30,049
1963				3,434	21,790	14,001	7,591	1,415	9,342	2,918	677	22	61,190	26,778	20,875	13,537
1964		1	2	4,048	19,611	5,409	18,832	2,161	8,159	1,701	156	17	60,097	24,304	24,696	11,097
1965			4	1,677	9,649	5,072	10,209	803	9,318	2,152	349		39,233	12,178	14,701	12,354
1966				23,382	19,294	10,611	7,166	1,933	10,756	2,740			75,882	43,881	16,983	15,018
1967				15,973	18,137	9,020	22,218	820	11,947	6,815			84,930	35,593	30,315	19,022
1968				1,595	41,398	12,119	17,751	3,433	16,588	5,275	493	29	98,681	44,773	29,531	24,377
1969			195	697	43,181	24,918	12,861	2,369	12,027	3,555	708	3	100,514	52,090	30,917	17,507
1970				12,167	33,881	12,338	8,185	1,747	7,702	1,456	219	3	77,698	47,931	19,382	10,385
1971				1,104	25,089	19,265	13,364	873	8,960	1,593			70,248	32,638	26,606	11,004
1972				14,535	34,734	7,544	15,177	1,869	6,089	2,684			82,632	50,350	22,846	9,436
1973				34,277	23,627	10,925	4,254	840	6,657	1,241			81,821	60,639	12,829	8,353
1974				842	16,670	5,315	6,494	483	2,066	574				19,361	10,269	2,814
1975				1,314	17,796	5,817	3,972	506	1,875	406			31,686	21,401	7,727	2,558
1976				3,146	19,269	8,544	3,921	349	1,123	204			36,556	25,056	10,026	1,474
1977				24,003	17,626	9,328	3,606	297	1,370	284			56,514	44,421	10,337	1,756
1978				14,891	29,333	9,999	4,888	892	1,064	269	16		61,352	49,303	10,440	1,609
1979				1,731	6,528	2,234	1,216	379	1,489	333	19		13,929	9,247	2,608	2,074
1980				1,678	7,321	2,285	1,569	301	1,034	504	25		14,717	9,668	3,305	1,744
1981			1	6,744	8,542	2,884	1,751	161	1,530	470	9		22,092	16,167	3,814	2,111
1982			3	656	11,543	4,522	2,347	283	2,601	691			22,646	14,600	4,527	3,519
1983				1,925	9,418	4,132	1,921	316	1,945	602			20,259	12,602	4,922	2,735
1984				823	7,292	5,353	1,943	223	1,762	361			17,757	9,183	6,307	2,267
1985				12,245	18,334	6,885	1,294	546	5,414	3,263			47,981	33,527	5,290	9,164
1986			1	14,764	22,025	8,299	1,672	169	3,664	2,021			52,615	39,087	7,745	5,783
1987				11,141	18,821	6,550	2,437	329	6,089	2,110			47,477	32,083	6,982	8,412
1988				14,274	17,196	8,609	1,904	702	3,621	1,760			48,066	34,394	7,790	5,882
1989				3,307	11,724	4,946	1,143	776	3,917	1,421			27,234	17,029	4,215	5,990
1990				7,578	12,166	5,353	1,337	320	3,315	1,773			31,842	20,730	5,794	5,317
1991				1,639	7,953	5,367	2,101	155	4,053	1,907			23,175	11,288	5,861	6,026
1992				11,462	12,001	5,791	1,189	228	3,716	1,634			36,021	26,114	4,377	5,530
1993				5,776	15,879	8,705	1,405	338	2,087	801			34,991	24,935	6,919	3,137
TOTAL		1	206	255,407	606,779	275,390	194,033	29,563	181,858	60,599	2,671	74	1,574,137	934,964	409,575	262,041
10-Year Avg.				8,301	14,339	6,586	1,643	379	3,764	1,705			36,716	24,837	6,128	5,751

*Jacks Included

TABLE 89

MONTHLY COUNT OF STEELHEAD

ICE HARBOR DAM
1962-1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
1962				8,758	716	261	2,384	7,450	75,924	20,303			115,796
1963				969	895	163	2,157	6,514	35,382	24,070	4,042	347	74,539
1964	105	136	796	2,269	807	153	1,596	9,462	34,435	7,357	1,347	397	58,860
1965	31	110	673	1,976	488	439	3,739	4,497	33,595	13,522	3,803		62,873
1966				2,161	810	413	1,383	2,517	40,185	18,329			65,798
1967				1,266	894	345	972	953	18,914	20,861			44,205
1968				2,558	2,933	357	952	8,107	45,552	17,270	3,692	962	82,383
1969	132	41	807	4,971	2,430	321	3,348	5,715	27,219	14,953	3,874	78	63,889
1970				1,597	1,067	389	2,620	7,611	30,101	8,290	1,891	304	53,870
1971			458	1,938	843	215	3,064	2,996	42,481	15,034			67,029
1972				1,853	553	152	3,062	6,503	34,134	17,336			63,593
1973				1,570	827	254	1,785	2,699	22,021	9,155			38,311
1974				972	359	104	1,482	2,202	3,661	3,748			12,528
1975				564	409	76	1,223	3,878	6,816	3,252			16,218
1976				508	142	165	1,714	5,138	11,141	5,077			23,885
1977				685	220	308	3,654	3,017	30,610	16,326			54,820
1978				908	88	43	1,308	2,907	15,094	6,092	702		27,142
1979			454	538	114	60	1,995	1,778	6,136	9,717	2,325		23,117
1980			1,420	2,796	563	39	1,303	4,333	22,064	15,424	2,279		50,221
1981			797	1,106	433	137	2,305	1,431	16,563	16,669	1,849		41,290
1982			1,471	1,931	918	45	2,564	8,895	30,574	27,007			73,405
1983				1,001	150	36	3,773	9,875	48,519	25,121			88,475
1984				2,218	488	49	4,103	4,554	50,638	31,980			94,030
1985			1,892	7,353	439	306	3,070	14,468	75,378	25,575			128,481
1986			2,561	1,642	187	174	6,600	8,679	63,598	60,851			144,292
1987				2,136	235	262	3,292	4,972	28,491	35,103			74,491
1988				4,865	580	671	3,251	5,955	46,838	37,554			99,714
1989				4,326	355	487	7,399	8,916	80,799	48,819			151,101
1990				2,793	148	252	2,631	2,000	18,728	28,206			54,758
1991				2,297	256	166	3,254	1,275	55,447	61,067			123,762
1992				1,433	232	742	4,190	8,137	89,281	56,599			160,614
1993				7,418	287	745	5,896	8,086	21,614	29,061			73,107
Totals	268	287	11,329	79,376	19,866	8,329	92,069	175,520	1,161,933	729,728	25,804	2,088	2,306,597
10-Year Average				3,648	321	385	4,369	6,704	53,081	41,482			110,435

TABLE 89

TABLE 90

MONTHLY TOTALS OF SALMONIDS AND SHAD

COUNTED OVER LOWER MONUMENTAL DAM IN 1993

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CHINOOK*				3,848	16,154	9,720	2,016	313	1,591	509	44		34,195
STEELHEAD				7,752	277	564	5,367	8,197	16,146	30,228	2,461		70,992
SOCKEYE						3	11	3			1		18
COHO*													
PINK													
MINI-JACK**					3		98	129	51	146	17		444
TOTAL				11,600	16,431	10,287	7,394	8,513	17,737	30,737	2,506		105,205
SHAD					1	1,374	12,936	1,585					15,896

*Jacks included
**Salmonid fish under 12 inches in length

TABLE 91

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

TABLE 91

LOWER MONUMENTAL PROJ.

APRIL 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1	0			0				580			63.6	0.0	1.0	44.0
2	0			0				666			62.2	0.0	1.0	44.0
3	0			0				542			67.7	0.0	1.0	44.0
4	0			0				462			70.4	0.0	1.0	44.0
5	0			0				669			82.2	0.0	1.0	44.0
6	0			0				504			92.4	3.7	1.0	47.0
7	0			0				414			86.9	5.6	1.0	47.0
8	0			0				421			77.7	0.0	1.2	47.0
9	0			0				459			77.1	0.0	1.2	47.0
10	0			0				440			76.7	0.8	1.2	48.0
11	0			0				336			71.4	0.0	1.2	48.0
12	1			0				245			69.4	0.0	1.2	48.0
13	0			0				269			67.6	0.0	1.2	48.0
14	1			0				270			62.6	0.0	1.4	48.0
15	0			0				212			61.4	0.0	1.4	48.0
16	1			0				205			60.4	0.0	1.4	48.0
17	1			0				105			62.8	0.0	1.4	49.0
18	5			0				129			63.8	0.0	1.4	49.0
19	2			0				133			70.7	0.0	1.4	49.0
20	6			0				87			64.3	0.0	1.4	49.0
21	10			0				85			62.9	0.0	1.4	49.0
22	26			0				82			63.1	0.0	1.4	50.0
23	69			0				110			61.3	0.0	1.4	50.0
24	60			0				76			62.7	0.0	1.4	50.0
25	66			0				39			62.9	0.0	1.4	50.0
26	422			0				60			67.9	0.0	1.4	50.0
27	620			1				39			70.2	0.0	1.5	51.0
28	533			0				49			67.9	0.0	1.5	51.0
29	972			0				34			66.9	0.0	1.5	51.0
30	1052			0				30			67.8	0.0	1.5	51.0
TOTAL	3,847			1				7,752						
AVG.	248							258			68.8	0.3	1.3	48.1

TABLE 92

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER MONUMENTAL PROJ.
MAY 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1	926			0				24	0	0
2	553			1				21	0	0
3	700			2				11	0	0
4	660			2				9	0	0
5	803			8				12	0	0
6	673			7				20	0	0
7	559			1				5	0	0
8	806			1				22	0	0
9	907			0				13	0	0
10	353			2				11	0	0
11	1,043			5				12	0	0
12	1,284			12				16	0	0
13	524			6				20	0	0
14	505			0				10	0	0
15	411			1				2	0	0
16	430			7				11	0	0
17	168			2				2	0	0
18	124			6				8	0	0
19	103			5				2	0	0
20	138			2				2	0	0
21	122			2				1	0	0
22	139			7				8	0	0
23	100			0				5	0	0
24	417			8				6	0	0
25	363			9				3	0	1
26	712			13				1	0	2
27	464			18				5	0	0
28	347			12				10	0	0
29	628			11				2	0	0
30	403			12				3	0	0
31	619			8				0	1	0
TOTAL	15,984			170				277	1	3
AVG.	516			5				9		

RIVER CONDITIONS

DATE	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1	86.2	0.0	1.2	51.0
2	78.8	0.0	1.2	51.0
3	81.3	0.0	1.2	51.0
4	97.3	5.6	0.4	52.0
5	106.9	14.2	0.7	52.0
6	102.4	7.0	0.7	52.0
7	105.3	10.4	0.7	52.0
8	105.4	9.7	0.7	52.0
9	105.0	10.2	0.7	52.0
10	93.2	3.1	0.7	52.0
11	93.2	2.5	0.7	52.0
12	102.4	8.2	0.7	53.0
13	126.7	31.0	1.0	53.0
14	154.0	58.0	1.0	53.0
15	164.3	69.0	1.0	54.0
16	178.2	110.0	1.8	55.0
17	170.6	90.9	1.8	56.0
18	169.9	88.8	1.8	56.0
19	164.7	81.0	1.8	56.0
20	176.9	75.4	1.8	56.0
21	173.3	72.8	1.8	55.0
22	160.4	60.4	1.8	55.0
23	166.2	70.2	1.0	56.0
24	143.7	50.6	1.0	56.0
25	124.1	27.6	1.0	56.0
26	118.6	19.1	1.0	56.0
27	144.7	38.6	1.0	56.0
28	133.8	28.0	1.0	56.0
29	137.1	30.6	1.2	57.0
30	138.3	31.8	1.2	57.0
31	118.8	13.1	1.2	57.0
AVG.	129.7	36.1	1.1	54.1

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	19,831	171

STEELHEAD	SHAD	MINI-JCK
8,029	1	3

TABLE 92

TABLE 93

TABLE 93

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER MONUMENTAL PROJ.

JUNE 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1	674			18			0	1	0		115.8	9.8	1.2	58.0
2	419			13			0	3	0		125.1	34.0	1.2	58.0
3	404			12			0	2	0		109.5	19.8	1.2	58.0
4	306			7			0	4	5		113.1	22.0	1.2	58.0
5	245			7			0	6	4		93.5	0.0	1.2	58.0
6	184			2			0	1	8		94.0	0.0	1.2	58.0
7	201			4			0	7	12		99.6	4.7	2.1	58.0
8	486			0			0	6	1		131.0	42.0	2.1	58.0
9	220			1			0	1	1		116.6	24.0	2.1	58.0
10	264			5			0	3	12		109.3	9.5	2.3	58.0
11	442			2			0	5	10		114.5	10.4	2.3	58.0
12	354			3			0	11	4		122.5	18.6	2.2	58.0
13	231			0			0	4	4		126.9	21.6	2.2	58.0
14		253		2			0	6	0		114.5	9.7	2.2	58.0
15		254		6			0	11	5		113.3	17.6	2.2	58.0
16		146		1			0	8	16		102.3	0.0	2.3	58.0
17		351		2			0	11	2		107.3	3.7	2.3	58.0
18		199		0			0	5	5		106.3	5.3	2.3	58.0
19		346		3			0	13	5		102.6	1.4	2.3	58.0
20		296		1			0	9	19		95.8	0.0	2.3	58.0
21		293		1			0	15	66		100.4	0.0	2.3	60.0
22		420		11			0	17	55		90.9	0.0	2.3	60.0
23		376		6			1	31	25		87.5	0.0	2.3	60.0
24		362		8			1	28	23		86.7	0.0	2.3	60.0
25		354		5			0	28	52		73.7	0.0	2.3	60.0
26		402		1			0	62	88		65.2	0.0	2.5	62.0
27		265		6			1	72	114		75.3	0.0	2.5	63.0
28		296		3			0	75	455		62.6	0.0	2.5	63.0
29		300		5			0	65	204		59.2	0.0	2.5	63.0
30		240		2			0	54	179		51.1	0.0	2.5	63.0
TOTAL	4,430	5,153		137			3	564	1,374					
AVG.	341	303		5				19	46		98.9	8.5	2.1	59.1

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	24,261	245
SUMMER	5,153	63
TOTAL	29,414	308

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
3	8,593	1,375	3

CHUM
1

A chum salmon was identified in the north ladder on 21June.

TABLE 94

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER MONUMENTAL PROJ.

JULY 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1		170		4			0	54	264	0	51.4	0.0	2.5	62.0
2		182		6			1	98	231	2	47.7	0.0	2.5	62.0
3		84		4			0	108	117	2	44.1	0.0	2.5	62.0
4		250		1			0	163	449	1	53.9	0.0	2.6	62.0
5		146		0			1	114	186	1	54.3	0.0	2.6	62.0
6		134		6			1	143	418	1	54.0	0.0	2.6	62.0
7		58		4			0	100	297	0	53.7	0.0	2.6	62.0
8		109		4			2	122	1104	1	48.7	0.0	2.6	62.0
9		74		5			0	88	258	6	49.6	0.0	2.6	62.0
10		106		2			0	140	613	12	46.1	0.0	2.6	62.0
11		75		0			0	144	396	2	41.8	0.0	2.6	62.0
12		78		1			1	227	361	5	47.8	0.0	2.6	62.0
13		37		1			0	166	565	5	49.5	0.0	2.6	63.0
14		63		1			1	162	574	3	48.3	0.0	2.6	63.0
15		27		0			1	122	240	2	49.4	0.0	2.6	63.0
16		59		6			0	214	511	6	56.6	0.0	2.6	63.0
17		15		1			0	179	222	3	51.1	0.0	2.6	63.0
18		29		2			0	175	665	5	55.8	0.0	3.5	63.0
19		25		1			0	180	1009	1	50.1	0.0	3.5	63.0
20		44		2			0	219	762	4	53.4	0.0	3.5	64.0
21		33		0			0	190	383	2	51.0	0.0	3.5	64.0
22		32		2			0	206	1230	2	49.7	0.0	3.5	64.0
23		10		1			0	162	328	3	47.8	0.0	3.5	64.0
24		29		1			0	227	374	1	50.3	0.0	3.5	64.0
25		14		0			2	196	203	1	49.0	0.0	3.5	64.0
26		25		0			1	293	203	3	50.3	0.0	3.5	64.0
27		19		1			0	189	180	5	61.0	0.0	3.5	64.0
28		11		0			0	228	193	2	52.4	0.0	3.5	64.0
29		2		0			0	228	208	12	49.5	0.0	3.5	64.0
30		14		3			0	349	205	3	46.1	0.0	3.5	64.0
31		2		1			0	181	187	2	38.0	0.0	3.5	64.0
TOTAL		1,956		60			11	5,367	12,936	98				
AVG.		63		2				173	417	3	50.1	0.0	3.0	63.0

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	24,261	245
SUMMER	7,109	123
TOTAL	31,370	368

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
14	13,960	14,311	101

CHUM
1

TABLE 94

TABLE 95

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER MONUMENTAL PROJ.
AUGUST 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1		12		1			0	287	151	2
2		5		0			0	358	121	7
3		8		1			0	381	264	6
4		7		0			1	294	145	9
5		9		0			0	242	122	5
6		4		0			0	247	120	5
7		19		0			0	336	67	2
8		4		0			0	278	68	4
9		7		1			0	347	55	9
10		4		7			0	229	55	5
11		16		1			0	406	71	7
12		3		0			0	274	22	7
13		7		1			0	474	23	11
14			5	0			0	480	29	2
15			14	0			0	392	35	3
16			4	1			0	142	24	2
17			4	1			1	245	28	4
18			15	0			0	194	24	5
19			2	0			0	150	30	2
20			8	0			1	242	25	4
21			15	0			0	354	21	8
22			7	0			0	222	10	1
23			12	0			0	175	19	1
24			8	0			0	193	14	2
25			8	0			0	172	8	4
26			16	0			0	86	8	2
27			11	0			0	311	16	1
28			17	0			0	115	2	4
29			18	0			0	147	1	1
30			19	0			0	204	2	1
31			11	0			0	220	5	3
TOTAL		105	194	14			3	8,197	1,585	129
AVG.		8	11					264	51	

RIVER CONDITIONS

DATE	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1	48.0	0.0	4.0	65.0
2	47.8	0.0	4.0	65.0
3	50.1	0.0	4.0	65.0
4	49.0	0.0	4.0	66.0
5	47.4	0.0	4.0	66.0
6	46.4	0.0	4.0	66.0
7	45.4	0.0	4.0	67.0
8	43.5	0.0	4.0	68.0
9	39.5	0.0	4.0	68.0
10	35.4	0.0	4.0	68.0
11	34.3	0.0	4.0	68.0
12	29.0	0.0	4.0	68.0
13	28.0	0.0	4.0	68.0
14	27.2	0.0	4.0	68.0
15	20.7	0.0	4.0	68.0
16	35.1	0.0	4.0	68.0
17	35.8	0.0	4.0	68.0
18	37.3	0.0	4.0	68.0
19	34.0	0.0	4.0	68.0
20	32.9	0.0	4.0	68.0
21	32.6	0.0	4.0	68.0
22	24.0	0.0	4.0	68.0
23	20.2	0.0	4.0	68.0
24	18.1	0.0	4.0	68.0
25	29.9	0.0	4.0	68.0
26	32.2	0.0	4.0	68.0
27	19.5	0.0	4.0	68.0
28	23.9	0.0	4.0	68.0
29	20.8	0.0	4.0	68.0
30	17.7	0.0	4.0	68.0
31	25.2	0.0	4.0	68.0
AVG.	33.3	0.0	4.0	67.5

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	24,261	245
SUMMER	7,214	135
FALL	194	2
TOTAL	31,669	382

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
17	22,157	15,896	230

CHUM
1

TABLE 96

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER MONUMENTAL PROJ.

SEPTEMBER 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK
1			11	1				136		2
2			30	2				216		1
3			25	2				152		5
4			28	1				375		3
5			18	2				150		2
6			24	1				248		0
7			28	2				197		0
8			37	6				222		5
9			17	1				212		1
10			32	2				318		3
11			30	2				342		3
12			95	2				532		2
13			59	2				647		2
14			95	1				753		1
15			97	0				526		0
16			81	0				703		0
17			82	4				404		2
18			74	2				468		3
19			88	4				423		0
20			86	7				580		1
21			27	0				253		0
22			63	5				541		4
23			71	5				629		0
24			37	5				678		1
25			56	5				824		1
26			68	9				1093		1
27			38	5				1024		2
28			36	2				1115		2
29			52	5				995		0
30			19	2				1390		4
TOTAL			1,504	87				16,146		51
AVG.			63	3				538		2

RIVER CONDITIONS

DATE	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1	23.4	0.0	4.6	68.0
2	23.8	0.0	4.6	68.0
3	23.6	0.0	4.6	68.0
4	22.7	0.0	4.0	68.0
5	23.4	0.0	4.0	68.0
6	20.2	0.0	4.0	68.0
7	24.1	0.0	4.0	68.0
8	23.8	0.0	4.0	68.0
9	22.0	0.0	4.0	68.0
10	25.2	0.0	4.0	68.0
11	22.8	0.0	4.0	68.0
12	20.5	0.0	4.0	68.0
13	18.2	0.0	4.0	68.0
14	12.4	0.0	4.0	68.0
15	13.6	0.0	4.0	68.0
16	13.4	0.0	4.0	68.0
17	13.0	0.0	4.0	68.0
18	15.9	0.0	4.0	68.0
19	17.9	0.0	4.0	68.0
20	12.8	0.0	4.0	68.0
21	18.0	0.0	4.0	68.0
22	17.8	0.0	4.0	68.0
23	15.1	0.0	4.0	66.0
24	26.8	0.0	4.0	68.0
25	16.2	0.0	4.0	65.0
26	17.9	0.0	4.0	668.0
27	19.2	0.0	4.0	68.0
28	19.2	0.0	4.0	65.0
29	28.6	0.0	4.0	65.0
30	27.2	0.0	4.0	65.0
AVG.	20.0	0.0	4.1	87.5

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	24,261	245
SUMMER	7,214	135
FALL	1,698	89
TOTAL	33,173	469

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
17	38,303	15,896	281

CHUM
1

TABLE 97

TABLE 97

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER MONUMENTAL PROJ.

OCTOBER 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1			28	0				1,605		0	26.0	0.0	4.0	65.0
2			19	4				1,628		1	32.3	0.0	4.0	65.0
3			32	2				1,440		4	27.5	0.0	4.0	65.0
4			20	14				1,760		6	25.5	0.0	4.0	65.0
5			17	2				678		3	29.6	0.0	4.0	64.0
6			35	6				1,258		4	27.5	0.0	4.0	64.0
7			37	6				1,142		3	24.1	0.0	4.0	64.0
8			29	4				1,391		2	30.4	0.0	4.0	64.0
9			6	6				991		6	29.6	0.0	4.0	64.0
10			32	4				1,144		5	18.9	0.0	4.0	64.0
11			8	2				604		1	23.4	0.0	4.0	64.0
12			20	10				1,601		7	24.2	0.0	4.0	64.0
13			8	3				1,204		14	26.9	0.0	4.0	62.0
14			18	5				1,819		7	25.4	0.0	4.0	62.0
15			13	0				1,403		10	32.4	0.0	4.0	62.0
16			8	1				1,128		8	30.0	0.0	4.0	62.0
17			2	0				1,045		4	26.2	0.0	4.0	62.0
18			14	0				1,399		8	23.4	0.0	4.0	62.0
19			12	2				1,045		8	23.9	0.0	4.0	62.0
20			12	0				817		0	19.9	0.0	4.0	62.0
21			6	0				584		4	22.1	0.0	4.0	62.0
22			6	0				864		3	16.7	0.0	4.0	62.0
23			6	1				599		2	21.2	0.0	4.0	62.0
24			2	1				772		8	13.7	0.0	4.0	61.0
25			1	1				442		5	18.4	0.0	3.0	61.0
26			5	3				365		2	19.9	0.0	3.0	60.0
27			1	2				322		5	16.0	0.0	3.0	60.0
28			8	0				225		2	16.4	0.0	3.0	59.0
29			8	2				234		0	17.7	0.0	3.0	59.0
30			3	1				366		5	20.4	0.0	3.0	59.0
31			11	0				353		9	17.7	0.0	3.0	59.0
TOTAL			427	82				30,228		146				
AVG.			14	3				975		5	23.5	0.0	3.8	62.3

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	24,261	245
SUMMER	7,214	135
FALL	2,125	171
TOTAL	33,600	551

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
17	68,531	15,896	427

CHUM
1

TABLE 98

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER MONUMENTAL PROJ.

