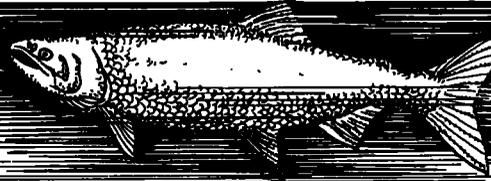
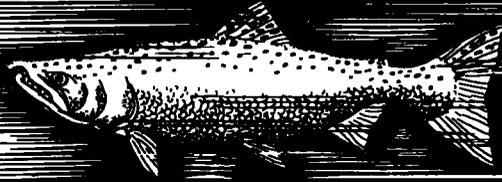
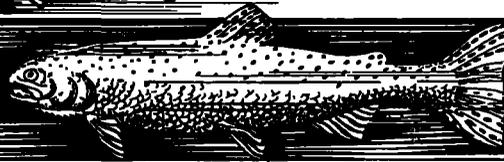
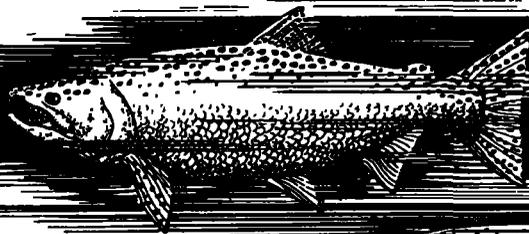




**US Army Corps
of Engineers**

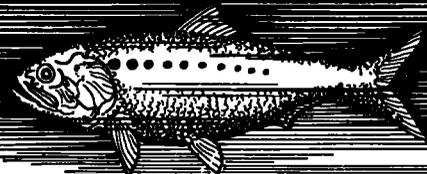
Portland & Walla Walla Districts

ANNUAL FISH PASSAGE REPORT – 1988



**COLUMBIA RIVER PROJECTS
SNAKE RIVER PROJECTS**

OREGON AND WASHINGTON



1988

ANNUAL FISH PASSAGE REPORT

COLUMBIA AND SNAKE RIVERS

FOR

SALMON, STEELHEAD AND SHAD

*BONNEVILLE
THE DALLES
JOHN DAY
MCNARY
ICE HARBOR
LOWER MONUMENTAL
LOWER GRANITE*

**NORTH PACIFIC DIVISION
CORPS OF ENGINEERS**

Prepared by:

U.S. Army Engineer Districts

Portland and Walla Walla

TABLE OF CONTENTS

Columbia River

BONNEVILLE DAM

Text	Page
1988 Fish Counting Schedule	1
1988 Adult Fish Facilities Operating Schedule	1-2
1988 Fishway Activities	2-3

THE DALLES DAM

1988 Fish Counting Schedule	4
1988 Adult Fish Facilities Operating Schedule	4
1988 Ice and Trash Sluiceway Operating Schedule	5
1988 Fishway Activities	5

JOHN DAY DAM

1988 Fish Counting Schedule	6
1988 Adult Fish Facilities Operating Schedule	6
1988 Fishway Activities	6

McNARY DAM

1988 Fish Counting Schedule	7
1988 Fish Ladder Operating Schedule	7
1988 Fishway Activities	7

Note: All 10-year averages include years 1979 - 1988.
All tables showing water quality data only were non-counting months.

TABLE OF CONTENTS
(Continued)

Snake river

ICE HARBOR DAM

1988 Fish Counting Schedule	8
1988 Fish Ladder Operating Schedule	8
1988 Fishway Activities	8

LOWER MONUMENTAL DAM

1988 Fish Counting Schedule	9
1988 Fish Ladder Operating Schedule	9
1988 Fishway Activities	9

LITTLE GOOSE DAM

1988 Fish Counting Schedule	10
1988 Fish Ladder Operating Schedule	10
1988 Fishway Activities	10

LOWER GRANITE DAM

1988 Fish Counting Schedule	11
1988 Fish Ladder Operating Schedule	11
1988 Fishway Activities	11

ROCKY REACH DAM **12**

PRIEST RAPIDS DAM

1988 Fish Counting Schedule	13
1988 Fish Ladder Operating Schedule	13
1988 Fishway Activities	13

LIST OF TABLES

COLUMBIA RIVER

GENERAL

Table No.

- 1 Fish Escapement At Main Stem Dams Columbia and Snake Rivers; 1938 - 1988
- 2 Steelhead Over Columbia and Snake Dams - 1953-1988, By Run-Year; (June 1 - May 31)

BONNEVILLE DAM

- 3 Yearly Totals of Salmonids Counted 1938-1988
- 4 Monthly Totals of Salmonids and Shad Counted 1988
- 5-15 Monthly Discharge, Water Quality Data, and Fish Counts January through December 1988
- 16 Monthly Count of Chinook Salmon 1938-1988
- 17 Monthly Count of Sockeye Salmon - 1938-1988
- 18 Monthly Count of Coho Salmon - 1938-1988
- 19 Monthly Count of Steelhead Trout - 1938-1988
- 20 Monthly Count of Shad - 1938-1988

THE DALLES DAM

- 21 Yearly Totals of Salmonids Counted 1957-1988