NOVEMBER 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JK	KCFS	KCFS	SECCHI	DEG F
1			3	1			0	202		2	19.9	0.0	3.2	58.0
2			2	0			0	124		0	17.2	0.0	3.2	58.0
3			2	0			0	269		2	16.5	0.0	3.2	57.0
4			1	0			0	174		1	18.3	0.0	3.2	57.0
5			0	2			0	145		1	19.0	0.0	3.2	56.0
6			4	0			0	186		1	17.4	0.0	3.2	56.0
7			0	1			1	122		2	13.9	0.0	3.2	56.0
8			6	1			0	177		2	16.8	0.0	3.2	55.0
9			2	1			0	110		1	23.0	0.0	3.2	55.0
10			1	0			0	48		1	14.2	0.0	3.2	54.0
11			2	0			0	98		0	11.6	0.0	3.2	54.0
12			0	1			0	46		0	20.9	0.0	3.2	53.0
13			1	0			0	69		1	18.3	0.0	3.2	53.0
14			2	1			0	50		1	13.4	0.0	3.2	53.0
15			1	1			0	71		0	18.6	0.0	3.2	53.0
16			0	0			0	52		0	18.5	0.0	3.2	52.0
17			0	1			0	77		0	12.8	0.0	3.2	52.0
18			1	0			0	34		0	16.5	0.0	3.2	52.0
19			0	0			0	31		0	17.1	0.0	3.2	51.0
20			4	0			0	32		1	15.6	0.0	3.2	51.0
21			1	0			0	58		0	16.1	0.0	3.2	50.0
22			1	0			0	67		1	16.3	0.0	3.2	50.0
23			0	0			0	29		0	21.0	0.0	3.2	49.0
24			0	0			0	51		0	24.2	0.0	3.2	49.0
25			0	0			0	51		0	13.3	0.0	3.2	49.0
26			0	0			0	24		0	12.4	0.0	3.2	49.0
27			0	0			0	21		0	11.9	0.0	3.2	49.0
28			0	0			0	14		0	13.6	0.0	3.2	47.0
29			0	0			0	13		0	15.5	0.0	3.2	47.0
30			0	0			0	16		0	22.5	0.0	3.2	45.0
TOTAL			34	10			1	2,461		17				
AVG.			1					82			16.9	0.0	3.2	52.3

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	24,261	245
SUMMER	7,214	135
FALL	2,159	181
TOTAL	33,634	561

SOCKEYE	STEELHEAD	SHAD	MINI JCK
18	70,992	15,896	444

CHUM
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TABLE 98

TABLE 99

YEARLY TOTALS OF SALMONIDS COUNTED OVER LOWER MONUMENTAL DAM 1969 - 1993

YEAR	CHINOOK*	STEELHEAD	SOCKEYE	COHO*	TOTALS
1969	86,700	71,436	1,127	6,466	165,729
1970	75,310	62,167	240	2,972	140,689
1971	68,885	70,114	808	2,171	141,978
1972	72,220	66,857	415	733	140,225
1973	80,557	39,530	206	1,333	121,626
1974	31,728	15,139	114	812	47,793
1975	33,013	17,363	146	572	51,094
1976	34,395	21,822	364	361	56,942
1977	49,301	47,749	293	122	97,465
1978	56,835	20,540	96	218	77,689
1979	11,288	17,794	31	194	29,307
1980	10,885	34,322	48	73	45,328
1981	19,991	35,923	136	63	56,113
1982	21,965	62,772	154	89	84,980
1983	19,082	80,562	118	110	99,872
1984	17,866	88,655	63	26	106,610
1985	42,437	109,718	68	24	152,247
1986	50,584	120,479	26	9	171,098
1987	42,434	62,586	16	6	105,042
1988	44,262	84,746	35	3	129,046
1989	25,590	129,618	9	17	155,234
1990	28,215	24,238	0	1	52,454
1991	18,210	98,315	6	5	116,536
1992	30,145	130,429	15		160,589
1993	34,195	70,992	18		105,205
Total	1,006,093	1,583,866	4,552	16,380	2,610,891
10-Year Average	33,394	91,978	26	9	125,406

*Jacks included

TABLE 100

MONTHLY COUNT OF CHINOOK SALMON

LOWER MONUMENTAL DAM; 1969 - 1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS*
1969			1	67	38,702	25,289	13,832	1,776	5,069	1,619	340	5	86,700
1970	1		1	9,194	32,623	15,818	9,369	1,720	5,178	1,281	122	3	75,310
1971				358	19,340	23,842	14,492	857	8,599	1,397			68,885
1972				6,838	36,448	6,989	15,501	1,835	3,737	872			72,220
1973				27,168	31,973	11,282	4,343	678	4,273	840			80,557
1974				327	15,796	4,904	7,241	602	1,972	886			31,728
1975				704	17,421	6,648	4,884	548	2,428	380			33,013
1976				1,995	19,292	7,731	3,172	175	1,609	421			34,395
1977				19,125	17,093	7,884	3,092	300	1,321	486			49,301
1978				12,324	30,067	8,941	3,853	831	536	283			56,835
1979				1,332	5,637	2,010	922	211	916	260			11,288
1980				1,008	5,198	2,318	1,315	319	405	322			10,885
1981				4,039	9,012	3,349	1,924	97	1,100	470			19,991
1982				372	11,319	5,031	2,773	264	1,631	575			21,965
1983				1,250	10,262	3,841	2,103	220	1,008	398			19,082
1984				513	7,186	6,297	2,549	205	789	327			17,866
1985				7,360	20,572	7,303	1,279	402	2,451	3,070			42,437
1986				10,893	25,454	7,436	1,821	123	2,786	2,071			50,584
1987				8,706	21,166	5,492	2,400	278	2,625	1,767			42,434
1988				11,451	19,823	7,851	1,832	607	1,752	946			44,262
1989				159	14,924	4,858	1,615	476	1,852	706			24,590
1990				6,830	12,127	5,197	1,594	181	1,205	1,081			28,215
1991				925	6,537	5,491	1,936	127	2,177	1,017			18,210
1992				10,529	10,822	5,001	1,220	188	1,729	656			30,145
1993				3,848	16,154	9,720	2,016	313	1,591	509	44		34,195
Total	1		2	147,315	454,948	200,523	107,078	13,333	58,739	22,640	506	8	1,005,093
10-Year Average				6,121	15,477	6,465	1,826	290	1,896	1,215			33,294

*Jacks Included

TABLE 100

TABLE 101

MONTHLY COUNT OF STEELHEAD

LOWER MONUMENTAL DAM
1969-1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
1969		5	1,525	9,235	5,475	248	2,141	6,410	26,647	15,195	4,189	366	71,436
1970	252	1,025	1,519	3,143	2,134	232	1,989	7,947	30,701	11,194	1,615	416	62,167
1971			422	2,404	1,510	131	2,199	2,992	42,438	18,018			70,114
1972				2,182	744	86	2,336	7,184	32,417	21,908			66,857
1973				2,061	658	82	2,060	3,505	21,241	9,923			39,530
1974				1,221	256	17	1,237	2,835	4,929	4,644			15,139
1975				745	444	24	873	4,417	7,437	3,423			17,363
1976				806	256	146	1,092	4,409	10,328	4,785			21,822
1977				849	192	127	3,026	2,991	22,494	18,070			47,749
1978				1,324	128	16	719	2,522	10,477	5,354			20,540
1979				643	118	28	1,314	1,937	4,898	8,856			17,794
1980				2,467	573	70	754	3,725	14,078	12,655			34,322
1981				996	321	75	1,783	1,632	12,416	18,700			35,923
1982				2,026	1,123	35	1,851	7,373	22,426	27,938			62,772
1983				1,021	131	14	3,027	10,101	40,004	26,264			80,562
1984				2,663	482	52	3,150	4,820	42,788	34,700			88,655
1985				6,889	548	189	1,888	10,086	63,734	26,384			109,718
1986				1,914	205	89	5,082	7,751	46,876	58,562			120,479
1987				2,483	264	142	2,531	4,692	20,766	31,708			62,586
1988				4,274	604	411	1,903	5,725	35,290	36,539			84,746
1989				1,067	389	304	6,364	8,093	63,026	50,375			129,618
1990				2,691	197	189	1,804	1,579	14,209	24,238			44,907
1991				2,211	288	70	2,275	1,497	41,894	50,080			98,315
1992				1,456	182	285	2,890	7,223	68,606	49,787			130,429
1993				7,752	277	564	5,367	8,197	16,146	30,228	2,461		70,992
Total	252	1,030	3,466	64,523	17,499	3,626	59,655	129,643	716,266	599,528	8,265	782	1,604,535
10-Yr. Average				3,340	344	230	3,325	5,966	41,334	39,260			94,045

TABLE 102

MONTHLY TOTALS OF SALMONIDS AND SHAD

COUNTED OVER LITTLE GOOSE DAM IN 1993

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CHINOOK*				2,032	16,308	10,018	2,425	241	989	317	54		32,384
STEELHEAD				1,569	343	322	3,601	5,891	12,770	32,357	2,887		59,740
SOCKEYE						5	10		1				16
COHO													
PINK													
MINI-JACK**					3	4	181	125	47	31			391
TOTAL				3,601	16,651	10,345	6,036	6,132	13,760	32,674	2,941		92,140
SHAD						148	3,302	488					3,938

*Jacks included

**Salmonid fish under 12 inches in length

TABLE 102

TABLE 103

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

TABLE 103

LITTLE GOOSE PROJECT
APRIL 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	KCFS	KCFS	SECCHI	DEG F
1	BEGIN COUNTING 15 APRIL										63.4	0.0		
2											62.3	0.0		
3											69.0	4.0		
4											71.6	3.7		
5											83.0	15.1		
6											93.2	23.1		
7											85.1	15.0		
8											78.1	9.6		
9											76.4	8.2		
10											76.2	6.7		
11											70.7	0.0		
12											69.0	0.0		
13											66.8	5.5		
14											62.8	0.0		
15	1			0				196			61.5	0.0	1.0	48.0
16	0			0				222			60.6	0.0	1.0	48.0
17	0			0				151			62.2	0.0	1.0	49.0
18	1			0				158			63.8	0.0	1.0	49.0
19	1			0				140			71.8	0.0	1.0	49.0
20	2			0				90			63.5	0.0	1.0	50.0
21	6			0				90			64.1	0.0	1.0	50.0
22	7			0				90			64.1	0.0	1.0	50.0
23	10			0				85			61.5	0.0	3.0	50.0
24	6			0				60			63.9	0.0	3.0	50.0
25	42			0				47			64.0	0.0	3.0	51.0
26	26			0				65			68.7	0.0	3.0	51.0
27	191			0				60			70.8	0.0	3.0	51.0
28	476			0				50			67.3	0.0	1.0	51.0
29	305			1				17			67.0	0.0	1.0	51.0
30	950			7				48			70.5	0.6	2.0	51.0
TOTAL	2,024			8				1,569						
AVG.	156							77			69.1	3.1	1.7	49.9

TABLE 104

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

LITTLE GOOSE PROJECT

MAY 1993

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1	776			1				36		0	86.3	15.6	2.2	52.0
2	508			4				20		0	78.9	8.4	2.0	52.0
3	277			2				20		3	82.3	11.7	1.6	52.0
4	820			6				28		0	99.6	28.5	1.7	52.0
5	352			0				22		0	105.3	33.2	1.7	52.0
6	955			1				24		0	102.7	31.3	1.9	52.0
7	1076			6				17		0	106.3	33.2	1.3	52.0
8	401			4				11		0	109.6	34.0	1.3	51.0
9	750			6				7		0	108.1	34.9	1.5	50.0
10	1081			4				14		0	96.2	25.1	1.5	50.0
11	460			6				13		0	94.3	24.0	2.2	53.0
12	958			12				13		0	105.1	33.1	2.4	53.0
13	1400			24				10		0	126.7	54.8	2.4	53.0
14	887			8				17		0	150.7	56.0	3.0	55.0
15	470			1				14		0	161.8	71.9	2.6	56.0
16	384			4				10		0	169.2	79.4	2.3	56.0
17	235			4				7		0	165.4	92.9	2.3	56.0
18	173			5				4		0	162.0	75.8	2.0	55.0
19	70			1				5		0	160.3	79.8	2.0	55.0
20	67			5				1		0	176.2	86.6	1.8	56.0
21	142			10				2		0	169.1	83.0	1.8	56.0
22	269			10				11		0	159.0	72.5	1.8	56.0
23	132			7				5		0	166.8	78.5	1.9	56.0
24	276			5				2		0	138.3	55.5	1.9	56.0
25	157			8				2		0	127.6	32.4	2.0	56.0
26	211			8				4		0	119.1	10.8	2.3	55.0
27	356			10				0		0	147.3	44.4	2.5	56.0
28	937			17				8		0	134.5	28.3	2.3	57.0
29	364			14				1		0	137.5	34.1	2.3	57.0
30	644			6				4		0	137.0	31.4	2.3	57.0
31	503			18				11		0	120.2	13.5	2.3	57.0
TOTAL	16,091			217				343		3				
AVG.	519			7				11			129.1	45.0	2.0	54.3

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	18,115	225

STEELHEAD
1,912

TABLE 104

TABLE 105

TABLE 105

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

LITTLE GOOSE PROJECT

JUNE 1993

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1	547			12			0	5	0	0	117.5	16.0	2.6	58.0
2	420			7			0	0	0	0	126.3	38.0	2.5	58.0
3	638			12			0	6	0	0	109.3	23.4	2.5	58.0
4	502			24			0	6	0	0	112.2	21.6	2.7	58.0
5	250			5			0	6	0	0	92.8	0.0	2.7	58.0
6	222			12			0	4	0	0	94.9	0.0	2.6	58.0
7	107			7			0	4	0	0	100.7	5.9	2.6	57.0
8	421			7			0	0	0	0	133.6	30.6	2.2	57.0
9	397			11			0	5	4	0	119.4	16.7	2.7	59.0
10	218			1			0	2	2	0	111.6	14.5	3.5	59.0
11	230			6			0	0	0	0	117.4	16.7	3.5	56.0
12	328			7			0	0	0	0	124.4	20.4	1.9	58.0
13	322			2			0	4	0	0	127.6	26.3	2.6	57.0
14	360			4			0	1	4	0	117.3	9.4	2.6	57.0
15	262			2			0	6	11	0	113.9	8.6	2.6	59.0
16		210		5			0	5	6	0	104.4	7.4	2.7	57.0
17		188		4			0	8	5	0	108.9	2.0	2.8	57.0
18		256		1			0	4	0	0	106.3	3.5	3.3	59.0
19		252		2			0	10	1	1	102.5	1.6	4.0	62.0
20		353		4			0	7	8	0	97.6	0.0	5.0	63.0
21		289		4			0	17	13	0	101.2	0.0	3.7	63.0
22		382		8			0	11	2	2	88.9	0.0	4.0	63.0
23		382		5			0	16	4	0	86.3	0.0	4.0	63.0
24		288		13			1	20	0	0	85.7	0.0	4.3	63.0
25		158		4			0	29	19	0	74.2	0.0	4.4	63.0
26		521		4			4	19	8	1	66.7	0.0	4.4	63.0
27		384		11			0	35	17	0	73.0	0.0	4.4	63.0
28		329		8			0	32	5	0	62.9	0.0	3.8	62.0
29		335		6			0	28	14	0	59.9	0.0	3.5	61.0
30		262		7			0	32	25	0	50.2	0.0	3.5	61.0
TOTAL	5,224	4,589		205			5	322	148	4				
AVG.	348	322		7				11	5		99.6	8.8	3.3	59.7

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	23,339	344
SUMMER	4,589	86
TOTALS	27,928	430

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
5	2,234	148	4

TABLE 106

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

LITTLE GOOSE PROJECT
JULY 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	RIVER CONDITIONS DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1		293		11			0	55	46	0	51.2	0.0	4.2	62.0
2		167		6			1	32	44	0	47.9	0.0	4.2	61.0
3		238		4			1	72	40	0	43.7	0.0	4.2	62.0
4		114		6			1	74	68	1	55.2	0.0	4.0	63.0
5		218		4			0	88	59	1	54.1	0.0	3.5	63.0
6		113		1			1	83	52	2	53.2	0.0	3.5	64.0
7		101		2			0	90	58	4	55.4	0.0	3.7	64.0
8		142		5			0	70	100	2	48.0	0.0	4.0	65.0
9		49		4			0	78	64	1	49.1	0.0	4.0	65.0
10		97		2			0	88	76	1	46.1	0.0	4.2	65.0
11		59		0			0	70	32	5	41.8	0.0	4.4	65.0
12		109		2			2	124	70	5	46.7	0.0	4.2	64.0
13		46		0			0	58	115	14	48.8	0.0	4.2	65.0
14		82		2			0	144	254	20	48.1	0.0	4.2	65.0
15		32		0			1	103	215	18	49.8	0.0	4.2	63.0
16		82		5			0	145	143	8	55.9	0.0	4.8	63.0
17		22		0			0	118	103	12	52.0	0.0	4.8	63.0
18		78		4			0	157	196	10	54.9	0.0	5.0	64.0
19		26		4			0	158	193	8	50.7	0.0	5.0	64.0
20		25		0			0	82	119	4	53.7	0.0	5.1	64.0
21		42		5			0	157	89	8	52.5	0.0	4.4	64.0
22		20		2			0	119	126	7	49.1	0.0	3.7	64.0
23		17		0			0	138	62	11	48.1	0.0	4.8	64.0
24		35		0			0	172	121	4	50.8	0.0	4.6	64.0
25		24		1			0	138	89	2	48.9	0.0	5.0	65.0
26		36		0			1	170	124	10	51.3	0.0	5.5	65.0
27		14		0			1	139	158	5	60.0	0.0	5.5	66.0
28		25		0			1	191	156	4	52.4	0.0	5.6	67.0
29		17		0			0	134	181	0	51.4	0.0	5.6	66.0
30		18		0			0	199	97	10	45.3	0.0	5.7	66.0
31		13		1			0	155	52	4	37.9	0.0	5.7	66.0
TOTAL		2,354		71			10	3,601	3,302	181				
AVG.		76		2				116	107	6	50.1	0.0	4.6	64.2

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	23,339	344
SUMMER	6,943	157
TOTAL	30,282	501

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
15	5,835	3,450	185

TABLE 106

TABLE 107

TABLE 107

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

LITTLE GOOSE PROJECT
AUGUST 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK
1		12		0				121	122	1
2		6		0				145	79	4
3		1		0				154	37	0
4		18		1				306	54	4
5		8		0				196	60	1
6		13		0				257	38	10
7		8		2				277	10	8
8		13		0				235	12	4
9		6		0				304	16	5
10		6		0				284	10	1
11		4		0				200	14	2
12		2		0				161	4	6
13		10		0				222	6	5
14		6		0				227	1	7
15		5		1				224	8	7
16			2	0				144	5	1
17			8	0				176	0	1
18			4	0				221	4	4
19			1	0				148	2	5
20			6	0				200	2	7
21			5	0				203	2	4
22			7	0				178	0	6
23			4	0				218	0	6
24			4	0				154	0	7
25			5	1				96	0	1
26			12	1				157	0	1
27			14	0				150	1	1
28			4	0				82	0	0
29			12	0				130	1	4
30			12	1				163	0	8
31			16	0				158	0	4
TOTAL		118	116	7				5,891	488	125
AVG.		8	8					190	16	4

RIVER CONDITIONS

DATE	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1	48.5	0.0	5.7	67.0
2	48.5	0.0	5.7	67.0
3	50.2	0.0	5.7	67.0
4	48.0	0.0	5.6	68.0
5	47.5	0.0	5.1	68.0
6	48.2	0.0	5.1	68.0
7	45.1	0.0	5.0	68.0
8	42.9	0.0	5.0	69.0
9	42.0	0.0	5.4	69.0
10	39.9	0.0	5.4	69.0
11	34.2	0.0	5.4	69.0
12	28.1	0.0	5.4	69.0
13	28.8	0.0	4.8	68.0
14	26.9	0.0	5.0	68.0
15	21.1	0.0	5.0	68.0
16	33.0	0.0	5.4	68.0
17	36.6	0.0	5.4	68.0
18	34.7	0.0	5.4	68.0
19	32.0	0.0	4.0	68.0
20	33.0	0.0	4.8	68.0
21	33.1	0.0	4.8	68.0
22	24.6	0.0	5.0	69.0
23	25.3	0.0	4.0	70.0
24	16.5	0.0	4.0	70.0
25	25.7	0.0	3.7	70.0
26	31.4	0.0	4.7	69.0
27	20.3	0.0	4.8	69.0
28	22.7	0.0	4.8	69.0
29	21.0	0.0	5.6	69.0
30	17.7	0.0	5.6	69.0
31	24.8	0.0	5.4	69.0
AVG.	33.3	0.0	5.1	68.5

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	23,339	344
SUMMER	7,061	161
FALL	116	3
TOTALS	30,516	508

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
15	11,726	3,938	310

TABLE 108

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

LITTLE GOOSE PROJECT
SEPTEMBER 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	KCFS	KCFS	SECCHI	DEG F
1			12	0			0	138		4	22.6	0.0	5.4	69.0
2			13	0			0	152		2	24.1	0.0	5.4	69.0
3			14	0			0	144		6	23.2	0.0	5.4	69.0
4			24	1			0	263		6	22.6	0.0	5.4	69.0
5			12	0			0	174		6	23.1	0.0	5.4	69.0
6			14	0			0	192		2	20.0	0.0	5.4	69.0
7			14	2			0	140		2	24.2	0.0	5.8	70.0
8			16	1			0	217		2	23.7	0.0	3.7	70.0
9			25	0			0	180		5	22.4	0.0	4.2	70.0
10			22	0			0	187		0	24.9	0.0	3.5	70.0
11			25	0			0	211		0	23.5	0.0	4.7	70.0
12			32	2			0	317		0	20.3	0.0	4.7	70.0
13			47	4			0	278		0	17.7	0.0	4.7	70.0
14			40	1			0	343		1	12.9	0.0	4.7	70.0
15			58	1			0	400		0	13.9	0.0	4.5	69.0
16			66	2			0	498		2	12.9	0.0	4.5	69.0
17			58	0			0	401		1	13.0	0.0	5.0	72.0
18			47	1			0	524		0	15.5	0.0	5.0	72.0
19			52	2			0	535		1	17.5	0.0	4.8	72.0
20			35	5			0	517		0	13.0	0.0	4.8	72.0
21			30	1			0	426		0	17.5	0.0	4.8	70.0
22			14	5			0	367		1	17.7	0.0	4.8	70.0
23			29	1			0	510		0	14.8	0.0	4.4	68.0
24			25	2			0	451		1	30.6	0.0	4.4	67.0
25			26	2			0	617		1	19.1	0.0	4.4	67.0
26			35	2			1	749		0	17.5	0.0	4.4	67.0
27			31	4			0	679		0	20.3	0.0	4.2	69.0
28			54	4			0	1018		0	17.3	0.0	4.2	69.0
29			25	2			0	847		2	27.2	0.0	4.8	69.0
30			49	0			0	1295		2	27.7	0.0	5.0	67.0
TOTAL			944	45			1	12,770		47				
AVG.			31	2				426		2	20.0	0.0	4.7	69.4

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	23,339	344
SUMMER	7,061	161
FALL	1,060	48
TOTALS	31,460	553

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
16	24,496	3,938	357

TABLE 108

TABLE 109

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

LITTLE GOOSE PROJECT

OCTOBER 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	KCFS	KCFS	SECCHI	DEG F
1			12	5				1163		0	26.1	0.0	4.5	66.0
2			19	5				1433		0	31.3	0.0	5.0	66.0
3			12	0				1288		0	28.0	0.0	5.0	66.0
4			24	2				2491		1	26.0	0.0	5.1	66.0
5			30	1				1236		4	29.1	0.0	5.1	65.0
6			14	4				1681		0	27.6	0.0	5.3	65.0
7			13	0				1369		1	24.8	0.0	5.6	65.0
8			24	1				1261		4	30.0	0.0	5.6	65.0
9			18	1				1306		0	29.8	0.0	5.6	65.0
10			14	5				1199		1	20.0	0.0	5.8	65.0
11			13	4				932		2	23.3	0.0	5.8	65.0
12			8	0				896		0	24.4	0.0	5.4	64.0
13			5	0				1144		0	26.6	0.0	5.4	64.0
14			7	2				1522		1	25.6	0.0	5.8	64.0
15			7	1				1368		2	32.3	0.0	5.6	64.0
16			10	0				1289		1	30.4	0.0	5.4	64.0
17			2	1				1250		0	26.7	0.0	4.8	64.0
18			5	0				1102		1	23.1	0.0	4.5	63.0
19			8	1				1414		2	23.4	0.0	4.5	63.0
20			6	1				970		0	19.3	0.0	4.8	63.0
21			8	0				1062		2	22.8	0.0	4.5	63.0
22			1	0				769		0	16.4	0.0	4.5	63.0
23			2	0				577		0	20.1	0.0	4.5	63.0
24			4	0				924		4	15.2	0.0	4.5	63.0
25			0	0				426		0	18.1	0.0	4.4	62.0
26			0	0				660		0	19.4	0.0	4.8	61.0
27			2	1				367		1	15.3	0.0	4.8	61.0
28			1	0				319		4	16.6	0.0	5.2	61.0
29			1	0				296		0	17.7	0.0	5.2	61.0
30			5	0				344		0	20.1	0.0	5.2	60.0
31			7	0				299		0	18.9	0.0	5.2	60.0
TOTAL			282	35				32,357		31				
AVG.			9	1				1,044		1	23.5	0.0	5.1	63.5

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	23,339	344
SUMMER	7,061	161
FALL	1,342	83
TOTALS	31,742	588

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
16	56,853	3,938	388

TABLE 110

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

LITTLE GOOSE PROJECT

NOVEMBER 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	KCFS	KCFS	SECCHI	DEG F
1			4	0				268			19.5	0.0	5.8	59.0
2			4	0				145			17.4	0.0	5.4	59.0
3			1	0				272			16.0	0.0	5.4	59.0
4			1	0				310			17.6	0.0	5.4	59.0
5			6	0				241			18.3	0.0	5.8	58.0
6			4	0				210			18.6	0.0	5.8	58.0
7			1	0				176			14.2	0.0	4.8	57.0
8			10	2				107			16.4	0.0	4.6	57.0
9			5	0				94			22.9	0.0	4.6	57.0
10			0	0				107			14.4	0.0	4.6	57.0
11			0	0				68			11.2	0.0	4.6	57.0
12			2	0				103			20.5	0.0	4.6	57.0
13			1	0				90			17.8	0.0	4.6	57.0
14			4	0				66			13.9	0.0	4.6	57.0
15			1	0				60			17.5	0.0	4.6	57.0
16			0	0				78			18.8	0.0	4.6	57.0
17			0	0				44			13.0	0.0	4.6	55.0
18			0	0				40			14.8	0.0	4.7	53.0
19			0	0				49			16.4	0.0	4.7	50.0
20			1	0				62			15.5	0.0	4.7	50.0
21			5	0				55			15.5	0.0	4.5	50.0
22			0	0				48			16.0	0.0	4.5	50.0
23			1	0				48			18.8	0.0	5.0	48.0
24			1	0				18			22.2	0.0	4.8	47.0
25			0	0				58			13.5	0.0	4.8	47.0
26			0	0				18			12.9	0.0	4.6	46.0
27			0	0				29			11.9	0.0	4.6	47.0
28			0	0				7			12.0	0.0	4.6	48.0
29			0	0				8			14.9	0.0	4.6	47.0
30			0	0				8			21.4	0.0	4.6	47.0
TOTAL			52	2				2,887						
AVG.			3					154			16.5	0.0	5.0	57.7

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	23,339	344
SUMMER	7,061	161
FALL	1,394	85
TOTALS	31,794	590

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
16	59,740	3,938	388

TABLE 110

TABLE 111

YEARLY TOTALS OF SALMONIDS COUNTED COUNTED OVER LITTLE GOOSE DAM 1970 - 1981, 1991-93

YEAR	CHINOOK*	STEELHEAD	SOCKEYE	COHO*	TOTALS
1970	72,971	59,640	163	2,480	135,254
1971	61,402	70,013	891	2,701	135,007
1972	64,211	63,638	408	799	129,056
1973	70,605	38,820	192	1,157	110,774
1974	26,787	14,784	124	532	42,227
1975	26,960	15,225	173	697	43,055
1976	32,359	20,894	644	733	54,630
1977	49,176	47,388	574	438	97,576
1978	56,069	24,927	168	307	81,471
1979	12,515	21,049	72	390	34,026
1980	10,605	38,627	88	124	49,444
1981	19,086	38,680	200	120	58,086
*					
1991	13,737	96,830	10	1	110,578
1992	26,746	117,698	12		144,456
1993	32,384	59,740	16		92,140
Total	575,613	727,953	3,735	10,479	1,317,780
1972-1981 10-Yr Avg	36,837	32,403	264	530	70,035
1991-1993 Average	24,289	91,423	13		115,725

*Jacks Included

TABLE 112

MONTHLY COUNT OF CHINOOK SALMON
LITTLE GOOSE DAM; 1970-1981, 1991-93

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS*
1970				6,765	32,616	15,204	11,200	1,529	4,508	965	178	6	72,971
1971				133	16,012	24,096	14,473	707	5,319	606	55	1	61,402
1972				2,226	37,991	5,585	14,747	1,614	1,445	576	27		64,211
1973				17,490	34,570	10,661	4,344	520	2,472	528	19	1	70,605
1974				136	14,224	4,451	6,213	556	749	449	9		26,787
1975				152	14,161	6,487	4,182	540	1,143	295			26,960
1976				612	17,403	9,470	3,575	302	642	355			32,359
1977				16,973	19,936	6,707	4,181	182	842	355			49,176
1978				8,190	29,195	10,676	6,172	717	621	498			56,069
1979				947	4,436	4,396	1,391	254	802	289			12,515
1980				508	5,250	2,560	1,488	191	368	240			10,605
1981				2,798	9,399	3,214	2,217	108	724	626			19,086
**													
1991				469	4,968	5,066	1,949	85	715	394	91		13,737
1992				8,000	11,108	4,932	1,217	94	959	331	105		26,746
1993				2,032	16,308	10,018	2,425	241	989	317	54		32,384
Total				67,431	267,577	123,523	79,774	7,640	22,298	6,824	538	8	575,613
**1972-1981 10-Year Average				5,003	18,657	6,421	4,851	498	981	421			36,837
**1991-1993 Average				3,500	10,795	6,672	1,864	140	888	347	83		24,289

1981 is the last year visual counts were made at Little Goose Project until 1991.
*Jacks included

TABLE 112

TABLE 113

TABLE 113

MONTHLY COUNT OF STEELHEAD

LITTLE GOOSE DAM
1970 - 1981, 1991 - 93

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1970			3,346	4,148	1,762	167	1,485	7,487	27,898	11,931	1,136	280	59,640
1971			586	1,968	1,319	85	1,286	3,337	38,988	19,674	2,161	609	70,013
1972	248	251	943	2,565	720	54	1,209	6,637	25,089	24,323	1,258	341	63,638
1973	133	80	1,029	2,051	829	65	1,249	2,856	16,650	12,420	1,129	319	38,810
1974	191	294	543	1,105	278	5	726	2,203	3,970	4,721	583	165	14,784
1975	96	75	70	732	472	16	390	3,433	6,230	3,711			15,225
1976				1,052	345	133	678	3,556	8,988	6,142			20,894
1977				1,340	272	155	1,951	2,738	18,753	22,179			47,388
1978				1,625	216	20	593	2,617	11,547	8,309			24,927
1979				742	222	16	1,614	2,326	5,278	10,851			21,049
1980				3,063	668	43	821	3,858	15,305	14,869			38,627
1981 **				1,360	424	119	1,740	2,024	11,559	21,454			38,680
1991				804	266	99	1,637	559	31,818	53,734	7,913		96,830
1992				472	189	141	997	2,652	54,585	48,870	9,792		117,698
1993				1,569	343	322	3,601	5,891	12,770	32,357	2,887		59,740
Total	668	700	6,517	24,596	8,325	1,440	19,977	52,174	289,428	295,545	26,859	1,714	727,943
1972-1981 10-Yr Avg			646	1,564	445	63	1,097	3,225	12,337	12,898	990		32,402
1991-1993 Average				948	266	187	2,078	3,034	33,058	44,987	6,864		91,423

** 1981 is the last year visual counts were made at Little Goose Project until 1991.

TABLE 114

MONTHLY TOTALS OF SALMONIDS AND SHAD

COUNTED OVER LOWER GRANITE DAM IN 1993

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CHINOOK*				638	15,627	9,728	3,095	281	736	300	41		30,446
STEELHEAD			3,232	8,118	364	191	2,621	5,298	10,374	32,618	3,702	181	66,699
SOCKEYE						1	10		1				12
COHO													
PINK													
MINI-JACK**					2	2	20	53	31	9	1		118
TOTAL			3,232	8,756	15,991	9,920	5,726	5,579	11,111	32,918	3,743	181	97,275
SHAD						19	745	163					927

*Jacks included
**Salmonid fish under 12 inches in length

TABLE 114

TABLE 115

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER GRANITE PROJECT

MARCH 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	KCFS	KCFS	SECCHI	DEG F
1								1			19.0	0.0	5.0	35.0
2								0			23.1	0.0	4.6	35.0
3								1			22.1	0.0	4.6	35.0
4								2			23.1	0.0	3.6	35.0
5								2			18.6	0.0	4.3	35.0
6								10			21.3	0.0	4.3	35.0
7								11			22.1	0.0	4.3	35.0
8								1			25.5	0.0	4.3	36.0
9								10			26.5	0.0	4.3	36.0
10								16			25.5	0.0	4.4	37.0
11								14			27.9	0.0	4.4	38.0
12								53			25.5	0.0	4.4	38.0
13								102			29.0	0.0	4.4	38.0
14								74			29.3	0.0	4.4	38.0
15								112			32.3	0.0	3.5	41.0
16								72			34.6	0.0	2.8	41.0
17								85			38.0	0.0	2.8	41.0
18								41			31.9	0.0	2.8	41.0
19								166			52.5	0.0	3.2	41.0
20								197			69.1	0.0	1.0	41.0
21								240			72.7	0.0	1.0	42.0
22								175			75.1	0.0	1.0	43.0
23								188			72.7	0.0	1.2	44.0
24								156			78.8	0.0	1.2	42.0
25								198			93.9	0.0	1.5	41.0
26								246			91.9	0.0	1.5	43.0
27								234			91.3	0.0	1.8	44.0
28								266			89.7	0.0	1.8	44.0
29								206			82.2	0.0	1.8	43.0
30								210			76.7	0.0	1.8	43.0
31								143			68.5	0.0	2.3	46.0
TOTAL								3,232						
AVG.								18			48.1	0.0	3.0	39.6

TABLE 116

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER GRANITE PROJECT

APRIL 1993

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1	0							418			62.1	0.0	2.3	46.0
2	0							402			61.7	0.0	2.3	46.0
3	0							401			67.6	0.0	2.2	47.0
4	0							546			70.9	0.0	2.0	47.0
5	0							475			82.0	0.0	2.0	47.0
6	0							498			91.8	0.0	1.0	47.0
7	0							438			79.6	0.0	1.0	46.0
8	0							370			69.2	0.0	1.0	46.0
9	0							536			68.8	0.0	1.2	47.0
10	0							511			68.4	0.0	1.2	47.0
11	0							488			69.3	0.0	1.2	47.0
12	0							389			66.0	0.0	2.0	47.0
13	0							247			65.1	0.0	2.0	47.0
14	0							264			58.8	0.0	2.2	49.0
15	0							290			61.4	0.0	1.2	49.0
16	0							264			60.5	0.0	2.0	49.0
17	1							194			60.1	0.0	2.0	49.0
18	0							258			61.7	0.0	2.0	49.0
19	0							198			70.0	0.0	2.0	48.0
20	1							157			61.7	0.0	2.0	48.0
21	1							158			64.4	0.0	2.4	48.0
22	2							107			62.4	0.0	2.4	49.0
23	2							115			60.2	0.0	2.4	49.0
24	0							71			63.1	0.0	2.6	50.0
25	8							74			61.9	0.0	2.5	50.0
26	6							34			68.4	0.0	2.5	49.0
27	17							90			68.4	0.0	2.5	50.0
28	67							61			65.8	0.0	2.5	50.0
29	232							35			64.9	0.0	2.0	50.0
30	301							29			72.2	0.0	2.0	51.0
TOTAL	638							8,118						
AVG.	21							271			66.9	0.0	2.0	48.1

TOTALS TO DATE

CHINOOK ADULT	CHINOOK JACK
638	0

STEELHEAD
11,350

TABLE 116

TABLE 117

TABLE 117

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER GRANITE PROJECT
MAY 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	KCFS	KCFS	SECCHI	DEG F
1	511			0				36		0	82.2	0.0	2.2	51.0
2	505			0				30		0	75.9	0.0	2.2	51.0
3	599			0				32		0	79.9	0.0	2.2	51.0
4	462			0				26		0	98.0	0.0	2.2	51.0
5	378			4				25		0	102.7	0.0	2.2	51.0
6	559			2				11		0	99.5	0.0	0.5	51.0
7	779			0				23		0	103.5	0.0	0.5	50.0
8	872			2				10		0	104.7	0.0	2.0	50.0
9	899			5				20		1	101.3	0.0	2.0	50.0
10	264			0				14		0	92.6	0.0	2.0	52.0
11	520			4				20		0	91.9	0.0	2.0	54.0
12	941			0				18		0	103.7	0.0	2.6	55.0
13	1421			6				8		0	132.5	21.1	2.6	55.0
14	1141			1				16		0	158.7	47.3	2.6	55.0
15	960			5				2		0	173.0	61.1	2.4	54.0
16	467			2				11		0	180.6	71.0	2.4	54.0
17	222			0				2		0	175.6	81.2	2.4	53.0
18	245			2				6		0	170.3	74.2	2.4	54.0
19	359			1				7		0	176.9	78.4	2.6	54.0
20	144			0				6		0	178.9	65.3	2.6	54.0
21	176			1				2		0	180.3	65.1	1.5	54.0
22	128			2				4		0	181.6	67.0	1.8	54.0
23	86			4				5		0	165.2	54.2	1.5	54.0
24	127			4				0		0	136.7	29.4	1.5	53.0
25	136			2				4		0	124.0	2.1	2.0	54.0
26	316			7				5		0	122.3	9.6	2.0	55.0
27	247			7				2		0	149.6	40.3	2.6	55.0
28	394			6				5		0	140.2	19.8	2.0	57.0
29	880			22				2		1	138.8	13.1	2.0	57.0
30	382			5				11		0	138.0	9.2	2.0	56.0
31	408			5				1		0	115.4	0.0	2.0	56.0
TOTAL	15,528			99				364		2				
AVG.	501			3				12			131.4	26.1	2.0	53.4

TOTALS TO DATE		CHINOOK ADULT	CHINOOK JACK	STEELHEAD	MINI JCK
	SPRING	16,166	99	11,714	2

TABLE 118

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER GRANITE PROJECT
JUNE 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	KCFS	KCFS	SECCHI	DEG F
1	371			8			0	0	0	0	117.5	0.0	2.0	57.0
2	412			10			0	11	0	0	122.1	10.0	2.4	56.0
3	469			2			0	1	0	0	110.9	14.7	2.4	56.0
4	574			11			0	2	0	0	110.0	3.6	2.4	56.0
5	293			6			0	0	0	0	102.4	0.0	2.4	56.0
6	343			5			0	0	0	0	100.9	0.0	2.4	56.0
7	119			5			0	1	0	0	104.0	0.0	3.0	56.0
8	190			10			0	2	0	0	132.1	8.8	2.5	56.0
9	64			4			0	0	0	0	116.2	0.0	2.6	56.0
10	128			2			0	2	0	0	110.2	0.0	2.4	57.0
11	366			5			0	5	0	0	115.6	0.0	3.0	55.0
12	289			2			0	1	0	0	124.4	0.0	3.0	56.0
13	228			5			0	2	0	0	124.0	0.0	2.8	55.0
14	138			0			0	0	0	0	115.5	0.0	2.8	56.0
15	280			1			0	4	0	0	112.9	1.0	2.5	56.0
16	259			4			0	1	1	0	104.1	0.0	2.6	58.0
17	346			4			0	4	1	0	109.8	0.0	2.8	58.0
18		437		2			0	7	0	0	106.1	0.0	2.8	59.0
19		286		2			0	6	1	0	101.0	0.0	2.7	60.0
20		276		4			0	4	1	0	95.4	0.0	2.8	60.0
21		116		0			0	4	0	1	85.2	0.0	3.6	61.0
22		606		2			0	18	1	0	86.9	0.0	3.6	61.0
23		228		2			0	11	2	0	87.0	0.0	3.8	60.0
24		432		11			0	6	0	0	83.9	0.0	3.8	60.0
25		607		7			0	8	1	0	73.2	0.0	3.8	60.0
26		401		10			0	11	0	1	67.9	0.0	3.8	61.0
27		444		2			1	17	4	0	70.6	0.0	3.8	60.0
28		344		5			0	22	1	0	63.4	0.0	3.8	60.0
29		305		7			0	18	0	0	59.7	0.0	3.8	60.0
30		235		4			0	23	6	0	51.0	0.0	3.5	62.0
TOTAL	4,869	4,717		142			1	191	19	2				
AVG.	286	363		5				6			98.8	1.3	3.0	58.0

TOTALS TO DATE		CHINOOK ADULT	CHINOOK JACK
	SPRING	21,035	183
	SUMMER	4,717	58
TOTAL		25,752	241

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
1	11,905	19	4

TABLE 118

TABLE 119

TABLE 119

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER GRANITE PROJECT
JULY 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	KCFS	KCFS	SECCHI	DEG F
1		394		5			0	22	4	0	50.4	0.0	3.8	62.0
2		276		6			0	30	14	0	47.8	0.0	4.0	62.0
3		252		11			0	31	10	0	44.7	0.0	4.0	62.0
4		94		2			0	30	11	0	54.6	0.0	4.0	63.0
5		296		6			1	49	28	1	54.1	0.0	4.0	63.0
6		170		4			0	56	13	0	54.6	0.0	4.0	63.0
7		166		4			2	47	5	0	54.5	0.0	4.0	59.0
8		106		5			0	48	2	1	48.6	0.0	4.0	58.0
9		110		1			0	65	19	0	48.4	0.0	4.0	59.0
10		146		2			0	49	12	0	46.0	0.0	5.0	60.0
11		74		5			0	66	14	0	42.5	0.0	5.0	60.0
12		96		0			0	120	11	0	46.6	0.0	5.0	60.0
13		67		0			2	67	7	1	49.8	0.0	5.0	62.0
14		113		0			0	88	24	2	48.9	0.0	5.0	61.0
15		56		4			0	59	18	2	50.1	0.0	5.0	61.0
16		103		0			1	94	46	0	54.5	0.0	5.0	61.0
17		29		2			0	77	29	0	52.8	0.0	5.0	60.0
18		56		1			0	60	37	0	54.7	0.0	5.0	60.0
19		46		1			0	74	19	0	51.4	0.0	5.0	60.0
20		54		2			1	86	73	0	53.8	0.0	5.0	60.0
21		43		0			0	98	26	1	51.2	0.0	5.0	62.0
22		55		2			0	131	34	0	49.0	0.0	5.0	62.0
23		48		0			0	96	31	1	48.2	0.0	5.0	62.0
24		18		2			0	124	61	2	50.7	0.0	5.0	62.0
25		28		0			0	100	92	2	48.9	0.0	5.0	63.0
26		20		1			1	144	30	2	52.5	0.0	5.0	63.0
27		22		1			0	145	18	0	58.6	0.0	5.0	63.0
28		20		0			1	143	8	4	52.9	0.0	5.0	65.0
29		12		0			0	106	32	0	50.4	0.0	5.0	65.0
30		38		0			1	203	6	0	44.0	0.0	5.0	65.0
31		19		1			0	113	11	1	38.6	0.0	5.0	65.0
TOTAL		3,027		68			10	2,621	745	20				
AVG.		98		2				85	24		50.1	0.0	4.7	61.7

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	21,035	183
SUMMER	7,744	126
TOTAL	28,779	309

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
11	14,526	764	24

TABLE 120

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER GRANITE PROJECT
AUGUST 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	KCFS	KCFS	SECCHI	DEG F
1		23		1				167	1	4	48.0	0.0	5.0	65.0
2		8		0				127	19	2	48.9	0.0	5.0	65.0
3		12		0				167	13	2	50.1	0.0	5.0	66.0
4		6		0				143	11	0	48.1	0.0	5.0	64.0
5		11		0				132	35	0	47.3	0.0	5.0	64.0
6		7		0				174	7	1	48.4	0.0	5.0	64.0
7		13		0				188	8	4	45.4	0.0	5.0	64.0
8		7		0				200	0	2	42.8	0.0	5.0	66.0
9		12		1				158	1	7	41.9	0.0	5.0	66.0
10		6		0				120	2	6	42.1	0.0	5.0	66.0
11		5		0				125	11	1	42.4	0.0	5.0	64.0
12		1		1				206	10	2	34.5	0.0	5.0	64.0
13		5		0				295	6	0	30.7	0.0	5.0	64.0
14		22		0				258	4	2	26.6	0.0	5.0	65.0
15		0		0				100	6	2	21.4	0.0	5.0	65.0
16		1		0				60	4	0	22.4	0.0	5.0	65.0
17		6		1				145	2	4	30.9	0.0	5.0	65.0
18			11	0				175	2	1	31.6	0.0	5.0	69.0
19			34	0				347	0	4	31.4	0.0	5.0	69.0
20			13	0				217	7	0	34.4	0.0	5.0	69.0
21			14	0				265	6	5	32.3	0.0	5.0	67.0
22			8	0				240	1	0	23.9	0.0	5.0	67.0
23			4	0				198	4	0	24.3	0.0	5.0	67.0
24			5	0				175	0	1	25.8	0.0	5.0	68.0
25			7	0				264	1	1	24.2	0.0	5.0	68.0
26			6	0				131	1	0	24.5	0.0	5.0	68.0
27			10	0				119	0	2	21.0	0.0	5.0	68.0
28			2	0				115	1	0	23.5	0.0	5.0	68.0
29			7	0				120	0	0	20.3	0.0	5.0	69.0
30			6	0				64	0	0	18.3	0.0	5.0	69.0
31			5	0				103	0	0	23.9	0.0	5.0	69.0
TOTAL		145	132	4				5,298	163	53				
AVG		9	9					171	5	2	33.3	0.0	5.0	66.4

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	21,035	183
SUMMER	7,889	130
FALL	132	0
TOTAL	29,056	313

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
11	19,824	927	77

TABLE 120

TABLE 121

TABLE 121

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER GRANITE PROJECT
SEPTEMBER 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	RIVER CONDITIONS DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
			FISH COUNTS											
1			10	0			0	85		2	22.0	0.0	5.0	66.0
2			10	0			0	133		0	23.9	0.0	5.0	66.0
3			7	0			0	108		2	22.7	0.0	5.0	65.0
4			12	0			0	154		0	21.8	0.0	5.0	69.0
5			10	1			0	112		0	22.9	0.0	5.0	69.0
6			23	0			0	191		4	20.7	0.0	5.0	66.0
7			10	0			0	122		0	23.3	0.0	5.0	66.0
8			13	0			0	157		1	23.2	0.0	4.8	66.0
9			14	0			0	88		0	24.0	0.0	4.5	67.0
10			13	1			0	168		0	23.3	0.0	4.8	68.0
11			10	0			0	108		0	22.8	0.0	4.9	67.0
12			25	1			0	391		0	20.7	0.0	4.9	67.0
13			23	0			0	180		0	16.5	0.0	4.9	67.0
14			31	0			0	242		1	14.0	0.0	5.0	67.0
15			14	0			0	163		1	14.0	0.0	5.0	67.0
16			55	0			0	402		0	13.3	0.0	5.0	66.0
17			47	0			0	390		2	13.8	0.0	5.0	66.0
18			53	1			0	511		0	14.9	0.0	4.8	66.0
19			50	2			0	540		0	16.5	0.0	5.0	66.0
20			47	6			0	644		1	14.0	0.0	4.9	66.0
21			35	0			0	443		0	17.4	0.0	4.8	64.0
22			24	5			0	432		1	16.3	0.0	4.9	63.0
23			24	0			0	367		5	17.8	0.0	4.9	63.0
24			34	1			0	569		2	27.8	0.0	4.9	63.0
25			24	1			0	462		2	19.6	0.0	4.8	64.0
26			22	1			0	504		0	22.6	0.0	4.8	64.0
27			14	0			0	467		2	24.5	0.0	4.8	64.0
28			20	0			1	683		4	25.8	0.0	5.0	64.0
29			12	1			0	510		0	29.0	0.0	5.0	61.0
30			28	1			0	1048		1	29.1	0.0	5.0	61.0
TOTAL			714	22			1	10,374		31				
AVG.			30	1				346			20.6	0.0	4.9	65.5

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	21,035	183
SUMMER	7,889	130
FALL	846	22
TOTAL	29,770	335

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
12	30,198	927	108

TABLE 122

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER GRANITE PROJECT
OCTOBER 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	RIVER CONDITIONS DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1			38	1				1103		0	26.1	0.0	5.0	61.0
2			31	0				1126		1	31.4	0.0	5.0	61.0
3			17	2				954		2	28.4	0.0	5.0	61.0
4			34	4				1384		0	25.0	0.0	5.0	61.0
5			10	1				888		0	30.0	0.0	5.0	61.0
6			20	2				1930		0	26.3	0.0	5.0	63.0
7			18	4				1694		0	25.2	0.0	5.0	62.0
8			10	0				1798		0	29.7	0.0	5.0	62.0
9			13	0				1230		0	28.6	0.0	5.0	62.0
10			8	0				1402		0	20.6	0.0	5.0	62.0
11			12	1				1092		0	22.5	0.0	5.0	62.0
12			11	0				1139		1	25.4	0.0	5.0	62.0
13			0	0				578		0	25.0	0.0	4.8	62.0
14			5	0				913		0	24.5	0.0	5.0	62.0
15			6	0				1364		0	32.1	0.0	5.0	62.0
16			4	1				1207		1	30.0	0.0	5.0	62.0
17			2	0				1068		0	26.6	0.0	5.0	59.0
18			4	0				1478		0	23.1	0.0	5.0	59.0
19			2	0				1282		0	22.8	0.0	5.0	59.0
20			2	0				1356		1	18.4	0.0	5.0	59.0
21			7	0				836		2	23.6	0.0	5.0	59.0
22			2	0				1520		0	16.1	0.0	5.0	58.0
23			4	0				838		0	20.3	0.0	5.0	58.0
24			1	1				1072		1	15.1	0.0	5.0	59.0
25			4	0				473		0	18.0	0.0	5.0	59.0
26			7	0				718		0	19.6	0.0	5.0	59.0
27			4	0				475		0	15.2	0.0	5.0	57.0
28			0	0				382		0	16.3	0.0	5.0	57.0
29			2	0				478		0	17.4	0.0	5.0	56.0
30			4	0				558		0	19.5	0.0	5.0	56.0
31			1	0				282		0	18.5	0.0	5.0	56.0
TOTAL			283	17				32,618		9				
AVG.			9					1,052			23.3	0.0	5.0	59.9

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	21,035	183
SUMMER	7,889	130
FALL	1,129	39
TOTAL	30,053	352

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
12	62,816	927	117

TABLE 122

TABLE 123

TABLE 123

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER GRANITE PROJECT

NOVEMBER 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	KCFS	KCFS	SECCHI	DEG F
1			6					323		0	18.4	0.0	5.0	54.0
2			2					145		0	17.3	0.0	5.0	54.0
3			2					227		0	16.5	0.0	5.0	54.0
4			4					338		0	17.7	0.0	5.0	53.0
5			4					294		0	17.8	0.0	5.0	53.0
6			1					214		0	17.7	0.0	5.0	52.0
7			2					338		0	13.9	0.0	5.0	52.0
8			1					166		0	16.2	0.0	5.0	52.0
9			2					107		0	20.9	0.0	5.0	50.0
10			2					132		0	15.0	0.0	5.0	50.0
11			4					271		0	12.4	0.0	5.0	50.0
12			2					101		0	19.6	0.0	5.0	49.0
13			0					208		0	18.0	0.0	5.0	48.0
14			1					66		0	14.1	0.0	5.0	48.0
15			2					136		0	17.0	0.0	5.0	48.0
16			2					104		0	18.0	0.0	5.0	48.0
17			2					66		0	13.0	0.0	5.0	48.0
18			1					31		1	16.5	0.0	5.0	47.0
19			0					91		0	16.7	0.0	5.0	47.0
20			0					44		0	15.9	0.0	5.0	46.0
21			0					108		0	16.1	0.0	5.0	46.0
22			1					28		0	15.5	0.0	5.0	45.0
23			-1					22		0	17.6	0.0	5.0	45.0
24			0					30		0	19.4	0.0	5.0	45.0
25			1					61		0	13.2	0.0	5.0	43.0
26			0					17		0	14.7	0.0	5.0	43.0
27			0					11		0	11.7	0.0	5.0	43.0
28			0					14		0	12.1	0.0	5.0	43.0
29			0					5		0	16.4	0.0	5.0	43.0
30			0					4		0	23.6	0.0	5.0	43.0
TOTAL			41					3,702		1				
AVG.			1					123			16.4	0.0	5.0	48.1

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	21,035	183
SUMMER	7,889	130
FALL	1,170	39
TOTAL	30,094	352

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
12	66,518	927	118

TABLE 124

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

LOWER GRANITE PROJECT
DECEMBER 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	KCFS	KCFS	SECCHI	DEG F
1			0	0				18			15.1	0.0	5.0	43.0
2			0	0				13			17.7	0.0	5.0	43.0
3			0	0				5			19.1	0.0	5.0	42.0
4			0	0				12			16.9	0.0	5.0	42.0
5			0	0				11			18.1	0.0	5.0	41.0
6			0	0				4			16.7	0.0	5.0	40.0
7			0	0				2			18.4	0.0	5.0	41.0
8			0	0				6			16.2	0.0	5.0	39.0
9			0	0				1			17.1	0.0	5.0	39.0
10			0	0				24			17.4	0.0	5.0	41.0
11			0	0				23			18.1	0.0	5.0	41.0
12			0	0				16			16.1	0.0	5.0	41.0
13			0	0				19			19.3	0.0	5.0	41.0
14			0	0				16			17.6	0.0	5.0	41.0
15			0	0				11			16.1	0.0	5.0	41.0
16														
17														
18														
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														
31														
TOTAL								181						
AVG.								12			17.3	0.0	5.0	41.1

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	21,035	183
SUMMER	7,889	130
FALL	1,170	39
TOTAL	30,094	352

SOCKEYE	STEELHEAD	SHAD	MINI-JCK
12	66,699	927	118

TABLE 124

TABLE 125

TABLE 125

YEARLY TOTALS OF SALMONIDS COUNTED COUNTED OVER LOWER GRANITE DAM 1975 - 1993

YEAR	CHINOOK*	STEELHEAD	SOCKEYE	COHO*	TOTALS
1975	28,460	17,311	209	921	46,901
1976	31,667	23,017	531	900	56,115
1977	49,123	53,037	458	268	102,886
1978	54,246	30,068	123	152	84,589
1979	12,548	25,046	25	158	37,777
1980	10,986	40,454	96	43	51,579
1981	19,198	40,234	218	17	59,667
1982	19,476	72,840	211	59	92,586
1983	16,200	86,234	122	51	102,607
1984	16,517	98,923	49		115,489
1985	36,567	118,463	35	2	155,067
1986	43,023	134,519	15	1	177,558
1987	37,677	70,151	29		107,857
1988	37,882	87,040	23		124,945
1989	19,557	132,579	2		152,138
1990	23,345	56,859	0		80,204
1991	13,618	100,381	8		114,007
1992	26,193	121,459	15		147,667
1993	30,446	66,699	12		97,157
Total	526,729	1,375,314	2,181	2,572	1,906,796
10-Year Average	28,483	98,707	19		127,209

*Jacks Included

TABLE 126

MONTHLY COUNT OF CHINOOK SALMON
LOWER GRANITE; 1975-1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS*
1975				1	11,693	8,722	4,854	1,183	1,462	474	71		28,460
1976				149	14,358	10,438	5,074	428	605	535	80		31,667
1977				12,824	22,892	6,718	4,622	203	961	776	125	2	49,123
1978				3,329	29,983	11,464	6,976	1,234	698	519	42	1	54,246
1979				234	4,461	4,455	1,794	256	1,003	302	43		12,548
1980				328	5,227	2,558	1,916	241	345	343	28		10,986
1981				1,380	10,730	2,713	2,561	92	1,008	677	37		19,198
1982				42	9,121	4,650	3,217	329	1,399	650	62	6	19,476
1983				113	7,676	3,551	3,167	234	828	552	79		16,200
1984				134	4,915	5,602	4,274	303	719	522	48		16,517
1985				1,429	20,384	10,466	1,971	281	1,285	697	53	1	36,567
1986				3,623	26,434	7,472	2,796	137	1,250	1,136	172	3	43,023
1987			1	4,836	22,217	5,578	3,532	216	664	508	116	9	37,677
1988				4,722	20,615	8,771	2,654	212	429	371	104	4	37,882
1989				577	10,597	5,771	1,511	225	478	338	60		19,557
1990				2,808	12,925	4,902	2,094	64	248	264	40		23,345
1991				250	4,698	5,177	2,397	72	524	465	35		13,618
1992				6,205	12,170	4,783	1,998	110	576	288	63		26,193
1993				638	15,627	9,728	3,095	281	736	300	41		30,446
Total			1	43,622	266,723	123,519	60,503	6,101	15,218	9,717	1,299	26	526,729
10-Year Average				2,522	15,058	6,825	2,632	190	691	489	73	4	28,483

*Jacks included

TABLE 126

TABLE 127

MONTHLY COUNT OF STEELHEAD

LOWER GRANITE DAM
1975 - 1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1975				1,724	1,065	104	102	3,337	6,396	3,584	703	296	17,311
1976	173	21	181	1,120	575	120	527	3,816	8,720	6,837	860	67	23,017
1977		9	142	1,235	229	59	1,538	2,652	16,296	27,492	2,950	435	53,037
1978	354	716	2,276	2,009	252	9	478	2,721	10,829	9,528	788	108	30,068
1979	12	44	802	962	192	16	1,197	2,602	5,143	11,323	2,487	266	25,046
1980			1,149	3,403	1,172	36	517	3,378	13,291	15,455	2,053		40,454
1981			1,052	1,610	604	98	1,422	1,609	9,391	20,714	3,096	638	40,234
1982			1,778	2,202	1,472	66	817	9,118	20,219	32,850	3,945	373	72,840
1983			3,336	1,416	244	7	1,676	8,899	32,063	34,028	4,425	140	86,234
1984			2,647	3,914	961	40	1,886	3,458	34,709	46,445	4,841	22	98,923
1985			2,474	9,686	856	146	706	5,027	63,074	33,137	3,230	127	118,463
1986			8,179	2,358	163	62	3,031	2,323	39,780	71,426	6,671	526	134,519
1987			2,962	2,951	251	51	783	2,342	16,644	34,235	8,809	1,123	70,151
1988			2,108	4,562	623	173	768	1,806	27,071	43,066	6,307	556	87,040
1989			2,172	4,789	429	99	2,026	4,199	49,256	55,766	13,308	535	132,579
1990			2,728	3,329	174	27	444	364	8,250	26,117	13,872	1,554	56,859
1991			2,422	3,530	285	43	1,009	454	24,610	58,803	7,892	1,333	100,381
1992			1,925	2,789	194	76	725	2,009	47,058	56,284	9,709	690	121,459
1993			3,232	8,118	364	191	2,621	5,298	10,374	32,618	3,702	181	66,699
Total	539	790	41,565	61,707	10,105	1,423	22,273	65,412	443,174	619,708	99,648	8,970	1,375,314
10-Yr Average			3,085	4,603	430	91	1,400	2,728	32,083	45,790	7,834	665	98,707

MID - COLUMBIA RIVER TABLES

TABLE 128

MONTHLY TOTALS OF SALMONIDS AND SHAD

COUNTED OVER PRIEST RAPIDS DAM IN 1993

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CHINOOK*				2,792	23,376	7,463	11,115	4,064	4,768	916	72		54,566
STEELHEAD				31	41	130	992	1,770	2,016	472	41		5,493
SOCKEYE					26	14,546	66,956	1,396					82,924
COHO										1			1
PINK													
MINI-JACK**													
TOTAL				2,823	23,443	22,139	79,063	7,230	6,784	1,389	113		142,984
SHAD					22	2,239	12,199	983					15,443

*Jacks included
**Salmonid fish under 12 inches in length

TABLE 128

TABLE 129

TABLE 129

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

PRIEST RAPIDS PROJECT

APRIL 1993

	FISH COUNTS									RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO				DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	KCFS	KCFS	SECCH	DEG F
1	BEGIN COUNTING 16 APRIL									58.9	0.0		
2										59.0	0.0		
3										58.1	0.0		
4										58.0	0.0		
5										56.9	0.0		
6										56.9	0.0		
7										58.2	0.0		
8										56.2	0.0		
9										54.5	0.0		
10										55.3	0.0		
11										55.1	0.0		
12										55.0	0.0		
13										55.0	0.0		
14										56.2	0.0		
15								0		55.2	0.0		
16	4			0				1		55.3	0.0	11.3	45.0
17	0			0				3		56.4	0.0	9.7	46.0
18	0			0				4		57.9	0.0	9.3	46.0
19	4			0				1		57.7	0.0	10.8	45.0
20	2			0				0		57.1	0.0	9.7	45.0
21	4			0				3		56.9	0.0	10.0	46.0
22	1			0				2		57.3	0.0	8.0	47.0
23	15			0				2		56.7	0.0	8.3	46.0
24	12			1				5		57.4	0.0	8.2	46.0
25	37			0				4		57.4	0.0	8.5	47.0
26	40			0				1		57.2	0.0	10.1	48.0
27	78			0				2		57.4	0.0	9.7	47.0
28	111			0				2		57.8	3.5	10.1	47.0
29	1329			0				0		76.3	13.7	10.7	47.0
30	1154			0				1		137.2	24.2	10.9	48.0
TOTAL	2,791			1				31					
AVG.	186							2		60.2	1.4	9.7	46.4

TABLE 130

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

PRIEST RAPIDS PROJECT

MAY 1993

	FISH COUNTS									RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO				DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	KCFS	KCFS	SECCH	DEG F
1	725			-1			0	0	0	60.7	10.9	7.8	47.0
2	1225			0			0	8	0	60.8	9.4	7.7	49.0
3	794			0			0	2	0	78.4	11.3	8.2	47.0
4	401			0			0	2	0	86.4	10.7	6.5	47.0
5	536			0			0	1	0	90.9	14.6	8.0	48.0
6	1968			0			0	5	0	111.1	15.7	8.2	48.0
7	840			0			0	2	0	109.9	13.1	9.8	47.0
8	1576			0			0	0	0	126.3	16.7	11.3	47.0
9	4531			0			0	0	0	99.2	15.1	12.0	47.0
10	176			0			0	1	0	146.0	24.6	8.8	48.0
11	84			0			0	0	0	142.1	26.2	9.0	48.0
12	90			0			0	4	0	153.1	34.1	9.2	49.0
13	1542			0			0	1	0	140.9	27.5	9.2	49.0
14	584			0			0	4	0	141.2	32.0	9.0	50.0
15	985			0			0	0	0	142.7	56.1	10.5	51.0
16	397			0			0	2	1	207.2	123.0	8.0	50.0
17	161			0			2	1	0	193.6	86.1	9.6	50.0
18	383			0			2	0	0	202.9	81.3	8.6	51.0
19	597			0			1	0	7	198.0	72.5	6.4	52.0
20	396			0			1	4	2	198.2	69.6	4.2	52.0
21	513			0			0	0	4	207.3	80.6	4.4	52.0
22	726			0			2	1	1	196.1	90.6	4.9	52.0
23	630			1			0	1	2	203.2	98.9	5.0	50.0
24	269			2			0	0	0	197.6	74.0	5.0	52.0
25	610			0			2	1	1	193.9	72.9	5.0	53.0
26	362			2			2	1	1	187.4	64.9	6.0	53.0
27	420			6			9	0	0	167.0	46.3	7.2	53.0
28	749			4			1	0	0	146.7	29.6	5.6	54.0
29	250			0			0	0	0	152.8	67.4	6.0	53.0
30	636			4			2	0	1	149.7	42.9	6.0	53.0
31	201			1			2	0	2	146.2	39.0	8.8	54.0
TOTAL	23,357			19			26	41	22				
AVG.	753							1		149.6	47.0	7.6	50.2

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	26,148	20

SOCKEYE	STEELHEAD	SHAD
26	72	22

TABLE 130

TABLE 131

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

PRIEST RAPIDS PROJECT

JUNE 1993

	FISH COUNTS									RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO				DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	KCFS	KCFS	SECCH	DEG F
1	73			1			4	1	0	145.9	29.6	8.5	54.0
2	124			1			8	0	1	162.4	39.7	9.0	55.0
3	205			1			4	0	2	169.2	42.1	6.8	53.0
4	158			0			4	2	7	161.5	35.1	5.8	53.0
5	258			2			6	1	23	146.4	17.2	8.5	56.0
6	1,156			1			24	4	12	122.2	0.0	10.1	56.0
7	159			3			12	1	32	128.7	0.0	7.6	57.0
8	77			0			13	2	49	138.2	0.0	7.7	54.0
9	66			1			6	1	11	134.9	0.0	7.3	54.0
10	168			1			2	1	24	127.6	0.0	7.8	57.0
11	298			4			5	0	32	143.0	7.3	7.3	55.0
12	158			1			22	0	36	125.9	0.3	9.5	57.0
13	253			5			9	2	14	87.8	0.0	9.9	57.0
14		100		0			15	6	12	94.1	0.0	8.9	58.0
15		150		2			10	3	26	74.1	0.0	9.1	58.0
16		96		2			27	6	47	97.2	0.0	9.3	58.0
17		170		12			24	4	43	109.8	0.0	9.5	58.0
18		183		0			75	7	70	105.0	0.0	9.7	58.0
19		138		10			78	2	81	96.8	0.0	8.0	60.0
20		199		1			150	0	85	84.5	0.0	8.5	60.0
21		142		4			144	5	78	105.9	0.0	7.0	61.0
22		156		0			225	5	84	112.7	0.0	7.0	61.0
23		229		2			507	9	79	116.1	0.0	8.0	61.0
24		147		4			597	3	135	117.0	0.0	9.4	61.0
25		343		1			1271	17	130	98.6	0.0	11.9	61.0
26		375		11			1818	8	208	97.5	0.0	10.4	61.0
27		529		15			2347	11	176	94.1	0.0	8.7	61.0
28		369		4			2245	9	240	110.3	0.0	8.0	61.0
29		402		5			2642	9	197	119.6	0.0	7.5	61.0
30		476		12			2252	11	305	139.3	6.1	8.7	61.0
TOTAL	3,153	4,204		106			14,546	130	2,239				
AVG.	243	247		4			485	4	75	118.9	5.9	8.5	57.9

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	29,301	41
SUMMER	4,204	85
TOTAL	33,505	126

SOCKEYE	STEELHEAD	SHAD
14,572	202	2,261

TABLE 132

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

PRIEST RAPIDS PROJECT
JULY 1993

DATE	FISH COUNTS: CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	RIVER CONDITIONS: DISCH KCFS	SPILL KCFS	TURBIDITY SECCH	TURBIDITY DEG F
1		441		30			2560	18	261	153.9	0.0	10.2	61.0
2		423		17			2796	16	223	144.9	0.0	8.2	61.0
3		438		24			2920	19	335	113.9	0.0	8.1	61.0
4		684		58			4677	24	587	89.6	0.0	9.2	61.0
5		284		36			2816	20	338	112.7	0.0	9.5	61.0
6		481		50			4477	14	317	145.6	0.0	8.2	61.0
7		613		29			5028	20	683	113.0	0.0	11.1	61.0
8		389		12			4098	16	796	121.2	0.0	9.3	62.0
9		609		26			3870	24	1082	112.1	0.0	8.9	62.0
10		558		26			4501	53	1229	99.0	0.0	9.3	62.0
11		438		31			3751	30	1001	107.1	0.0	9.0	62.0
12		319		16			2773	26	555	118.2	0.0	8.2	63.0
13		328		12			2284	32	758	106.6	0.0	8.5	63.0
14		135		6			1611	14	348	113.9	0.0	9.0	63.0
15		258		28			1645	31	346	126.9	0.0	9.0	62.0
16		496		62			2707	50	244	120.9	6.0	7.5	62.0
17		286		36			2724	39	397	111.5	5.5	11.3	63.0
18		198		14			1569	18	337	106.9	0.0	10.0	63.0
19		164		30			1656	23	233	127.9	0.0	10.5	64.0
20		348		22			1865	47	396	101.8	4.4	9.2	6.0
21		374		6			1075	37	219	115.2	9.1	10.3	64.0
22		162		11			1005	30	219	120.4	11.1	8.6	64.0
23		222		2			936	24	175	120.1	11.8	8.0	64.0
24		232		4			848	41	169	91.9	8.9	8.0	63.0
25		343		12			619	37	135	79.8	7.8	7.2	63.0
26		166		2			473	24	132	105.5	8.7	7.6	63.0
27		198		7			349	31	121	104.7	9.1	10.9	64.0
28		133		7			356	43	153	121.9	10.7	12.0	65.0
29		310		14			288	52	160	121.3	10.7	12.2	65.0
30		192		12			303	74	130	107.7	9.3	11.0	65.0
31		245		6			376	65	120	86.0	4.5	8.5	65.0
TOTAL		10,467		648			66,956	992	12,199				
AVG.		338		21			2,160	32	394	113.6	3.8	9.3	60.9

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	29,301	41
SUMMER	14,671	733
TOTAL	43,972	774

SOCKEYE	STEELHEAD	SHAD
81,528	1,194	14,460

TABLE 132

TABLE 133

TABLE 133

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

PRIEST RAPIDS PROJECT
AUGUST 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD
1		75		4			198	42	89
2		290		12			214	58	160
3		38		5			88	45	112
4		236		7			129	78	128
5		120		7			141	53	37
6		80		5			71	63	30
7		110		1			88	53	21
8		119		9			56	71	44
9		154		1			87	43	53
10		35		2			25	40	50
11		89		1			37	87	50
12		126		6			29	63	27
13		234		6			63	84	23
14			98	5			19	62	19
15			157	17			31	51	16
16			98	9			23	65	16
17			147	7			10	86	6
18			46	4			13	49	10
19			94	14			16	62	6
20			209	7			9	55	9
21			159	7			7	76	18
22			138	8			6	30	5
23			118	2			5	43	13
24			135	4			8	47	23
25			40	2			4	85	3
26			67	2			4	37	-1
27			74	6			6	36	8
28			75	6			3	61	2
29			167	10			2	55	1
30			84	10			2	29	5
31			258	8			2	61	0
TOTAL		1,706	2,164	194			1,396	1,770	983
AVG.		131	120	6			45	57	32

RIVER CONDITIONS

DATE	DISCH KCFS	SPILL KCFS	TURBIDITY SECCH	TURBIDITY DEG F
1	78.6	0.0	13.0	65.0
2	96.2	0.0	12.2	65.0
3	101.7	4.7	11.0	67.0
4	112.7	7.7	10.8	67.0
5	88.3	9.4	11.0	67.0
6	106.4	11.8	9.7	68.0
7	71.6	4.8	8.5	67.0
8	46.3	0.0	9.1	68.0
9	72.4	0.0	10.1	68.0
10	112.1	3.9	9.5	68.0
11	82.3	7.2	10.3	67.0
12	86.1	7.8	9.4	68.0
13	109.2	11.1	10.0	68.0
14	81.4	4.7	9.7	68.0
15	75.7	0.0	10.3	66.0
16	97.5	0.0	7.5	66.0
17	85.9	0.0	8.8	67.0
18	76.6	0.0	9.8	67.0
19	87.1	0.0	10.0	67.0
20	72.4	0.0	10.2	67.0
21	54.6	0.0	10.0	66.0
22	61.0	0.0	10.0	67.0
23	81.8	0.0	10.9	67.0
24	92.3	0.0	8.5	
25	91.8	0.0	10.0	66.0
26	97.7	0.0	8.5	64.0
27	92.0	0.0	9.0	66.0
28	61.0	0.0	8.0	66.0
29	52.3	0.0	7.8	64.0
30	79.9	0.0	7.8	64.0
31	93.1	0.0	10.0	65.0
AVG.	83.8	2.4	9.7	66.5

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	29,301	41
SUMMER	16,377	799
FALL	2,164	128
TOTAL	47,842	968

SOCKEYE	STEELHEAD	SHAD
82,924	2,964	15,443

TABLE 134

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

PRIEST RAPIDS PROJ.
SEPTEMBER '1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	RIVER CONDITIONS DISCH KCFS	SPILL KCFS	TURBIDITY SECCH	TURBIDITY DEG F
1			281	6				52		98.0	0.0	8.0	66.0
2			215	12				58		88.5	0.0	8.9	64.0
3			98	8				43		79.8	0.0	8.6	66.0
4			240	12				69		57.0	0.0	9.5	66.0
5			458	18				93		47.0	0.0	8.0	65.0
6			134	3				67		57.4	0.0	9.8	67.0
7			514	18				111		97.8	0.0	9.1	67.0
8			59	7				59		106.5	0.0	8.1	67.0
9			101	12				72		100.4	0.0	7.9	67.0
10			213	15				85		84.5	0.0	8.1	66.0
11			274	30				96		56.3	0.0	9.2	66.0
12			175	23				90		41.5	0.0	9.6	65.0
13			93	7				59		72.7	0.0	8.5	64.0
14			83	25				89		76.4	0.0	7.5	64.0
15			194	36				117		82.8	0.0	9.3	65.0
16			126	16				81		81.4	0.0	7.5	64.0
17			240	22				75		80.3	0.0	12.0	65.0
18			151	22				82		47.8	0.0	8.0	64.0
19			112	17				66		51.4	0.0	9.4	66.0
20			157	23				83		82.1	0.0	9.5	64.0
21			53	12				48		97.3	0.0	9.5	64.0
22			30	5				45		93.0	0.0	10.9	64.0
23			19	8				45		82.7	0.0	10.9	62.0
24			31	16				68		89.1	0.0	13.0	64.0
25			38	27				50		57.1	0.0	13.2	64.0
26			52	19				47		45.8	0.0	13.3	65.0
27			30	18				40		78.4	0.0	13.3	63.0
28			34	21				52		91.7	0.0	10.5	63.0
29			38	12				38		88.8	0.0	10.5	62.0
30			44	11				36		91.7	0.0	10.1	63.0
TOTAL			4,287	481				2,016					
AVG.			143	16				67		76.8	0.0	9.7	64.7

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	29,301	41
SUMMER	16,377	799
FALL	6,451	609
TOTAL	52,129	1,449

SOCKEYE	STEELHEAD	SHAD
82,924	4,980	15,443

TABLE 134

TABLE 135

TABLE 135

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

PRIEST RAPIDS PROJECT
OCTOBER 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	RIVER CONDITIONS DISCH KCFS	SPILL KCFS	TURBIDITY SECCH	TURBIDITY DEG F
1			125	16	0			58		80.5	0.0	10.8	63.0
2			40	12	0			47		52.9	0.0	11.2	63.0
3			45	26	0			55		46.3	0.0	11.0	62.0
4			28	19	0			30		68.9	0.0	10.1	62.0
5			31	11	0			21		74.2	0.0	9.9	64.0
6			119	24	0			18		88.9	0.0	10.7	63.0
7			3	10	0			15		76.9	0.0	11.2	62.0
8			9	6	0			34		66.5	0.0	11.2	62.0
9			2	2	0			17		65.5	0.0	10.0	62.0
10			13	12	0			14		55.7	0.0	10.1	62.0
11			12	6	0			24		70.5	0.0	10.6	62.0
12			18	16	0			7		62.1	0.0	9.4	63.0
13			30	10	0			15		78.3	0.0	10.6	62.0
14			24	7	0			12		79.2	0.0	10.4	62.0
15			23	4	0			12		61.3	0.0	10.4	60.0
16			8	3	0			14		58.5	0.0	10.4	62.0
17			6	6	0			8		47.4	0.0	13.1	60.0
18			14	12	0			3		71.9	0.0	11.2	60.0
19			10	3	0			11		77.2	0.0	10.4	60.0
20			18	1	0			8		81.4	0.0	11.3	60.0
21			7	2	0			7		86.0	0.0	11.0	60.0
22			8	3	0			6		86.5	0.0	11.0	60.0
23			13	4	0			2		58.4	0.0	11.0	60.0
24			10	11	0			1		54.4	0.0	11.0	60.0
25			9	0	0			3		74.0	0.0	9.7	60.0
26			6	1	0			6		93.6	0.0	10.9	60.0
27			9	1	0			2		89.8	0.0	11.5	59.0
28			6	0	0			5		87.3	0.0	11.5	57.0
29			7	1	0			1		91.3	0.0	12.7	58.0
30			11	3	1			4		89.7	0.0	12.8	58.0
31			18	2	0			12		66.8	0.0	12.4	57.0
TOTALS			682	234	1			472					
AVG.			22	8				15		72.3	0.0	11.0	60.8

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	29,301	41
SUMMER	16,377	799
FALL	7,133	843
TOTAL	52,811	1,683

COHO ADULT
1

SOCKEYE	STEELHEAD	SHAD
82,924	5,452	15,443

TABLE 136

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

PRIEST RAPIDS PROJECT
NOVEMBER 1993

	FISH COUNTS									RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO				DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	KCFS	KCFS	SECCH	DEG F
1			11	3				1		80.5	0.0	8.7	58.0
2			5	1				6		94.4	0.0	9.0	57.0
3			3	2				6		96.2	0.0	9.0	57.0
4			6	5				1		92.4	0.0	9.0	57.0
5			1	2				6		85.1	0.0	10.5	56.0
6			1	0				2		86.4	0.0	10.0	55.0
7			1	1				3		71.5	0.0	10.0	55.0
8			2	0				1		80.4	0.0	10.7	55.0
9			7	3				3		93.8	0.0	10.1	55.0
10			2	0				2		89.7	0.0	9.7	55.0
11			5	0				5		85.2	0.0	9.4	54.0
12			5	0				2		87.2	0.0	11.2	54.0
13			2	0				1		74.9	0.0	10.7	54.0
14			0	2				1		69.6	0.0	10.6	53.0
15			1	1				1		79.6	0.0	9.6	54.0
16													
17													
18													
19													
20													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													
TOTALS			52	20				41					
AVG.			3	1				3		84.5	0.0	9.9	55.3

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	29,301	41
SUMMER	16,377	799
FALL	7,185	863
TOTAL	52,863	1,703

COHO ADULT
1

SOCKEYE	STEELHEAD	SHAD
82,924	5,493	15,443

TABLE 136

TABLE 137

MONTHLY COUNT OF STEELHEAD
PRIEST RAPIDS DAM; 1960-1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1960				159	651	25	318	2,255	3,190	1,229			7,827
1961				52	208	43	381	1,480	4,650	1,753			8,567
1962				133	530	74	329	2,027	4,925	1,306			9,324
1963				183	564	109	336	2,922	3,344	1,816			9,274
1964				85	196	44	261	1,986	2,649	770			5,991
1965				129	298	91	649	2,498	3,868	1,508			9,041
1966				189	252	296	1,194	2,775	5,549	2,751			13,006
1967				213	381	62	411	1,686	2,109	2,492			7,354
1968				530	1,112	24	185	1,954	4,950	1,769			10,524
1969				120	670	105	566	1,598	2,544	1,047			6,650
1970				85	195	27	197	1,129	3,053	872			5,558
1971				46	440	61	185	2,043	6,241	2,086			11,102
1972				163	552	42	318	1,992	2,190	1,172			6,429
1973				132	160	56	788	1,738	3,254	871			6,999
1974				45	129	229	504	845	945	392			3,089
1975				3	37	99	214	670	1,187	252			2,462
1976				3	133	246	531	1,873	5,462	1,000			9,248
1977				178	200	209	1,029	1,963	4,519	1,706			9,804
1978				72	134	214	532	1,143	1,869	581			4,545
1979				13	127	30	585	3,082	3,174	1,398			8,409
1980				232	203	17	179	1,815	4,721	1,263	94		8,524
1981				75	144	105	445	2,414	4,127	1,545	133	24	9,012
1982	5	32	70	136	86	46	331	3,126	5,345	1,805	163	15	11,160
1983	5	9	52	40	11	12	599	8,660	18,272	3,534	602	13	31,809
1984	28	4	92	142	145	224	2,534	8,840	11,907	2,030	256	11	26,213
1985	2	11	74	351	326	856	5,319	11,063	14,693	1,659	235		34,589
1986				82	100	262	3,637	10,584	5,647	1,856	233		22,401
1987				42	71	124	1,954	5,741	4,311	1,495	273		14,011
1988				48	108	239	1,234	3,119	4,016	1,176	268		10,208
1989				36	50	133	1,361	3,499	4,581	872	198		10,730
1990				24	52	130	1,282	2,616	3,060	551	115		7,830
1991				31	73	66	1,406	4,041	6,301	1,768	253		13,939
1992				60	152	313	2,328	3,261	6,265	1,227	127		13,733
1993				31	41	130	992	1,770	2,016	472	41		5,493
TOTAL	40	56	288	3,863	8,531	4,743	33,114	108,208	164,934	48,024	2,991	63	374,855
10-Year Average				85	112	248	2,205	5,453	6,280	1,311	200		15,915

TABLE 138

HATCHERY VOLUNTEER TRAP COUNTS **PRIEST RAPIDS PROJECT**

Apr-93

DATE	CHINOOK ADULTS	CHINOOK JACKS	STEELHEAD
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16	0	0	3
17	0	0	0
18	0	0	0
19	0	0	2
20	0	0	3
21	2	0	0
22	3	0	0
23	4	0	0
24	0	0	0
25	0	0	0
26	8	0	3
27	15	0	1
28	3	0	0
29	15	0	1
30	14	1	0
Totals	64	1	13

May-93

DATE	CHINOOK ADULTS	CHINOOK JACKS	STEELHEAD
1	4	0	1
2	17	0	0
3	14	0	1
4	22	0	0
5	3	0	0
6	7	0	0
7	9	0	0
8	34	0	0
9	24	0	1
10	12	0	0
11	20	0	0
12	19	0	0
13	24	0	0
14	29	0	0
15	43	1	0
16	48	0	0
17	28	0	0
18	18	0	0
19	88	0	0
20	70	0	0
21	82	1	0
22	102	0	1
23	85	0	0
24	74	0	0
25	97	0	0
26	140	4	0
27	125	4	0
28	103	3	1
29	99	1	1
30	93	3	1
31	97	2	0
Totals	1,630	19	7

Jun-93

DATE	CHINOOK ADULTS	CHINOOK JACKS	STEELHEAD
1	150	1	0
2	176	4	0
3	189	1	0
4	243	7	0
5	197	6	0
6	148	2	2
7	178	2	0
8	168	5	0
9	180	2	0
10	141	2	0
11	89	0	0
12	75	1	0
13	83	4	1
14	85	5	0
15	71	2	0
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
Totals	2,173	44	3

These counts represent daily counts of fish that were trapped by hatchery personnel at the hatchery outlet below Priest Rapids project and released upstream into the reservoir. These fish did not pass the counters and are not included in the monthly project totals. They were trapped and counted to see if a significant number of fish were entering the outlet area. There were 18 steelhead trapped before the counts were recorded.

TABLE 138

TABLE 139

MONTHLY TOTALS OF SALMONIDS AND SHAD

COUNTED OVER ROCK ISLAND DAM IN 1993

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CHINOOK*				45	16,680	5,633	8,665	3,364	1,873	769	168		37,197
STEELHEAD				97	88	87	546	1,427	1,930	597	57		4,829
SOCKEYE						4,142	59,297	2,181	9	1			65,630
COHO								1	1	2	2		6
PINK													
MINI-JACK**				1	3	80	439	123	149	66	35		896
TOTAL				143	16,771	9,942	68,947	7,096	3,962	1,435	262		108,558
SHAD													

*Jacks included
**Salmonid fish under 12 inches in length

TABLE 139

TABLE 140

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

ROCK ISLAND PROJECT

APRIL 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	KCFS	KCFS	SECCHI	DEG F
1	BEGIN COUNTING 14 APR										52.4	0.0		
2											54.6	0.0		
3											37.0	0.0		
4											34.6	0.0		
5											48.4	0.0		
6											54.0	0.0		
7											52.0	0.0		
8											62.6	0.0		
9											62.0	0.0		
10											42.9	0.0		
11											38.0	0.0		
12											58.3	0.0		
13											64.4	0.0		
14	0							3		0	50.1	0.0		
15	0							11		0	51.6	0.0		
16	0							7		0	53.7	0.0	13.8	40.0
17	0							6		0	42.3	0.0	13.2	40.0
18	0							9		0	37.0	0.0	12.6	40.0
19	0							0		0	59.2	0.0	13.2	40.0
20	0							1		0	49.7	0.0	13.2	41.0
21	0							4		-1	54.6	2.2	13.0	41.0
22	1							3		0	68.1	3.6	12.4	42.0
23	0							2		0	59.6	5.9	11.0	42.0
24	6							11		0	38.3	6.7	11.4	42.0
25	4							8		2	42.8	5.5	12.6	41.0
26	1							5		0	53.8	4.3	11.0	42.0
27	1							2		0	69.8	5.1	11.0	42.0
28	5							6		0	78.6	6.4	10.6	43.0
29	9							8		0	85.4	7.5	10.6	43.0
30	18							11		0	66.8	6.8	9.8	44.0
TOTAL	45							97		1				
AVG.	3							6			54.1	1.8	12.0	41.5

TABLE 141

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

ROCK ISLAND PROJECT

MAY 1993

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1	23			0				10		0	56.5	7.8	10.4	44.0
2	11			0				5		0	59.4	7.2	11.2	44.0
3	34			0				3		1	111.1	5.9	11.0	45.0
4	72			0				4		0	85.4	10.7	11.0	45.0
5	192			0				4		0	93.0	10.9	9.8	45.0
6	266			0				2		0	95.3	7.7	9.8	45.0
7	150			0				3		0	110.9	9.7	9.4	45.0
8	330			0				0		0	97.5	11.6	9.6	45.0
9	1268			0				1		0	110.0	13.3	10.0	46.0
10	186			0				1		0	141.1	12.1	9.6	46.0
11	440			0				3		0	133.1	17.2	9.0	46.0
12	645			0				5		0	147.3	21.6	8.0	46.0
13	507			0				4		0	135.4	19.2	6.0	46.0
14	385			0				3		0	123.7	24.5	5.4	47.0
15	1132			0				3		0	147.0	53.9	5.6	47.0
16	1131			1				2		0	190.6	66.6	5.4	47.0
17	1089			0				0		0	189.0	54.9	2.4	48.0
18	357			0				0		0	188.8	45.2	2.6	49.0
19	1006			0				5		0	193.4	43.1	3.2	50.0
20	1293			0				3		0	186.2	51.4	3.6	52.0
21	753			0				2		0	193.6	65.3	3.6	52.0
22	667			2				3		0	184.1	106.5	3.4	51.0
23	854			0				6		0	189.4	102.4	4.4	51.0
24	699			0				1		0	187.0	56.7	5.0	52.0
25	797			0				3		0	185.0	52.2	5.0	52.0
26	372			1				1		1	177.8	43.0	6.6	53.0
27	310			4				2		0	157.9	39.9	8.8	53.0
28	315			1				1		0	137.1	33.0	8.8	53.0
29	399			0				2		1	142.8	50.8	8.4	53.0
30	741			2				3		0	140.7	29.0	8.4	53.0
31	245			0				3		0	134.7	16.8	9.0	54.0
TOTAL	16,669			11				88		3				
AVG.	538							3			142.7	35.2	7.2	48.5

TOTALS TO DATE		CHINOOK ADULT	CHINOOK JACK	STEELHEAD	MINI-JCK
	SPRING	16,714	11	185	4

TABLE 141

TABLE 142

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

ROCK ISLAND PROJECT

JUNE 1993

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1	160			0			0	3		0	140.5	17.5	9.4	55.0
2	154			4			0	2		0	160.5	18.5	9.4	55.0
3	252			0			1	0		0	157.2	11.2	8.2	55.0
4	146			2			0	1		0	153.1	0.0	8.4	55.0
5	146			1			0	1		0	132.5	13.1	9.0	55.0
6	78			1			0	2		0	107.8	0.0	9.0	56.0
7	120			0			0	2		0	132.9	0.0	8.6	56.0
8	216			0			0	5		0	114.6	0.0	9.2	56.0
9	540			0			1	0		0	131.6	0.0	9.4	57.0
10	136			2			1	0		0	145.7	0.0	9.4	57.0
11	132			0			0	1		0	142.5	0.0	9.0	57.0
12	136			2			0	1		1	87.4	0.0	10.4	57.0
13	290			3			1	3		4	74.9	0.0	11.0	57.0
14	126			0			3	0		1	97.1	0.0	11.0	57.0
15	194			3			4	4		2	90.2	0.0	10.6	58.3
16	182			1			8	3		3	97.5	0.0	10.6	59.0
17	188			2			11	4		0	103.8	0.0	10.2	59.0
18		121		0			13	4		3	100.4	1.6	11.0	59.0
19		133		2			24	3		2	84.8	4.0	10.4	60.0
20		225		3			45	2		5	75.1	2.9	11.0	60.0
21		132		5			44	2		1	102.2	2.6	11.4	60.0
22		101		0			54	4		2	106.4	4.0	11.0	60.0
23		137		0			72	4		3	111.9	4.0	11.6	60.0
24		164		3			125	8		4	102.8	3.9	11.8	60.0
25		94		2			187	0		2	95.1	3.9	11.4	60.0
26		265		8			369	4		5	90.9	4.0	11.8	60.0
27		201		3			536	1		14	86.9	3.9	11.4	60.0
28		300		4			828	5		7	105.4	4.0	12.0	60.0
29		201		3			805	8		13	116.8	4.0	12.0	60.0
30		302		7			1010	10		8	133.8	3.9	12.4	60.0
TOTAL	3,196	2,376		61			4,142	87		80				
AVG.	188	183		2			138	3		3	112.7	3.6	10.4	58.0

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	19,910	32
SUMMER	2,376	40
TOTALS	22,286	72

SOCKEYE	STEELHEAD
4142	272

MINI-JCK
84

TABLE 143

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

ROCK ISLAND PROJECT
JULY 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
		FISH COUNTS									RIVER CONDITIONS			
1		363		3			1109	7		8	134.0	3.9	12.6	60.0
2		277		0			1180	3		17	129.8	4.0	12.6	60.0
3		250		4			1280	7		11	123.5	4.0	13.0	60.0
4		404		1			1834	4		25	83.4	3.9	12.0	60.0
5		437		14			2457	6		12	112.0	3.9	11.2	61.0
6		353		15			3116	12		17	128.9	5.5	10.4	61.0
7		267		3			2685	15		17	102.6	7.8	11.0	61.0
8		288		7			2554	9		23	115.9	7.8	12.0	61.0
9		440		9			3655	12		25	107.9	7.0	12.0	62.0
10		388		6			3054	9		19	92.8	7.7	12.2	62.0
11		326		3			3062	10		16	102.4	7.7	12.4	62.0
12		485		7			4247	14		23	107.9	6.1	12.0	62.0
13		317		22			3674	16		14	99.5	6.2	13.2	62.0
14		288		6			2271	29		8	115.3	5.6	12.6	62.0
15		260		11			2588	23		16	118.1	6.0	12.6	63.0
16		162		8			1457	24		19	113.4	3.1	13.2	63.0
17		207		6			1540	23		13	100.0	4.4	13.0	63.0
18		207		1			1504	14		23	102.7	5.3	13.2	63.0
19		294		1			2404	38		13	109.0	3.1	13.2	63.0
20		194		10			1842	24		11	103.6	3.1	9.2	63.0
21		144		5			1878	16		21	103.0	3.3	10.2	63.0
22		279		11			1766	23		17	116.6	3.2	11.0	63.0
23		224		2			1435	21		13	109.2	4.0	10.4	63.0
24		266		2			1416	20		8	85.7	4.1	11.8	63.0
25		277		14			1191	25		7	76.1	4.0	11.4	63.0
26		163		7			1227	13		7	97.5	3.9	12.6	63.0
27		183		26			1013	27		14	102.8	3.1	12.4	64.0
28		209		14			662	29		5	112.0	3.5	11.0	65.0
29		145		17			414	30		13	106.9	3.4	11.0	65.0
30		144		16			426	19		1	107.6	3.9	11.0	65.0
31		168		5			356	24		3	78.9	3.4	11.0	65.0
TOTAL		8,409		256			59,297	546		439				
AVG.		271		8			1,913	18		14	106.4	4.7	11.9	62.5

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	19,910	32
SUMMER	10,785	296
TOTALS	30,695	328

SOCKEYE	STEELHEAD	MINI-JCK
63,439	818	523

TABLE 143

TABLE 144

TABLE 144

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

ROCK ISLAND PROJECT
AUGUST 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	KCFS	KCFS	SECCHI	DEG F
1		156		18	0		308	20		3	67.1	3.9	11.0	65.0
2		179		6	0		386	25		8	89.1	3.9	11.0	65.0
3		144		10	0		227	33		5	99.5	5.3	10.6	66.0
4		149		8	0		207	32		3	95.7	4.9	11.4	67.0
5		144		30	0		135	64		5	101.2	5.9	11.0	67.0
6		210		8	0		156	45		8	90.3	5.8	11.0	67.0
7		220		15	1		152	54		9	54.5	5.8	11.0	67.0
8		136		16	0		96	53		4	40.9	4.6	11.0	67.0
9		78		4	0		87	25		8	89.6	5.9	11.0	67.0
10		116		18	0		105	45		3	82.4	5.9	11.2	67.0
11		94		13	0		39	58		2	79.8	5.9	10.4	67.0
12		87		7	0		54	52		5	90.0	4.4	10.4	67.0
13		88		9	0		29	46		5	104.0	0.4	10.6	67.0
14		77		9	0		21	47		7	75.3	0.0	10.6	67.0
15		100		2	0		30	45		3	71.6	0.0	10.4	67.0
16		92		2	0		19	56		3	89.2	0.0	10.0	66.0
17		72		5	0		11	39		1	72.5	0.0	11.0	66.0
18			90	10	0		26	41		4	73.6	0.0	11.0	66.0
19			70	11	0		24	72		1	82.6	0.0	11.0	67.0
20			64	11	0		20	65		6	64.5	0.0	11.4	67.0
21			80	4	0		14	48		3	46.1	0.0	11.4	67.0
22			79	14	0		9	26		2	53.6	0.0	12.4	67.0
23			86	9	0		4	63		7	81.4	0.0	12.6	67.0
24			91	5	0		6	74		0	89.9	0.0	12.8	66.0
25			88	10	0		1	79		4	86.0	0.0	12.0	66.0
26			53	7	0		7	32		1	90.6	0.0	11.2	66.0
27			61	9	0		1	47		1	81.6	0.0	11.2	66.0
28			48	8	0		3	54		3	51.6	0.0	11.2	66.0
29			40	2	0		4	29		5	44.4	0.0	11.0	66.0
30			40	4	0		0	29		2	85.2	0.0	11.0	66.0
31			37	11	0		0	29		2	88.2	0.0	11.0	65.0
TOTAL		2,142	927	295	1		2,181	1,427		123				
AVG.		126	68	10			70	46		4	77.8	2.0	11.1	66.5

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	19,910	32
SUMMER	12,927	476
FALL	927	115
TOTALS	33,764	623

COHO ADULT	SOCKEYE	STEELHEAD	MINI-JCK
1	65,620	2,245	646

TABLE 145

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

ROCK ISLAND PROJECT
SEPTEMBER 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	KCFS	KCFS	SECCHI	DEG F
1			37	7	0		1	44		1	78.6	0.0	11.0	65.0
2			55	5	0		0	49		6	84.9	0.0	11.2	65.0
3			64	4	0		0	55		5	81.8	0.0	11.6	65.0
4			65	7	0		0	48		6	54.9	0.0	11.6	65.0
5			60	7	0		0	30		3	44.4	0.0	12.4	65.0
6			56	8	0		0	40		7	53.5	0.0	12.6	66.0
7			95	10	0		0	62		1	93.8	0.0	12.6	66.0
8			91	8	0		0	75		2	96.2	0.0	12.2	67.0
9			101	9	0		0	87		2	90.3	0.0	12.0	67.0
10			57	7	0		0	61		3	72.3	0.0	12.2	68.0
11			70	11	0		0	43		7	49.0	0.0	12.6	67.0
12			63	8	0		1	105		7	74.6	0.0	12.0	67.0
13			58	4	0		0	79		3	77.0	0.0	13.0	67.0
14			64	4	0		1	86		9	77.0	0.0	13.6	67.0
15			62	4	0		0	58		5	76.3	0.0	12.0	65.0
16			54	8	0		1	91		4	68.5	0.0	12.2	65.0
17			63	5	0		3	82		8	83.7	0.0	13.4	65.0
18			56	16	0		1	81		3	43.7	0.0	14.0	65.0
19			47	6	0		0	62		6	44.8	0.0	13.4	65.0
20			75	12	0		0	68		3	92.4	0.0	13.0	65.0
21			76	14	0		1	137		7	82.0	0.0	12.8	64.0
22			52	4	0		0	76		6	82.6	0.0	13.8	64.0
23			32	8	1		0	66		9	81.9	0.0	13.4	65.0
24			55	11	0		0	69		5	77.1	0.0	14.0	65.0
25			22	15	0		0	53		4	48.8	0.0	13.6	64.0
26			28	4	0		0	41		2	36.5	0.0	14.0	64.0
27			17	7	0		0	40		3	83.9	0.0	13.0	64.0
28			18	9	0		0	47		8	80.1	0.0	13.6	64.5
29			20	6	0		0	45		6	85.0	0.0	13.4	64.5
30			23	9	0		0	50		8	83.8	0.0	13.4	64.0
TOTAL			1,636	237	1		9	1,930		149				
AVG.			55	8				64		5	72.6	0.0	12.8	65.3

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	19,910	32
SUMMER	12,927	476
FALL	2,563	352
TOTALS	35,400	860

COHO ADULT	SOCKEYE	STEELHEAD	MINI-JCK
2	65,629	4,175	795

TABLE 145

TABLE 146

TABLE 146

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

ROCK ISLAND PROJECT
OCTOBER 1993

FISH COUNTS / RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1			14	6	0		0	41		2	72.7	0.0	13.4	64.0
2			16	10	0		0	29		1	48.1	0.0	17.5	65.0
3			23	10	0		1	32		2	39.8	0.0	17.5	65.0
4			34	12	0		0	40		2	66.4	0.0	15.4	65.0
5			18	6	0		0	48		4	70.5	0.0	16.0	65.0
6			36	9	0		0	52		4	70.4	0.0	14.6	65.0
7			45	10	0		0	40		1	60.4	0.0	14.6	65.0
8			28	9	0		0	33		0	57.9	0.0	14.0	65.0
9			30	6	0		0	36		3	43.4	0.0	14.6	64.0
10			30	7	0		0	23		4	44.4	0.0	15.0	64.0
11			14	4	0		0	14		3	74.2	0.0	14.8	63.0
12			19	8	0		0	34		6	70.9	0.0	13.0	63.0
13			16	10	0		0	14		6	72.3	0.0	14.2	63.0
14			11	6	0		0	10		1	60.1	0.0	14.2	63.0
15			5	9	0		0	24		3	68.1	0.0	14.0	63.0
16			18	8	0		0	21		0	48.5	0.0	14.6	62.0
17			17	6	0		0	11		3	43.5	0.0	14.2	62.0
18			12	13	0		0	9		2	79.9	0.0	15.2	62.0
19			9	4	0		0	9		1	69.3	0.0	15.2	62.0
20			16	3	1		0	10		0	81.9	0.0	13.0	62.0
21			11	5	1		0	7		1	77.8	0.0	13.2	62.0
22			3	9	0		0	11		1	79.2	0.0	13.0	62.0
23			16	8	0		0	5		2	49.9	0.0	13.0	62.0
24			12	3	0		0	1		0	47.4	0.0	13.0	61.5
25			11	1	0		0	5		0	95.2	0.0	12.6	61.0
26			12	4	0		0	10		4	99.3	0.0	12.0	61.0
27			17	5	0		0	4		4	88.8	0.0	13.0	61.0
28			10	2	0		0	8		2	86.6	0.0	13.0	61.0
29			18	1	0		0	3		1	79.6	0.0	13.0	61.0
30			30	1	0		0	7		2	64.0	0.0	12.6	60.5
31			20	3	0		0	6		1	50.8	0.0	15.0	60.0
TOTAL			571	198	2		1	597		66				
AVG.			18	6				19		2				
											66.5	0.0	14.1	62.7

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	19.910	32
SUMMER	12.927	476
FALL	3.134	550
TOTALS	35.971	1.058

COHO ADULT	SOCKEYE	STEELHEAD	MINI-JCK
4	65.630	4.772	861

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

TABLE 147

ROCK ISLAND PROJECT
NOVEMBER 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
	FISH COUNTS										RIVER CONDITIONS			
1			15	2	1			6		4	92.5	0.0	15.0	60.0
2			8	2	0			7		8	91.9	0.0	13.2	60.0
3			17	3	0			6		3	85.6	0.0	10.2	59.0
4			24	2	0			8		0	79.4	0.0	12.0	58.0
5			8	3	0			0		3	93.4	0.4	12.0	58.0
6			17	2	0			5		1	67.7	0.0	14.0	58.0
7			6	2	0			3		4	59.5	0.0	15.0	58.0
8			9	1	0			4		2	92.0	0.0	14.0	57.0
9			10	1	0			3		3	91.3	0.0	12.0	57.0
10			9	1	0			5		5	82.6	0.0	13.0	56.0
11			10	1	0			0		2	88.5	0.0	16.0	56.0
12			5	0	0			3		0	71.6	0.0	13.4	56.0
13			4	1	0			2		0	65.7	0.0	13.0	56.0
14			4	0	0			3		0	65.0	0.0	13.0	55.0
15			1	0	1			2		0	87.6	0.0	15.0	55.0
16														
17														
18														
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														
TOTAL			147	21	2			57		35				
AVG.														

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK	COHO ADULT	SOCKEYE	STEELHEAD	MINI-JCK
SPRING	19,910	32	6	65,630	4,829	896
SUMMER	12,927	476				
FALL	3,281	571				
TOTALS	36,118	1,079				

TABLE 147

TABLE 148

MONTHLY COUNT OF STEELHEAD
ROCK ISLAND DAM
1981 - 1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1981						30	282	1,886	2,338	2,493	347		7,376
1982				118	113	8	157	2,246	4,260	2,785	192		9,879
1983				53	36	18	579	5,811	16,942	5,619	608		29,666
1984				88	220	180	1,962	7,925	10,507	3,687	527		25,096
1985				106	393	729	4,886	6,588	16,089	2,889	319		31,999
1986				145	168	192	3,383	10,036	5,883	2,731	347		22,885
1987				100	94	112	1,242	4,900	4,095	1,842	347		12,732
1988				193	156	173	737	2,813	3,446	1,523	200		9,241
1989				135	73	66	847	2,685	3,999	1,355	191		9,351
1990				55	46	99	953	2,385	2,577	736	93		6,944
1991				30	51	45	916	3,322	4,194	2,165	204		10,927
1992				86	193	315	1,603	2,821	5,714	1,599	145		12,476
1993				97	88	87	1,427	546	1,930	597	57		4,829
Total				1,206	1,631	2,054	18,974	53,964	81,974	30,021	3,577		193,401
10-Year Average				104	148	200	1,796	4,402	5,843	1,912	243		14,648

TABLE 149

MONTHLY TOTALS OF SALMONIDS AND SHAD

COUNTED OVER ROCKY REACH DAM IN 1993

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CHINOOK*				3	3,221	1,366	2,909	1,982	1,065	601	148		11,295
STEELHEAD				49	52	24	346	869	1,066	379	31		2,816
SOCKEYE						1,154	25,659	1,486	19	1			28,319
COHO									2	2			4
PINK													
MINI-JACK**						4	54	38	48	27	1		172
TOTAL				52	3,273	2,548	28,968	4,375	2,200	1,010	180		42,606
SHAD													

*Jacks included
**Salmonid fish under 12 inches in length

TABLE 149

TABLE 150

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

ROCKY REACH PROJECT

APRIL 1993

	FISH COUNTS										RIVER CONDITIONS			
	CHINOOK ADULT			CHINOOK	COHO	COHO					DISCH	SPILL	TURBIDITY	
DATE	SPRING	SUMMER	FALL	JACK	ADULT	JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	KCFS	KCFS	SECCHI	DEG F
1	BEGIN COUNTING 16 APRIL										50.9	0.0		
2											53.6	0.0		
3											36.2	0.0		
4											32.8	0.0		
5											46.2	0.0		
6											52.8	0.0		
7											50.5	0.0		
8											61.4	0.0		
9											59.4	0.0		
10											40.7	0.0		
11											35.8	0.0		
12											56.5	0.0		
13											62.2	0.0		
14											48.2	0.0		
15											49.4	0.0		
16	0							4			51.6	0.0	14.0	40.0
17	0							1			40.3	0.0	18.0	41.5
18	0							5			34.4	0.0	18.0	41.7
19	0							2			56.6	0.0	18.0	41.7
20	0							1			47.6	0.0	18.0	41.9
21	0							5			53.1	0.0	17.0	41.9
22	0							2			67.6	2.2	17.0	41.1
23	0							7			57.7	6.0	17.0	41.1
24	0							1			36.5	6.7	17.0	41.1
25	0							5			41.2	4.9	17.0	42.8
26	0							6			51.9	4.6	17.5	42.9
27	1							7			67.9	5.0	17.0	42.9
28	0							1			76.0	6.1	17.0	43.0
29	0							2			85.2	7.0	17.0	43.0
30	2							0			64.7	7.2	15.0	43.7
TOTAL	3							49						
AVG.								6			52.3	1.7	17.0	42.0

TABLE 151

MONTHLY FISH PASSAGE SUMMARY REPORT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

ROCKY REACH PROJECT

MAY 1993

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1	0			0				1			55.1	10.6	15.0	43.4
2	10			0				11			57.4	10.8	15.0	43.4
3	1			0				2			107.0	10.7	15.0	43.4
4	1			0				6			83.4	9.5	15.0	43.4
5	2			0				4			90.1	10.0	14.5	43.7
6	4			0				1			93.2	12.8	13.5	44.4
7	11			0				2			109.5	15.0	13.5	44.2
8	53			0				2			94.9	13.1	13.0	44.9
9	98			0				1			108.9	12.1	14.0	45.0
10	4			0				1			139.7	10.0	14.0	45.0
11	137			0				0			129.9	8.8	13.0	45.3
12	66			0				1			138.0	10.9	13.0	45.3
13	113			0				5			119.4	14.1	11.0	45.6
14	197			0				0			110.8	14.5	10.0	46.4
15	182			0				1			141.6	13.4	9.0	47.1
16	54			0				1			176.3	12.4	5.5	48.5
17	42			0				1			182.4	12.6	2.5	48.9
18	182			0				1			177.6	12.5	2.5	48.9
19	119			0				1			182.3	14.0	3.5	48.9
20	278			0				2			174.8	14.5	4.0	50.0
21	152			0				0			183.8	14.7	4.0	50.0
22	155			0				2			175.3	17.0	4.5	50.0
23	94			0				1			182.7	11.4	4.5	49.5
24	173			0				0			180.2	0.0	5.0	49.7
25	251			0				2			176.7	0.0	7.0	50.3
26	70			0				0			171.7	0.0	8.5	50.0
27	360			0				1			149.4	0.0	8.5	50.7
28	100			0				0			133.7	0.7	8.5	51.1
29	112			1				1			141.4	0.0	9.0	51.9
30	102			1				0			132.9	0.0	9.0	52.5
31	96			0				1			130.2	0.0	10.0	52.9
TOTAL	3,219			2				52						
AVG.	104							2			136.4	9.2	9.5	47.6

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK	STEELHEAD
SPRING	3,222	2	101

TABLE 151

TABLE 152

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

ROCKY REACH PROJECT
JUNE 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK
1	139			0			0	0		0
2	20			0			0	0		0
3	32			0			0	0		0
4	5			0			0	0		0
5	35			1			0	0		0
6	44			1			0	0		0
7	30			1			0	2		0
8	30			0			0	0		0
9	31			0			0	0		0
10	50			0			0	0		0
11	94			0			0	1		0
12	110			0			0	0		0
13	53			1			0	1		0
14	29			0			0	1		1
15	42			0			4	0		0
16	44			0			2	0		0
17	35			0			4	0		1
18	49			0			1	0		0
19	28			0			7	1		1
20		34		0			8	0		0
21		37		1			10	8		0
22		31		0			36	2		0
23		25		0			32	0		0
24		17		0			25	0		0
25		25		1			40	1		0
26		38		0			66	4		0
27		62		1			137	1		0
28		44		0			181	0		0
29		64		2			228	0		0
30		78		2			373	2		1
TOTAL	900	455		11			1,154	24		4
AVG.	47	41					38	1		

RIVER CONDITIONS

DATE	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1	134.6	2.8	11.5	53.2
2	157.2	7.7	10.0	53.2
3	151.6	11.1	10.0	51.2
4	147.4	14.3	10.0	51.4
5	125.8	13.5	12.0	53.4
6	95.2	0.0	11.5	54.2
7	122.7	0.0	11.5	54.3
8	109.6	0.0	11.5	54.6
9	129.7	0.0	11.0	55.2
10	141.2	0.0	11.0	55.1
11	137.1	0.0	55.3	55.3
12	82.9	0.0	12.0	54.7
13	66.4	0.0	13.0	55.1
14	94.6	0.0	13.0	55.1
15	87.9	0.0	12.5	55.8
16	95.2	0.0	12.5	56.4
17	101.5	0.0	13.0	57.5
18	98.2	0.0	14.5	57.9
19	81.9	0.0	14.5	57.7
20	72.4	0.0	16.5	58.0
21	100.2	0.0	16.5	57.9
22	104.3	0.0	16.5	57.9
23	112.4	0.0	15.5	58.0
24	104.5	0.0	15.5	58.0
25	97.0	0.0	16.0	57.7
26	89.7	0.0	16.0	57.7
27	87.0	0.0	16.0	57.7
28	104.7	0.0	16.0	58.1
29	116.3	0.0	16.0	58.1
30	135.6	0.0	16.0	58.2
AVG.	109.5	1.6	14.9	56.0

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	4,122	6
SUMMER	455	7
TOTALS	4,577	13

SOCKEYE	STEELHEAD	MINI-JCK
1,154	125	4

TABLE 153

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

ROCKY REACH PROJECT
JULY 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK
1		32		0			330	0		1
2		53		2			449	4		1
3		42		1			409	4		1
4		82		6			793	7		4
5		48		1			558	6		5
6		110		2			690	8		0
7		101		11			990	6		1
8		107		5			1174	4		5
9		86		4			1446	6		5
10		138		4			1796	14		4
11		187		11			1690	8		1
12		68		6			1322	2		4
13		162		5			1922	13		0
14		124		6			1429	6		1
15		56		1			1080	8		1
16		84		2			895	14		0
17		43		4			629	11		0
18		59		4			607	13		1
19		66		2			509	7		1
20		61		4			664	18		0
21		91		2			804	13		0
22		85		1			976	22		1
23		131		1			773	16		0
24		126		4			956	18		4
25		95		2			700	14		4
26		59		4			308	12		1
27		56		5			306	5		1
28		104		14			328	10		1
29		131		11			461	29		4
30		83		11			384	31		1
31		97		6			281	17		1
TOTALS		2,767		142			25,659	346		54
AVG.		89		5			828	11		2

RIVER CONDITIONS

DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
133.2	0.0	16.5	58.1
130.0	0.0	16.5	58.3
122.3	0.0	58.3	58.3
82.7	0.0	16.5	58.9
114.9	0.0	16.5	59.0
127.5	0.0	17.0	59.6
102.5	0.0	17.0	59.8
116.5	0.0	16.0	60.2
109.2	0.0	16.0	60.1
92.1	0.0	16.0	60.1
103.1	0.0	16.0	60.1
109.2	0.0	16.5	60.4
99.8	0.0	17.0	61.0
114.1	0.0	17.0	60.8
117.8	0.0	16.5	61.1
123.0	0.0	17.0	61.5
101.0	0.0	17.0	60.9
108.0	0.0	11.0	61.0
107.7	0.0	9.5	60.8
105.1	0.0	10.5	60.8
105.3	0.0	10.5	61.1
116.9	0.0	13.0	61.6
108.9	0.0	12.5	61.5
86.6	0.0	13.0	61.4
76.7	0.0	13.0	62.5
98.1	0.0	16.0	62.6
104.3	0.0	13.5	62.7
116.6	0.0	13.5	62.7
107.4	0.0	13.0	63.7
107.4	0.0	13.0	63.7
78.3	0.0	13.5	63.0
107.3	0.0	16.1	60.9

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	4,122	6
SUMMER	3,222	149
TOTAL	7,344	155

SOCKEYE	STEELHEAD	MINI-JCK
26,813	471	58

TABLE 153

TABLE 154

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

ROCKY REACH PROJECT
AUGUST 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK
1		104		8			236	16		1
2		85		5			130	13		4
3		95		10			158	13		0
4		91		7			152	17		2
5		79		1			89	26		2
6		82		0			114	34		1
7		110		1			134	36		4
8		142		5			95	23		0
9		41		4			26	19		2
10		49		1			46	24		1
11		86		5			70	37		1
12		76		6			32	28		1
13		43		1			28	43		1
14		43		8			36	24		0
15		67		2			18	35		0
16		55		1			18	28		0
17		41		2			20	17		6
18		42		2			11	42		5
19		65		7			11	19		0
20			65	4			6	46		0
21			71	4			14	42		2
22			25	6			8	42		0
23			24	0			1	23		1
24			34	5			8	47		1
25			79	5			7	34		1
26			29	2			0	36		0
27			7	0			1	20		0
28			26	4			6	30		0
29			19	5			2	11		0
30			71	2			7	24		2
31			22	1			2	20		0
TOTAL		1,396	472	114			1,486	869		38
AVG.		73	39	4			48	28		

RIVER CONDITIONS

DATE	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1	68.4	0.0	14.0	62.9
2	91.6	0.0	14.0	62.9
3	102.7	0.0	15.0	69.0
4	95.6	0.0	14.5	64.7
5	102.3	0.0	14.5	64.7
6	91.1	0.0	15.0	64.5
7	55.6	0.0	15.0	64.5
8	41.4	0.0	14.0	64.7
9	92.3	0.0	14.0	64.0
10	82.6	0.0	13.5	64.0
11	82.2	0.0	13.5	64.0
12	92.1	0.0	13.0	65.0
13	109.2	0.0	13.0	64.6
14	75.4	0.0	13.0	64.6
15	73.0	0.0	15.0	64.3
16	89.6	0.0	15.0	64.3
17	73.1	0.0	15.0	63.7
18	76.1	0.0	17.0	64.3
19	83.0	0.0	17.1	64.6
20	65.1	0.0	17.1	64.6
21	47.3	0.0	17.1	64.6
22	54.4	0.0	17.0	64.9
23	83.5	0.0	17.0	65.0
24	91.7	0.0	15.5	64.8
25	85.3	0.0	15.5	64.8
26	92.3	0.0	14.5	64.0
27	83.9	0.0	14.5	63.7
28	52.4	0.0	16.0	63.5
29	45.6	0.0	16.0	63.5
30	88.1	0.0	17.5	63.5
31	88.9	0.0	15.5	63.1
AVG.	79.2	0.0	15.1	64.4

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	4,122	6
SUMMER	4,618	225
FALL	472	38
TOTALS	9,212	269

SOCKEYE	STEELHEAD	MINI-JCK
28,299	1,340	96

TABLE 155

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

ROCKY REACH PROJECT
SEPTEMBER 1993

FISH COUNTS / RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	TURBIDITY DEG F
1			17	0	0		4	18		0	80.7	0.0	15.5	63.1
2			24	2	0		5	28		0	86.1	0.0	15.5	64.3
3			17	7	0		2	43		2	83.9	0.0	15.5	64.1
4			23	1	0		1	28		1	55.1	0.0	15.5	64.1
5			50	0	1		0	23		2	45.6	0.0	15.5	64.6
6			49	5	0		4	26		2	56.0	0.0	15.5	64.6
7			70	1	0		0	23		1	96.4	0.0	15.5	64.6
8			16	2	0		1	32		1	99.2	0.0	15.5	64.6
9			32	1	0		1	35		6	90.8	0.0	16.0	65.0
10			90	4	0		0	43		0	73.2	0.0	18.5	55.5
11			77	2	0		0	71		4	47.0	0.0	19.0	55.5
12			72	4	0		1	25		0	37.5	0.0	18.0	65.0
13			26	2	0		0	24		5	77.6	0.0	18.0	65.3
14			32	7	0		0	49		2	78.0	0.0	18.0	64.2
15			32	5	0		0	48		2	79.1	0.0	17.5	63.5
16			28	4	0		0	55		1	70.8	0.0	16.0	63.5
17			31	4	0		0	42		1	86.3	0.0	16.0	62.7
18			19	5	1		0	50		2	43.6	0.0	18.0	63.5
19			37	6	0		0	35		4	46.8	0.0	18.0	63.3
20			13	2	0		0	42		0	95.2	0.0	18.0	63.1
21			37	5	0		0	60		1	85.4	0.0	17.5	63.1
22			28	5	0		0	43		2	83.2	0.0	17.5	62.4
23			22	5	0		0	32		0	83.7	0.0	18.0	62.8
24			8	1	0		0	29		4	79.2	0.0	18.5	62.8
25			40	2	0		0	47		2	49.7	0.0	18.5	62.8
26			25	7	0		0	23		2	37.9	0.0	18.5	63.5
27			10	5	0		0	14		0	85.8	0.0	20.0	62.8
28			6	0	0		0	14		0	82.1	0.0	20.5	62.5
29			26	2	0		0	29		0	87.3	0.0	21.0	62.8
30			11	1	0		0	35		1	85.6	0.0	21.0	62.9
TOTAL			968	97	2		19	1,066		48				
AVG.			32	3				36			73.0	0.0	17.5	63.1

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	4,122	6
SUMMER	4,618	225
FALL	1,440	135
TOTALS	10,180	366

COHO ADULTS	SOCKEYE	STEELHEAD	MINI-JCK
2	28,318	2,406	144

TABLE 155

TABLE 156

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

ROCKY REACH PROJECT
OCTOBER 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	RIVER CONDITIONS DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1			16	8	0		0	26		4	74.2	0.0	20.0	63.0
2			19	4	0		0	22		0	49.8	0.0	20.0	63.3
3			12	4	0		0	22		2	40.9	0.0	21.0	63.1
4			25	6	0		0	14		1	68.3	0.0	21.0	63.1
5			20	7	0		0	28		1	72.0	0.0	21.0	63.3
6			16	4	0		0	29		0	70.7	0.0	21.0	63.1
7			29	5	0		0	23		0	63.2	0.0	21.0	63.3
8			20	11	0		0	32		1	59.9	0.0	19.5	62.9
9			31	7	0		0	23		0	44.5	0.0	20.2	62.7
10			7	2	0		0	23		1	46.0	0.0	20.0	62.6
11			24	4	0		0	16		1	74.6	0.0	20.0	62.6
12			7	1	0		0	12		1	74.1	0.0	20.0	62.6
13			12	0	0		0	6		0	72.6	0.0	20.0	62.6
14			23	10	0		0	11		2	62.6	0.0	18.0	61.2
15			13	4	0		0	7		0	70.0	0.0	18.0	61.2
16			13	1	1		0	4		1	49.5	0.0	18.0	61.2
17			20	6	0		0	14		2	45.7	0.0	18.0	61.2
18			7	2	0		0	5		1	80.9	0.0	18.0	61.1
19			10	4	0		0	7		1	70.9	0.0	18.0	61.1
20			12	2	0		0	6		0	83.8	0.0	18.0	60.8
21			20	2	0		0	8		2	78.6	0.0	18.0	62.4
22			5	2	0		0	5		2	80.6	0.0	18.0	60.6
23			20	6	0		0	4		0	51.3	0.0	19.0	60.6
24			8	4	0		0	0		0	48.8	0.0	19.0	60.2
25			16	1	0		0	1		1	97.5	0.0	19.0	60.3
26			14	6	0		0	2		1	102.2	0.0	18.0	59.7
27			17	5	0		0	10		0	92.7	0.0	18.0	59.7
28			13	0	1		1	4		2	90.0	0.0	18.0	59.2
29			7	2	0		0	5		0	81.4	0.0	18.0	59.5
30			7	6	0		0	6		0	65.2	0.0	18.0	59.3
31			11	1	0		0	4		0	53.1	0.0	18.0	59.1
TOTAL			474	127	2		1	379		27				
AVG.			15	4				12		1				
											68.2	0.0	19.1	61.5

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	4.122	6
SUMMER	4.618	225
FALL	1.914	262
TOTALS	10.654	493

COHO ADULTS	SOCKEYE	STEELHEAD	MINI JCK
4	28.319	2.785	171

TABLE 157

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

ROCKY REACH PROJECT
NOVEMBER 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	MINI-JCK	RIVER CONDITIONS DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1			7	0				2		1	93.8	0.0	18.0	58.8
2			11	0				2		0	93.7	0.0	18.0	58.8
3			14	1				2		0	87.2	0.0	19.0	57.7
4			7	1				2		0	81.6	0.0	19.0	57.8
5			14	1				1		0	96.0	0.0	18.5	57.2
6			17	1				1		0	68.3	0.0	19.0	55.6
7			6	0				1		0	61.1	0.0	19.0	56.7
8			14	4				5		0	94.0	0.0	19.0	56.3
9			18	0				5		0	92.6	0.0	17.0	56.3
10			16	0				2		0	84.7	0.0	17.0	56.3
11			0	0				2		0	90.0	0.0	18.0	55.4
12			4	0				4		0	73.5	0.0	18.0	55.4
13			4	1				0		0	68.1	0.0	11.0	55.2
14			4	0				0		0	66.3	0.0	17.0	54.7
15			1	1				2		0	90.7	0.0	17.0	54.7
16											90.9	0.0		
17											88.7	0.0		
18											76.5	0.0		
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														
TOTAL			137	10				31		1				
AVG.			10					2			83.2	0.0	17.6	56.5

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	4,122	6
SUMMER	4,618	225
FALL	2,051	272
TOTALS	10,791	503

COHO ADULT	SOCKEYE	STEELHEAD	MINI-JCK
4	28,319	2,816	172

TABLE 157

TABLE 158

MONTHLY COUNT OF STEELHEAD
ROCKY REACH DAM
1981 - 1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1981						14	173	1,309	1,827	1,691	300		5,314
1982				137	116	5	73	1,192	2,863	1,735	120		6,241
1983				31	18	2	334	3,525	11,329	4,048	411		19,698
1984				41	174	127	1,032	5,564	7,263	2,589	438		17,228
1985				63	273	523	3,547	4,152	11,133	2,646	381		22,718
1986				61	178	160	2,003	6,072	4,225	2,222	236		15,157
1987				67	75	80	567	2,574	2,361	1,210	244		7,178
1988				99	108	108	493	1,498	2,439	820	112		5,677
1989				62	41	30	458	1,442	2,721	1,134	151		6,039
1990				24	31	33	534	1,809	1,889	646	67		5,033
1991				19	26	63	584	2,346	2,996	1,473	138		7,645
1992				50	138	203	1,026	1,861	3,051	1,093	94		7,516
1992				49	52	24	346	869	1,066	379	31		2,816
Total				703	1,230	1,372	11,170	34,213	55,163	21,686	2,723		128,260
10-Year Average				54	110	135	1,059	2,819	3,914	1,421	189		9,701

TABLE 159

MONTHLY TOTALS OF SALMONIDS AND SHAD

COUNTED OVER WELLS DAM IN 1993

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CHINOOK*					1,966	704	2,149	1,440	877	209+62)	14		7,150
STEELHEAD					48	10	240	706	883	490	23		2,400
SOCKEYE						471	24,864	2,488	26				27,849
COHO								72		5			77
PINK													
MINI-JACK**													
TOTAL					2,014	1,185	27,253	4,706	1,786	495	37		37,476
SHAD													

*Jacks included
**Salmonid fish under 12 inches in length

TABLE 159

TABLE 160

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

WELLS PROJECT
MAY 1993

FISH COUNTS / **RIVER CONDITIONS**

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1	0			0				1		57.7	5.0	11.0	43.0
2	0			0				1		59.2	4.8	10.0	45.0
3	0			0				1		104.1	7.3	12.0	44.0
4	1			0				0		82.5	6.5	12.0	44.0
5	0			0				2		91.4	6.3	11.0	45.0
6	1			0				1		93.8	7.0	12.0	45.0
7	0			0				2		109.0	8.2	12.0	45.0
8	0			0				3		93.9	6.6	12.0	45.0
9	3			0				3		109.7	8.2	12.0	45.0
10	1			0				0		137.5	16.2	12.0	45.0
11	1			0				1		128.8	8.7	12.0	46.0
12	8			0				2		137.5	8.9	12.0	47.0
13	189			2				6		117.1	8.2	11.0	47.0
14	104			0				6		109.4	8.2	11.0	48.0
15	49			0				1		151.1	37.2	4.0	49.0
16	22			0				0		176.7	74.2	3.0	48.0
17	74			0				1		182.0	55.2	4.0	48.0
18	118			0				0		180.2	45.0	4.0	49.0
19	176			1				1		180.7	23.1	4.0	50.0
20	170			1				0		172.9	25.6	5.0	50.0
21	132			0				0		179.9	39.5	5.0	50.0
22	110			0				1		181.4	53.7	5.0	51.0
23	84			0				1		183.1	61.0	5.0	50.0
24	136			0				2		184.5	24.8	6.0	51.0
25	78			0				4		173.4	17.3	6.0	50.0
26	47			0				1		167.9	10.1	9.0	51.0
27	65			0				0		148.2	10.1	9.0	52.0
28	146			0				3		128.7	11.0	9.0	53.0
29	78			0				2		144.1	27.2	9.0	54.0
30	32			0				1		128.0	18.8	9.0	53.0
31	137			0				1		130.7	18.9	7.0	54.0
TOTAL	1,962			4				48					
AVG.	63							2		136.3	21.4	8.5	48.3

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK	STEELHEAD
SPRING	1,962	4	48

TABLE 161

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

WELLS PROJECT
JUNE 1993

FISH COUNTS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD
1	15			0			0	1	
2	24			0			0	0	
3	29			2			0	0	
4	120			0			0	0	
5	29			0			0	0	
6	9			1			0	0	
7	14			0			0	0	
8	12			1			0	0	
9	17			1			0	0	
10	28			2			0	0	
11	39			5			0	0	
12	14			2			0	1	
13	18			0			0	0	
14	24			0			0	0	
15	24			1			0	0	
16	25			0			1	0	
17	12			0			2	1	
18	48			0			1	1	
19	29			1			2	1	
20	26			0			5	0	
21	14			0			2	0	
22	12			0			8	0	
23	10			1			19	0	
24	8			1			17	0	
25	8			0			32	1	
26	12			0			27	0	
27	9			1			41	3	
28	10			2			62	1	
29		10		1			112	0	
30		32		1			140	0	
TOTAL	639	42		23			471	10	
AVG.		21							

RIVER CONDITIONS

DATE	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1	132.6	12.3	9.0	53.0
2	153.3	22.1	10.0	54.0
3	149.3	24.1	10.0	54.0
4	144.0	23.9	10.0	55.0
5	121.9	24.6	10.0	55.0
6	92.8	7.0	8.0	55.0
7	120.7	8.6	10.0	56.0
8	104.2	4.0	10.0	56.0
9	126.2	0.0	10.0	56.0
10	137.3	0.0	10.0	55.0
11	130.4	0.0	11.0	56.0
12	76.5	0.0	12.0	56.0
13	62.2	0.0	10.0	56.0
14	87.8	0.0	11.0	58.0
15	83.6	0.0	12.0	58.0
16	89.4	0.0	11.0	57.0
17	93.4	0.0	11.0	57.0
18	96.9	0.0	11.0	57.0
19	76.7	0.0	11.0	57.0
20	67.6	0.0	11.0	58.0
21	96.7	0.0	12.0	58.0
22	100.3	4.6	12.0	58.0
23	110.2	8.0	12.0	58.0
24	100.0	6.8	12.0	58.0
25	92.9	6.8	11.0	57.0
26	90.1	6.5	12.0	58.0
27	83.4	6.1	12.0	58.0
28	105.1	7.8	11.0	58.0
29	115.8	8.3	12.0	58.0
30	135.4	8.8	12.0	58.0
AVG.	105.9	6.3	10.9	56.6

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	2,601	25
SUMMER	42	2
TOTAL	2,643	27

SOCKEYE	STEELHEAD
471	58

TABLE 161

TABLE 162

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

WELLS PROJECT
JULY 1993

	FISH COUNTS									RIVER CONDITIONS			
	CHINOOK ADULT											TURBIDITY	
DATE	SPRING	SUMMER	FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	SECCHI	DEG F
1		23		5			172	2		132.7	8.5	12.0	59.0
2		49		3			219	2		125.1	8.5	9.0	59.0
3		67		2			250	1		121.5	9.1	9.0	60.0
4		65		1			384	3		78.5	6.5	9.0	61.0
5		43		4			425	2		115.9	7.9	12.0	61.0
6		30		4			488	4		123.1	8.6	12.0	60.0
7		18		4			667	2		99.9	7.4	13.0	60.0
8		122		6			595	2		115.5	8.1	13.0	60.0
9		160		4			872	5		107.1	7.5	11.0	61.0
10		94		4			1193	4		89.8	7.0	11.0	61.0
11		64		2			1091	3		101.6	7.1	11.0	61.0
12		37		2			1416	1		106.2	7.5	12.0	61.0
13		32		2			1484	7		98.8	7.4	13.0	62.0
14		185		2			1468	4		114.8	8.1	13.0	62.0
15		152		4			1679	11		116.4	7.8	11.0	62.0
16		90		7			1235	9		120.6	8.3	13.0	61.0
17		65		11			1076	13		97.6	7.7	7.0	62.0
18		25		0			769	8		107.4	7.6	7.0	62.0
19		19		7			942	10		102.8	7.6	7.0	62.0
20		36		7			749	8		103.3	7.6	11.0	62.0
21		50		4			656	10		105.0	8.0	10.0	62.0
22		50		0			766	6		113.0	8.2	11.0	63.0
23		93		3			1020	15		106.9	7.6	10.0	63.0
24		93		0			1077	11		84.4	6.6	11.0	64.0
25		18		3			694	13		74.6	5.8	11.0	63.0
26		23		2			796	15		97.2	6.9	11.0	64.0
27		14		3			673	11		102.8	7.3	11.0	64.0
28		76		1			637	17		115.4	7.8	11.0	64.0
29		97		0			428	15		105.1	8.3	11.0	64.0
30		74		3			405	12		104.0	7.6	10.0	63.0
31		85		0			538	14		76.1	5.8	11.0	64.0
TOTAL		2,049		100			24,864	240					
AVG.		66		3			802	8		105.3	7.6	10.8	61.8

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	2,601	25
SUMMER	2,091	102
TOTAL	4,692	127

SOCKEYE	STEELHEAD
25,335	298

TABLE 163

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

WELLS PROJECT
AUGUST 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
		FISH COUNTS								RIVER CONDITIONS			
1		33		2	0		426	18		67.3	5.5	11.0	65.0
2		20		0	0		207	15		90.5	6.6	11.0	65.0
3		24		2	0		258	14		101.4	6.4	11.0	65.0
4		140		5	0		229	17		94.6	6.9	11.0	65.0
5		24		4	0		160	3		100.9	7.7	11.0	65.0
6		61		2	0		217	19		88.7	6.2	13.0	65.0
7		100		2	0		144	18		53.0	4.3	10.0	65.0
8		25		0	0		120	17		39.9	3.2	10.0	65.0
9		42		0	0		130	9		89.6	6.4	13.0	65.0
10		24		3	0		109	13		81.5	5.9	12.0	66.0
11		56		8	0		54	7		79.8	6.4	11.0	65.0
12		52		1	0		57	16		95.3	3.9	12.0	65.0
13		72		0	0		39	40		107.2	1.3	10.0	65.0
14		58		1	0		55	27		73.3	1.5	12.0	64.0
15		18		0	0		44	26		69.9	1.1	12.0	65.0
16		7		0	0		45	14		86.3	1.5	13.0	65.0
17		30		3	0		35	18		70.5	0.6	13.0	65.0
18		33		1	0		11	17		75.8	0.0	13.0	65.0
19		45		8	0		23	29		80.2	0.0	13.0	65.0
20		71		2	0		30	59		63.8	0.0	14.0	65.0
21		66		3	0		20	30		46.2	0.0	14.0	65.0
22		59		1	0		19	23		52.7	0.0	13.0	65.0
23		32		2	2		19	9		81.6	0.0	11.0	65.0
24		54		0	0		8	25		89.0	0.0	14.0	65.0
25		36		2	0		3	21		82.9	3.3	12.0	64.0
26		56		8	0		5	44		89.9	0.0	12.0	64.0
27		31		7	0		7	37		83.2	0.0	12.0	64.0
28		44		1	0		3	53		50.6	0.0	12.0	64.0
29			9	1	0		7	25		45.4	0.0	12.0	64.0
30			18	0	0		2	21		89.5	0.0	12.0	64.0
31			30	1	0		2	22		85.1	0.0	12.0	64.0
TOTAL		1,313	57	70	2		2,488	706					
AVG.		47	19	2			80	23					
										77.6	2.5	12.0	64.8

TOTALS TO DATE	CHINOOK ADULT	CHINOOK JACK
SPRING	2,601	25
SUMMER	3,404	170
FALL	57	2
TOTAL	6,062	197

SOCKEYE	STEELHEAD
27,823	1,004

TABLE 163

TABLE 164

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

WELLS PROJECT
SEPTEMBER 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
			FISH COUNTS							RIVER CONDITIONS			
1			32	3			1	23		79.3	0.0	12.0	65.0
2			33	1			2	34		84.0	0.0	12.0	65.0
3			43	11			1	28		81.9	0.0	12.0	65.0
4			21	3			9	34		54.7	0.0	12.0	65.0
5			19	0			2	35		46.1	0.0	13.0	65.0
6			55	5			1	47		54.5	0.0	13.0	66.0
7			43	6			0	18		94.6	0.0	12.0	66.0
8			11	0			1	28		96.1	0.0	11.0	66.0
9			24	6			0	32		86.8	0.0	12.0	65.0
10			11	0			0	19		70.7	0.0	12.0	66.0
11			32	6			1	48		45.0	0.0	11.0	65.0
12			44	2			1	25		37.6	0.0	12.0	65.0
13			74	10			1	39		73.0	0.0	12.0	65.0
14			37	2			0	12		74.4	0.0	12.0	65.0
15			21	2			0	21		75.9	0.0	12.0	65.0
16			15	0			0	13		67.9	0.0	13.0	65.0
17			35	6			1	50		84.8	0.0	12.0	64.0
18			15	5			0	41		41.6	0.0	11.0	64.0
19			34	0			1	44		45.4	0.0	12.0	65.0
20			43	1			0	22		92.8	0.0	13.0	65.0
21			5	1			0	16		81.6	0.0	11.0	64.0
22			19	0			0	35		80.5	0.0	14.0	65.0
23			29	12			1	36		79.6	0.0	15.0	65.0
24			17	7			0	28		78.4	0.0	12.0	64.0
25			18	2			1	45		49.2	0.0	12.0	64.0
26			2	0			0	50		38.3	0.0	12.0	65.0
27			13	0			1	23		82.6	0.0	14.0	64.0
28			20	4			1	14		79.5	0.0	13.0	64.0
29			12	0			0	8		83.8	0.0	14.0	64.0
30			5	0			0	15		82.9	0.0	14.0	64.0
TOTAL			782	95			26	883					
AVG.			26	3			1	29		70.8	0.0	12.4	64.8

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	2,601	25
SUMMER	3,404	170
FALL	839	97
TOTAL	6,844	292

SOCKEYE	STEELHEAD
27,849	1,887

TABLE 165

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

WELLS PROJECT
OCTOBER 1993

FISH COUNTS / RIVER CONDITIONS

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1			17	4	0			32		73.0	0.0	15.0	64.0
2			15	2	0			40		45.5	0.0	13.0	65.0
3			5	1	0			29		39.4	0.0	14.0	65.0
4			1	3	0			24		68.5	0.0	14.0	65.0
5			7	1	0			18		69.5	0.0	13.0	65.0
6			3	0	0			21		66.9	0.0	14.0	65.0
7			6	0	0			16		59.3	0.0	12.0	65.0
8			12	3	0			24		57.1	0.0	10.0	63.0
9			10	0	0			31		43.5	0.0	14.0	63.0
10			5	2	0			19		44.3	0.0	14.0	63.0
11			14	7	0			22		70.6	0.0	14.0	63.0
12			13	7	0			26		73.1	0.0	14.0	63.0
13			16	10	0			14		68.4	0.0	14.0	63.0
14			5	2	0			20		60.9	0.0	14.0	63.0
15			13	0	2			18		66.8	0.0	14.0	64.0
16			9	2	1			20		46.2	0.0	14.0	63.0
17			11	5	0			20		43.2	0.0	14.0	64.0
18			6	1	1			11		78.0	0.0	14.0	63.0
19			6	1	1			4		66.0	0.0	14.0	63.0
20			9	0	0			5		82.8	0.0	14.0	63.0
21			6	1	0			16		75.9	0.0	14.0	62.0
22			4	0	0			4		78.0	0.0	14.0	63.0
23			2	7	0			12		49.1	0.0	11.0	63.0
24			5	1	0			7		45.7	0.0	14.0	62.0
25			2	0	0			7		95.0	0.0	14.0	62.0
26			2	2	0			10		95.4	0.0	14.0	62.0
27			1	0	0			6		87.9	0.0	14.0	61.0
28			1	0	0			3		82.4	0.0	14.0	61.0
29			0	0	0			5		78.7	0.0	14.0	61.0
30			2	0	0			5		62.8	0.0	14.0	60.0
31			1	0	0			1		49.5	0.0	14.0	61.0
TOTAL			209	62	5			490					
AVG.			7	2				16		65.3	0.0	13.7	63.0

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	2,601	25
SUMMER	3,404	170
FALL	1,048	159
TOTAL	7,053	354

COHO ADULT
5

SOCKEYE	STEELHEAD
27,849	2,377

TABLE 165

TABLE 166

MONTHLY FISH PASSAGE SUMMARY REPORT
U.S. ARMY ENGINEER DISTRICT, PORTLAND

WELLS PROJECT
NOVEMBER 1993

DATE	CHINOOK ADULT SPRING	CHINOOK ADULT SUMMER	CHINOOK ADULT FALL	CHINOOK JACK	COHO ADULT	COHO JACK	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
	FISH COUNTS									RIVER CONDITIONS			
1			0	0				1		90.8	0.0	14.0	61.0
2			1	0				1		90.9	0.0	13.0	60.0
3			2	1				5		82.4	0.0	14.0	60.0
4			0	0				5		80.0	0.0	14.0	59.0
5			3	0				1		91.6	0.0	14.0	59.0
6			3	0				5		64.4	0.0	14.0	58.0
7			2	0				2		58.4	0.0	14.0	59.0
8			2	0				3		92.7	0.0	13.0	58.0
9			0	0				0		90.1	0.0		
10			0	0				0		80.8	0.0		
11			0	0				0		86.3	0.0		
12			0	0				0		71.0	0.0		
13			0	0				0		64.9	0.0		
14			0	0				0		64.0	0.0		
15			0	0				0		88.9	0.0		
16													
17													
18													
19													
20													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													
TOTAL			13	1				23					
AVG.								2		79.8	0.0	13.8	59.3

TOTALS TO DATE

	CHINOOK ADULT	CHINOOK JACK
SPRING	2,601	25
SUMMER	3,404	170
FALL	1,061	160
TOTAL	7,066	355

COHO ADULT
5

SOCKEYE	STEELHEAD
27,849	2,400

TABLE 167

MONTHLY COUNT OF STEELHEAD
WELLS DAM; 1976-1993

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1976					44	37	56	530	1,964	1,856	156		4,643
1977					37	22	38	1,034	818	2,849	526		5,324
1978					177	32	12	399	432	528			1,580
1979					72	2	22	1,212	938	1,040	355		3,641
1980					202	24	15	382	1,032	1,358	413		3,426
1981					139	23	107	212	1,702	1,401	513		4,097
1982					149	7	67	814	2,428	3,733	730		7,928
1983					26	2	145	1,891	10,728	5,294	1,327		19,413
1984					153	32	766	5,024	6,545	3,298	778		16,596
1985					220	401	2,675	3,387	9,822	2,821	541		19,867
1986					65	102	1,515	4,994	3,833	2,391	403		13,303
1987					13	29	413	1,897	1,668	1,236	237		5,493
1988					85	103	357	1,273	1,797	785	0		4,400
1989					43	11	351	1,168	2,223	804	0		4,600
1990					20	16	283	1,093	1,630	702	104		3,848
1991					14	8	361	2,054	3,078	1,923	313		7,751
1992					86	168	892	1,448	2,946	1,346	181		7,067
1993					48	10	240	706	883	490	23		2,400
TOTAL					1,593	1,029	8,315	29,518	54,467	33,855	6,600		135,377
10-Year Average					75	88	785	2,304	3,443	1,580	258		8,533

TABLE 167

PROJECT SITE MAPS

Columbia and Snake River Projects

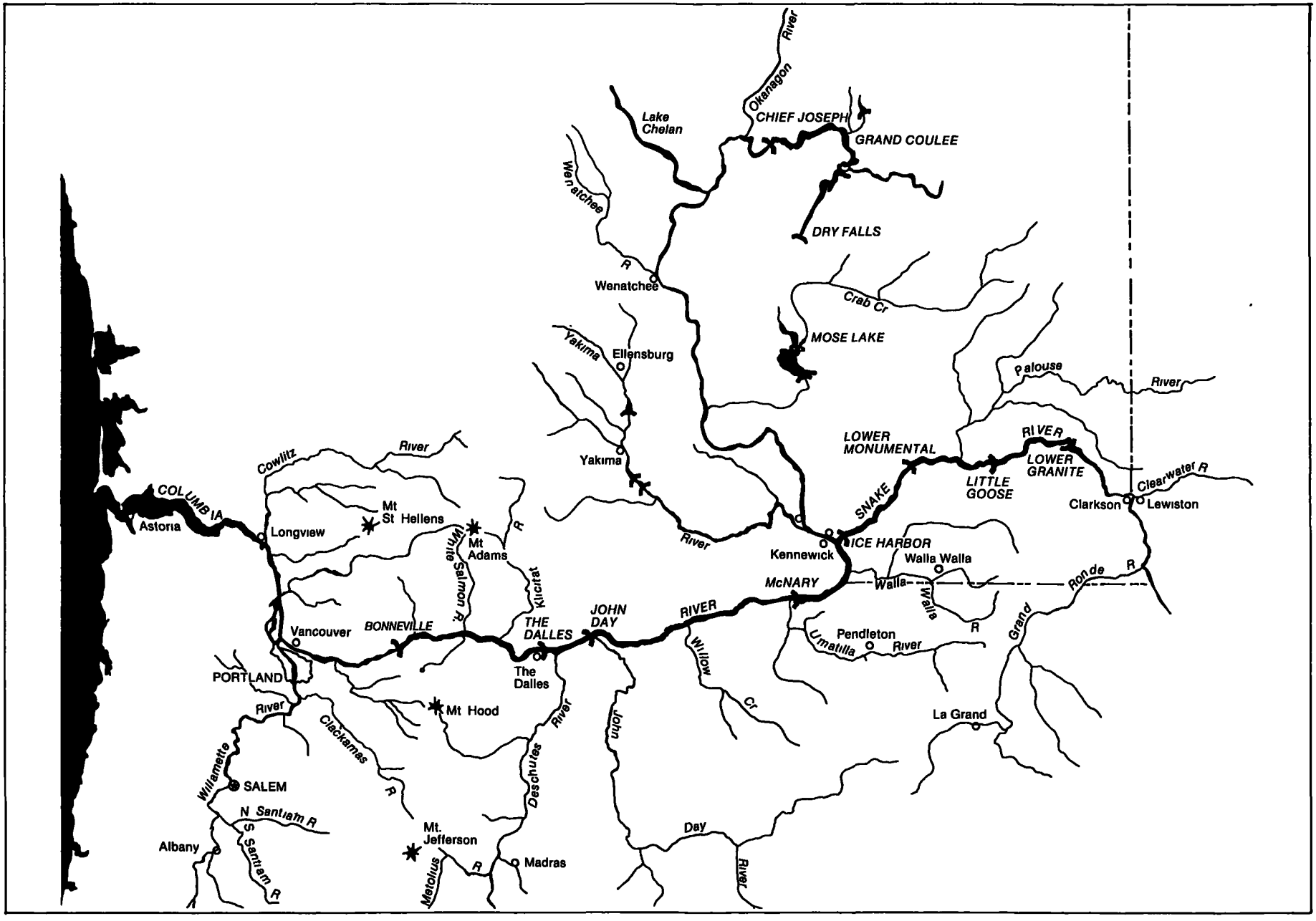
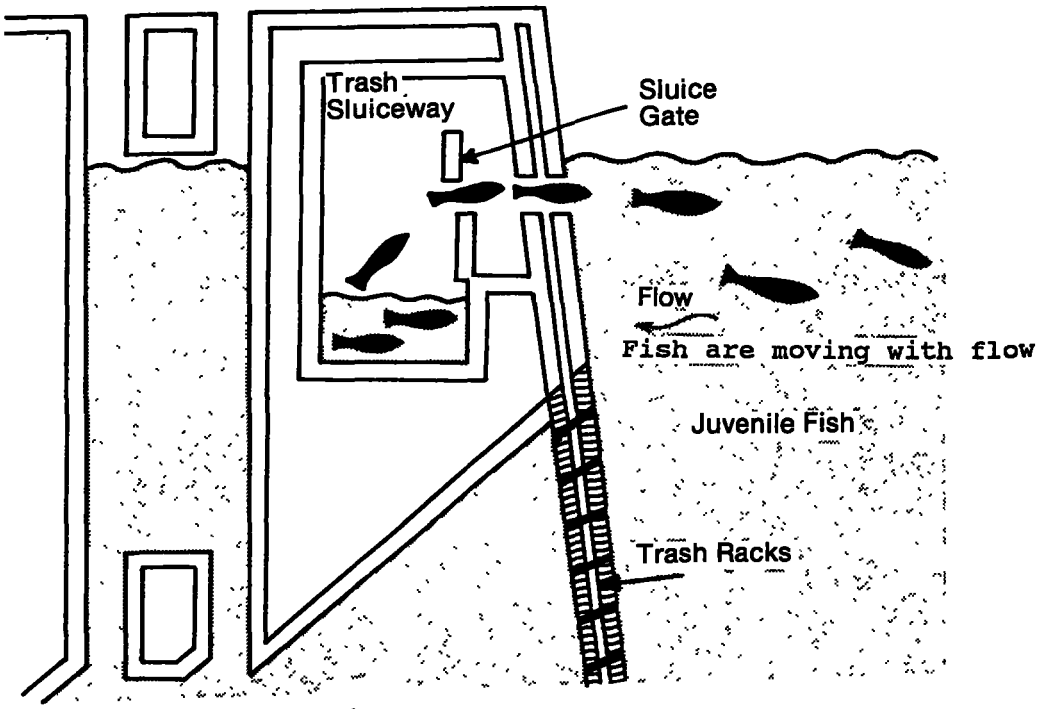


PLATE 1

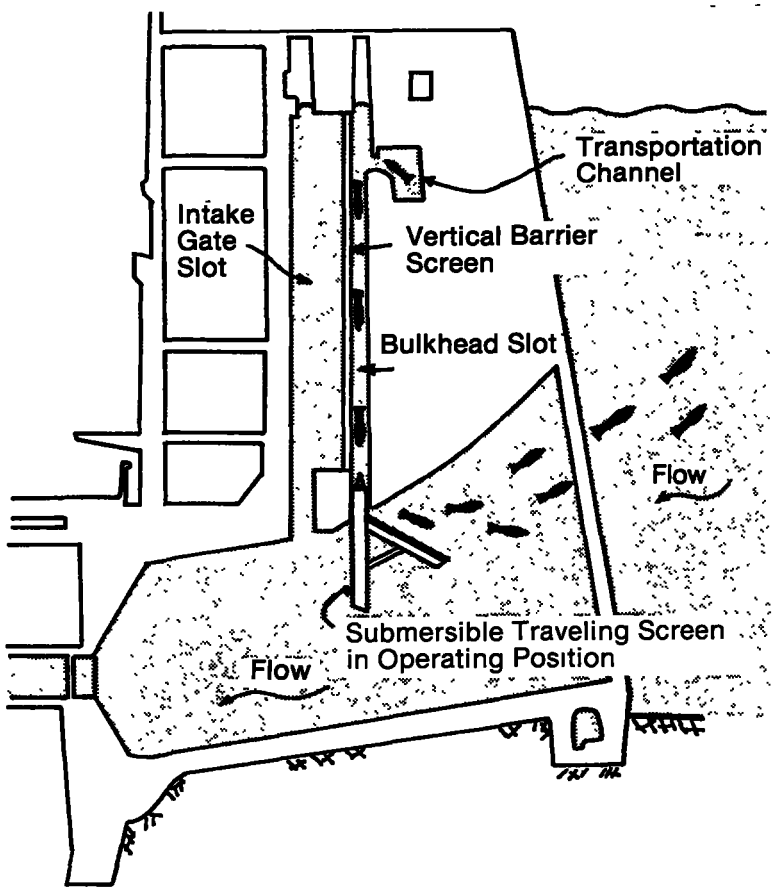
Juvenile By-pass Systems

The Dalles
Ice Harbor



Ice and Trash Sluiceway

Bonneville
John Day
McNary
Little Goose
Lower Granite



Submersible Traveling Screen

Not to Scale

Plate 2

Bonneville Lock and Dam

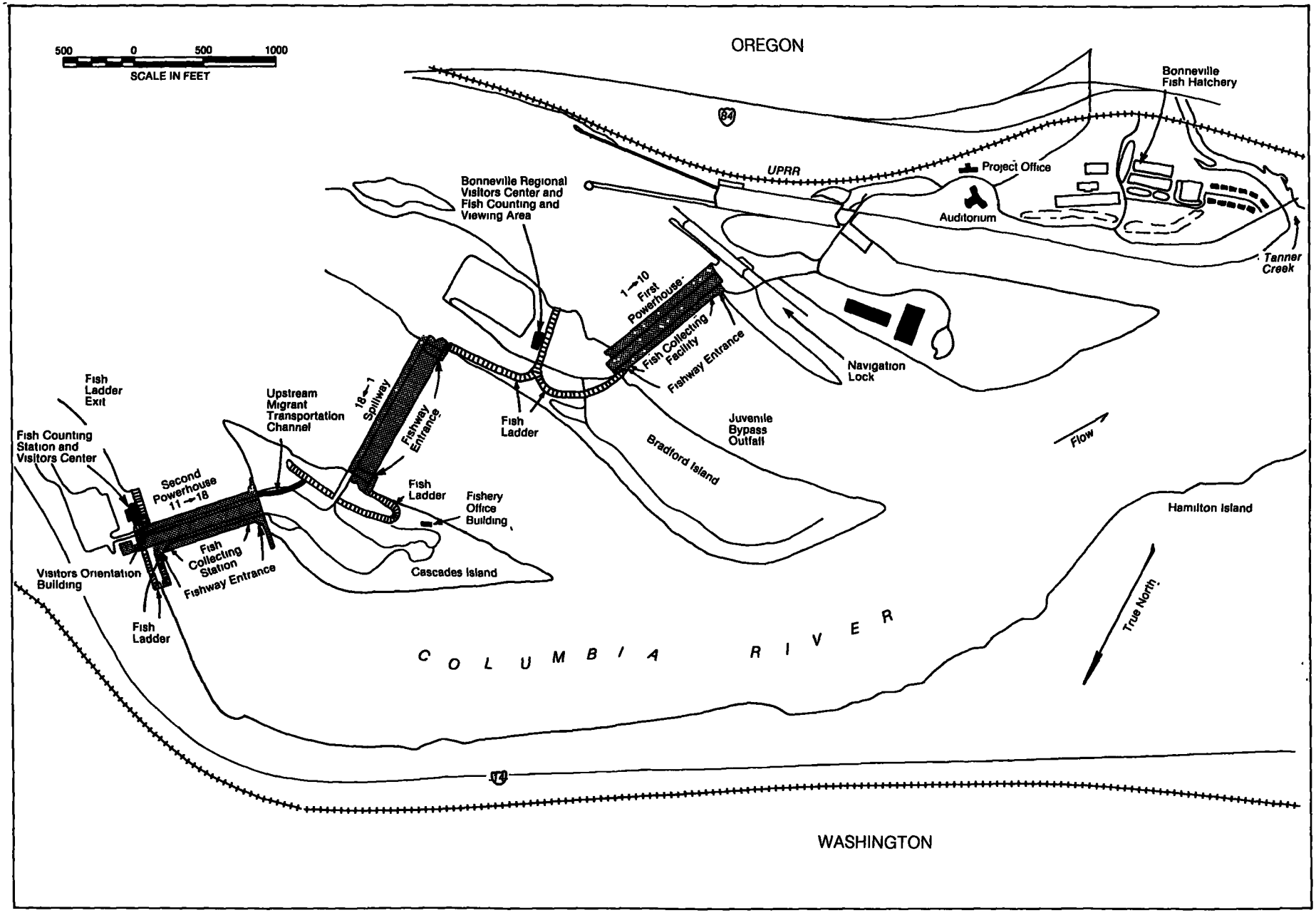


PLATE 3

3

The Dalles Lock and Dam

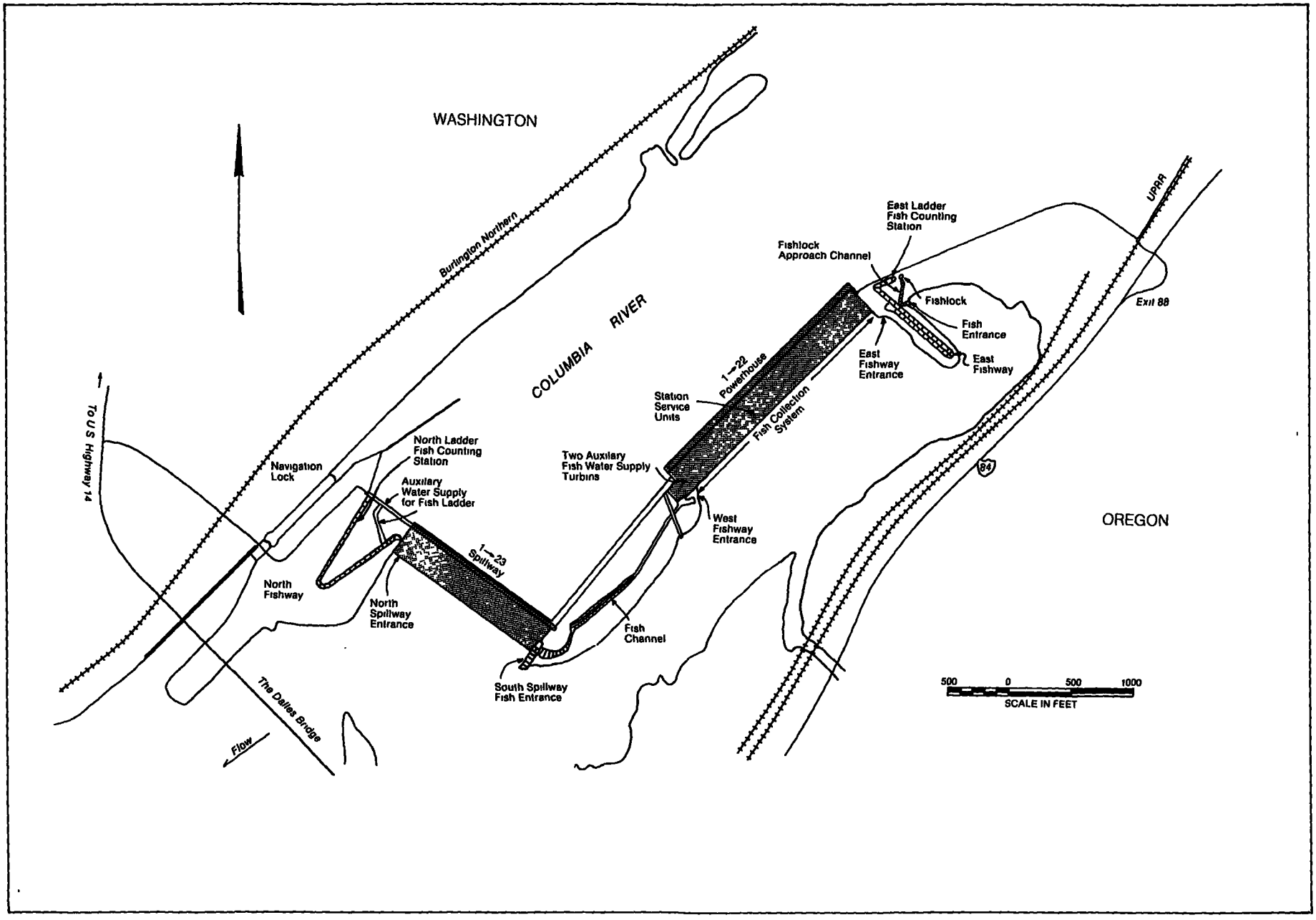


PLATE 4

John Day Lock and Dam

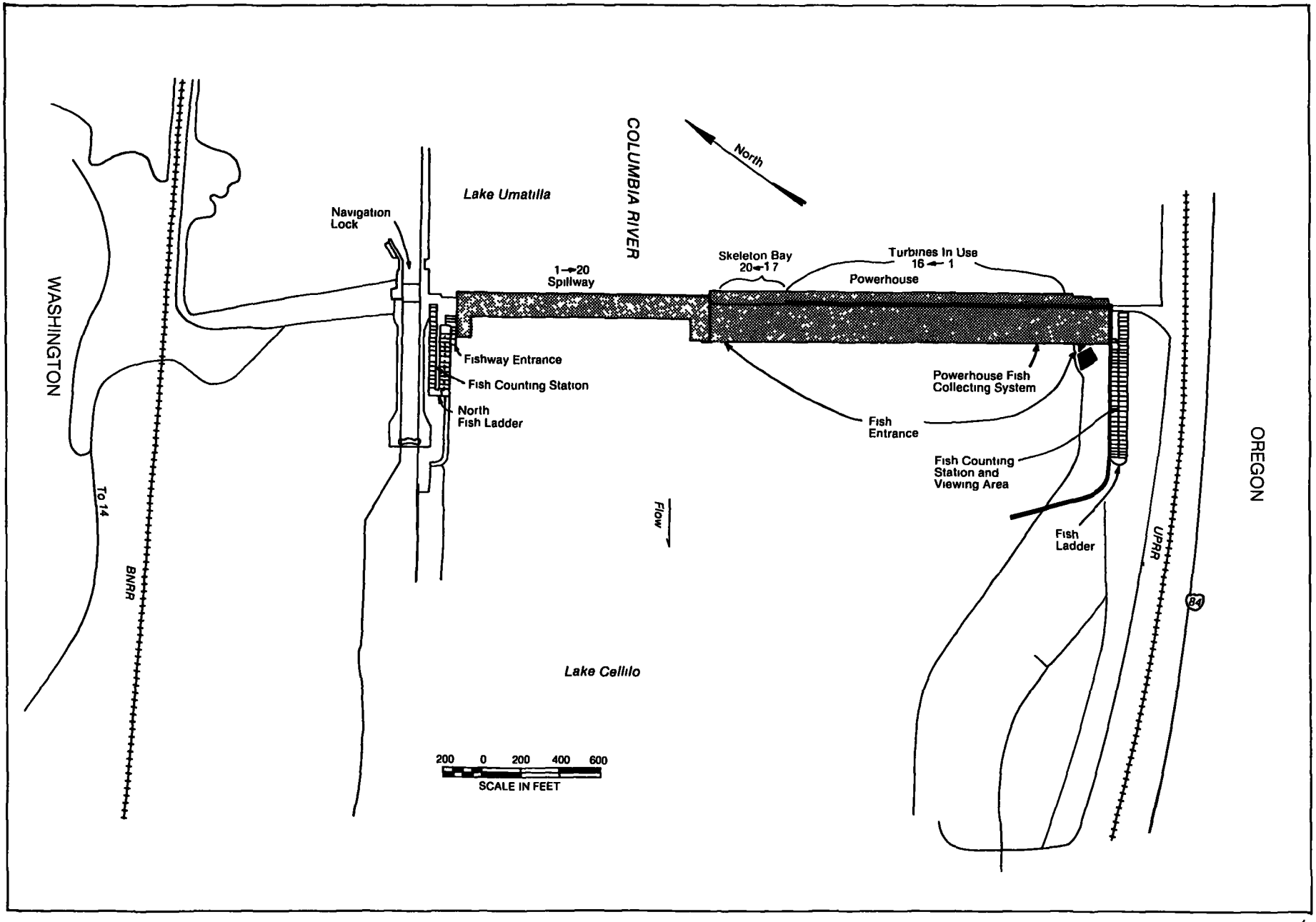


PLATE 5

5

McNary Lock and Dam

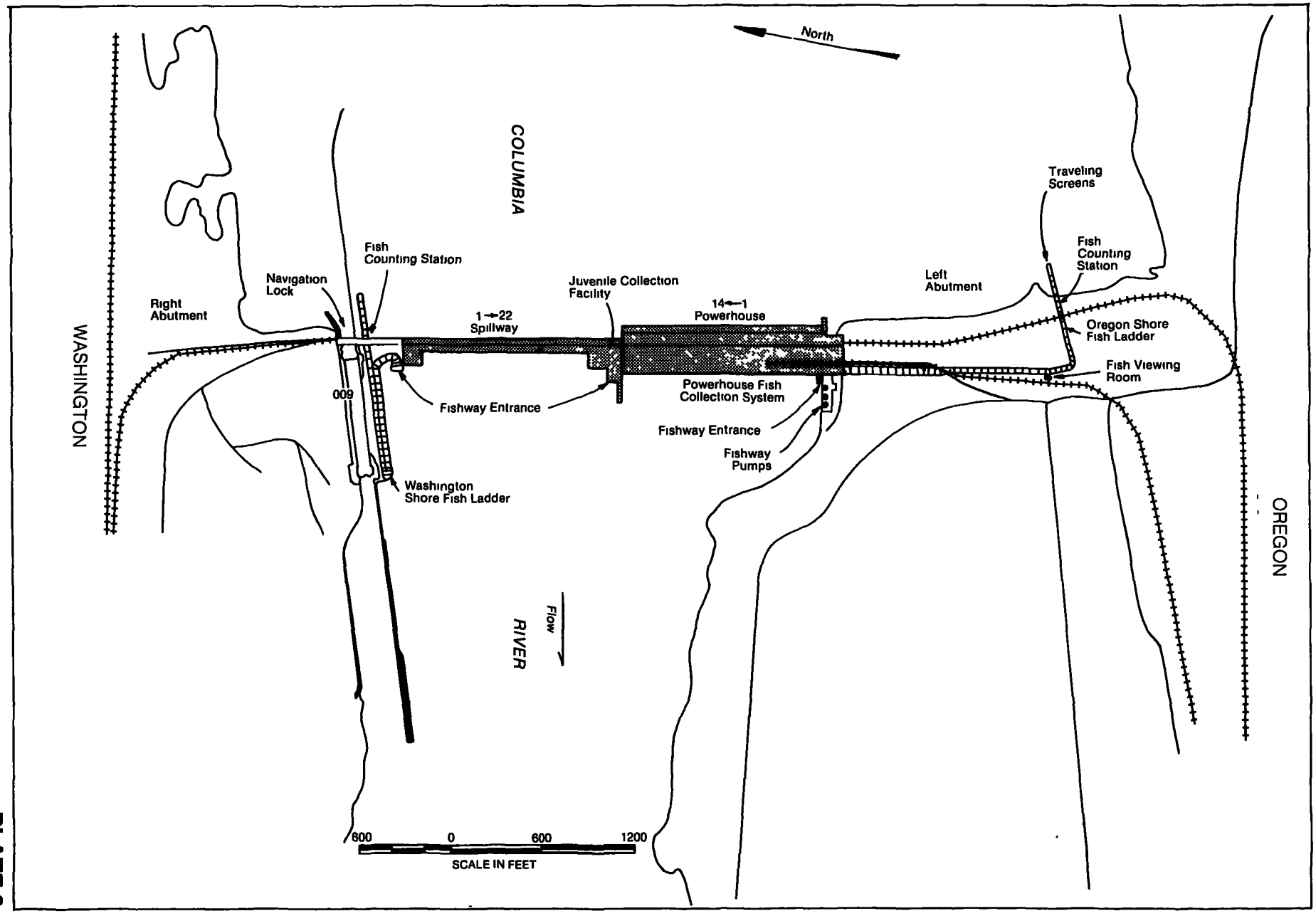


PLATE 6

Ice Harbor Lock and Dam

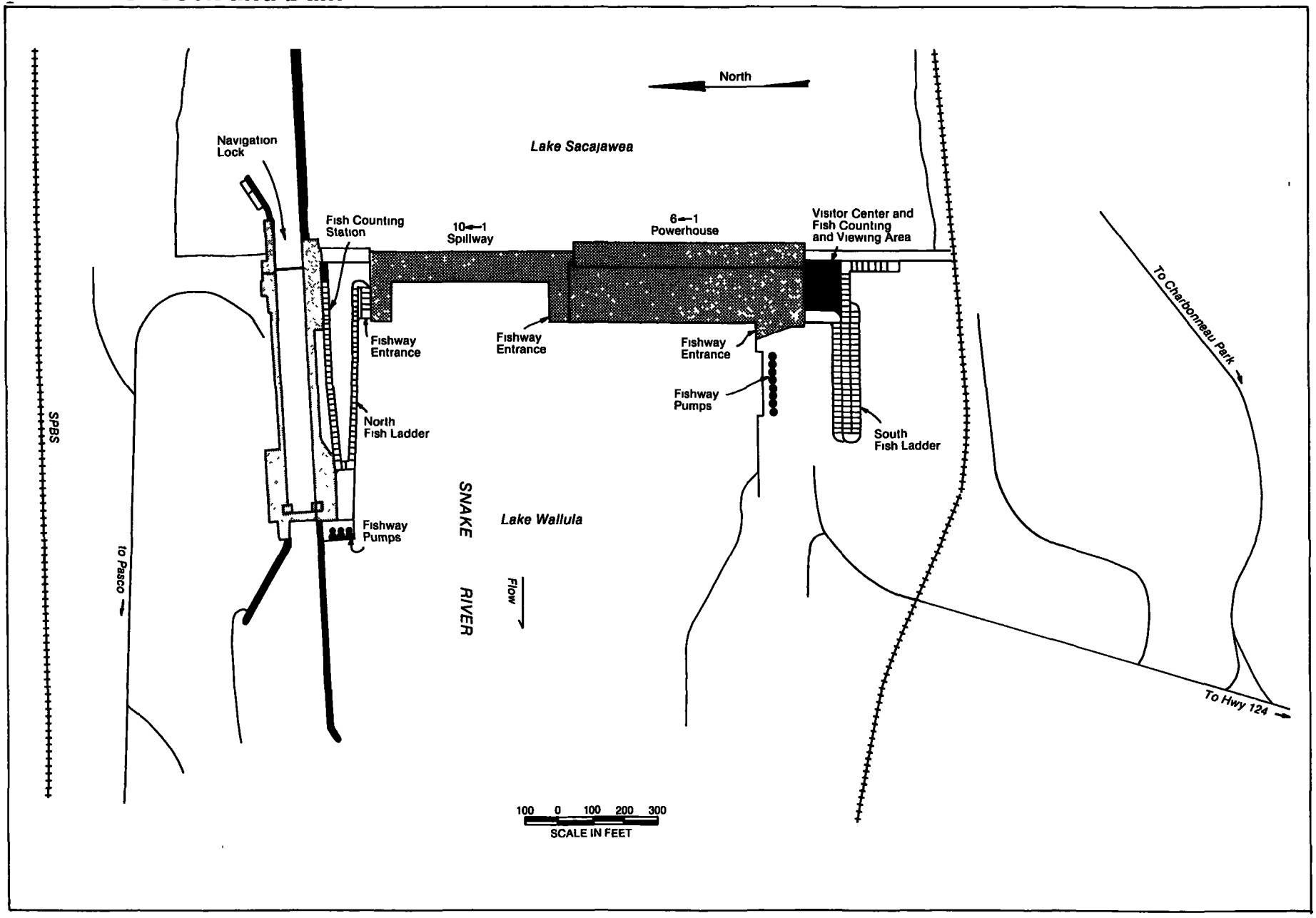


PLATE 7

Lower Monumental Lock and Dam

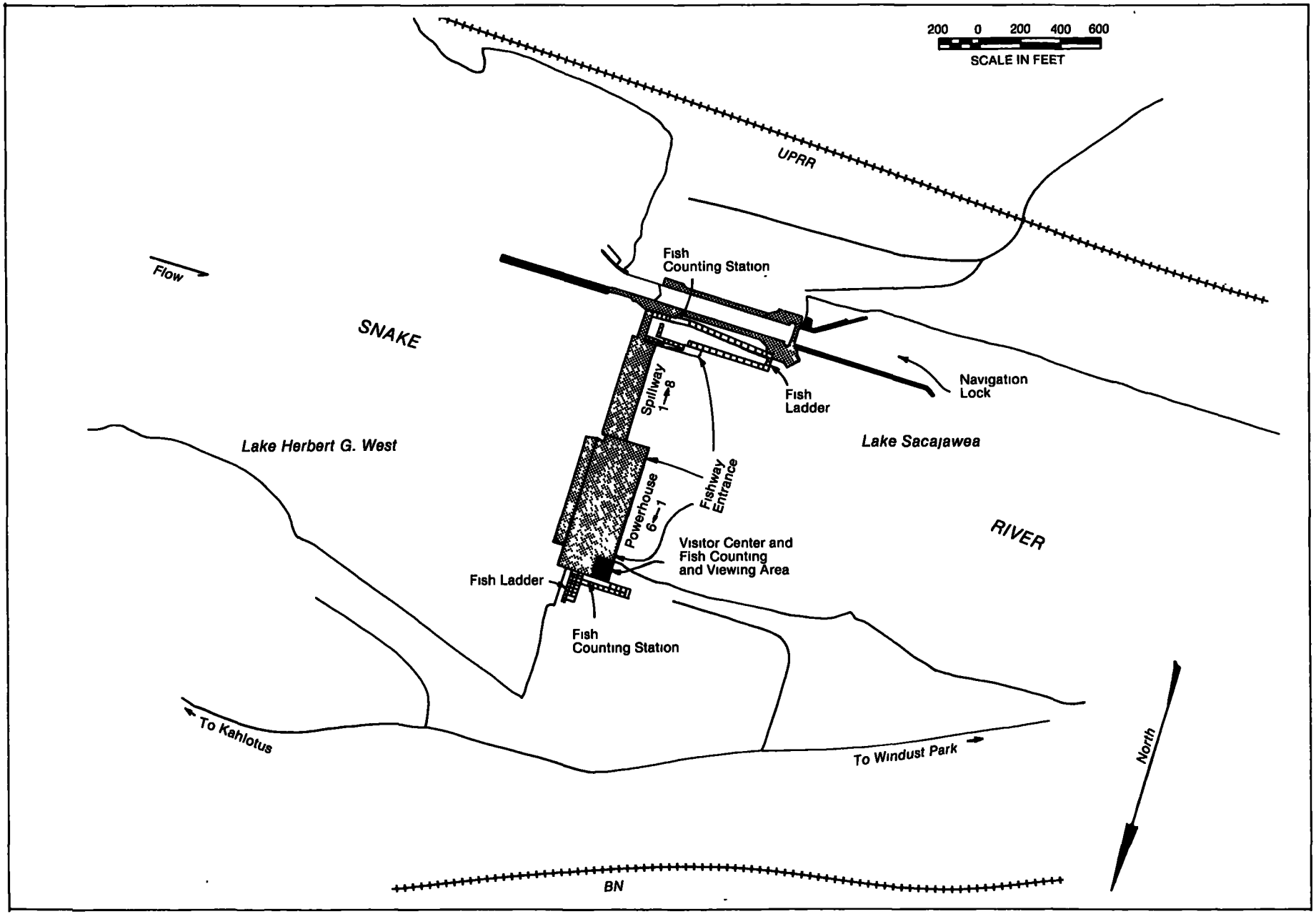


PLATE 8

Little Goose Lock and Dam

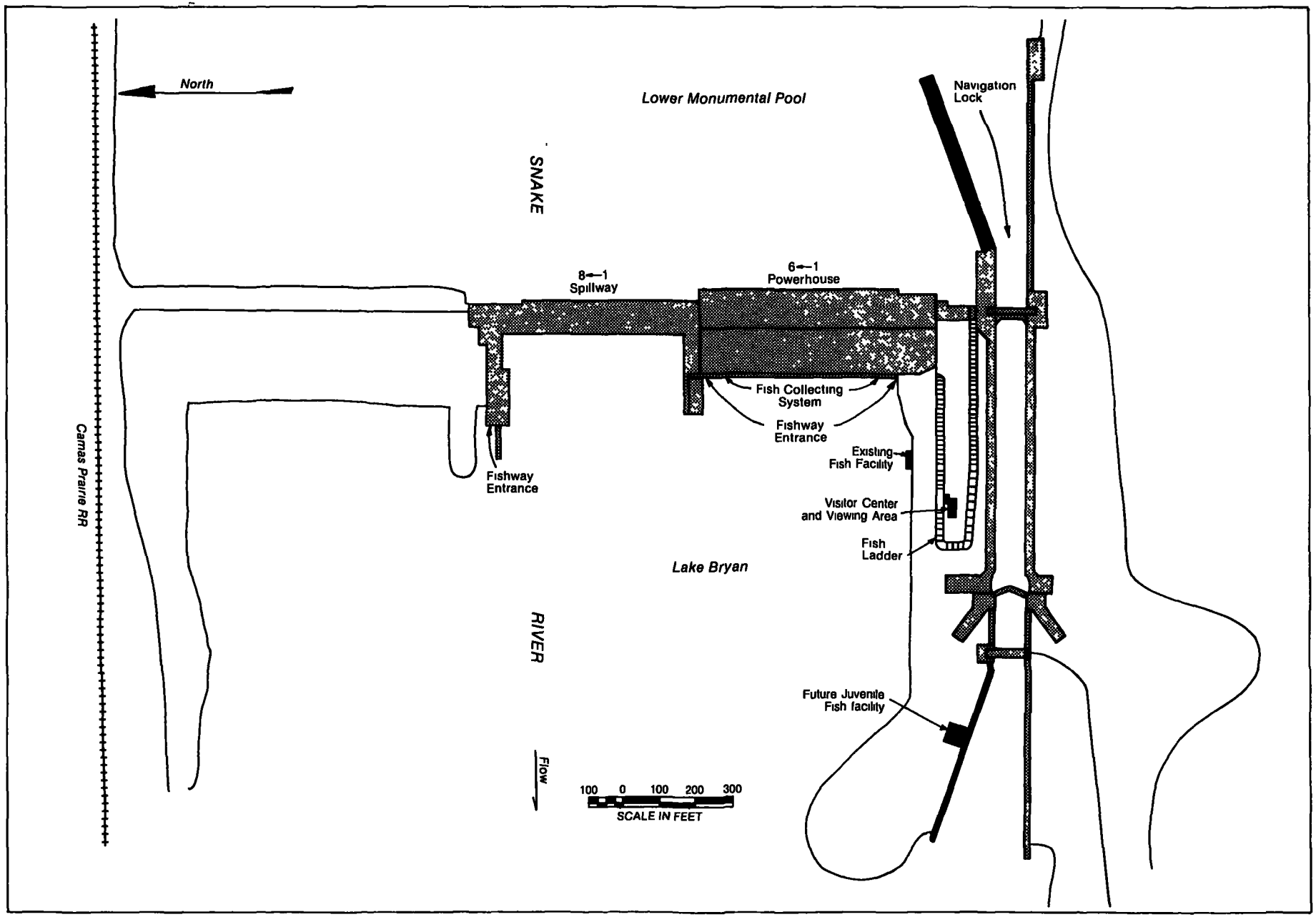
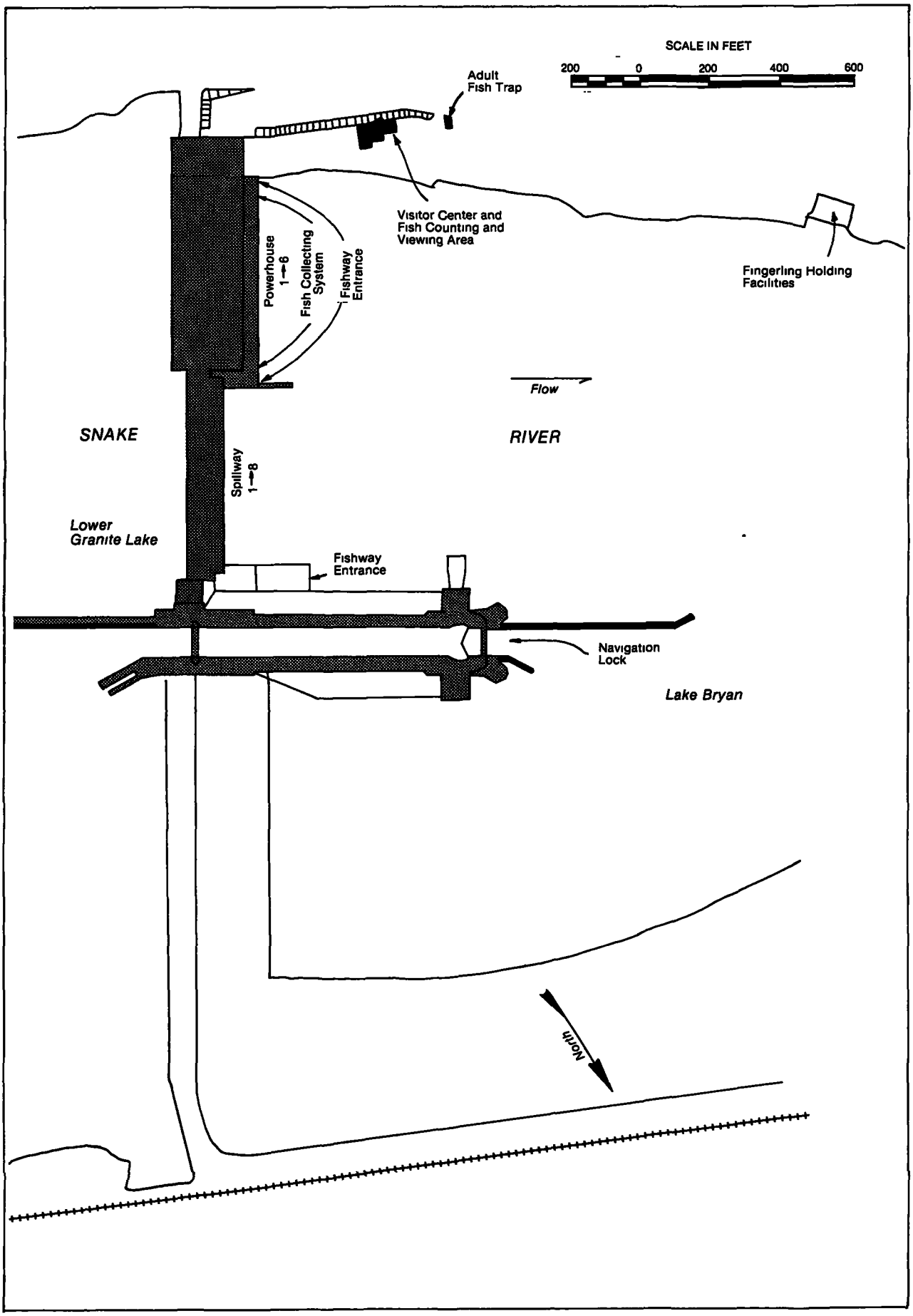


PLATE 9

9



Lower Granite Lock and Dam

PLATE 10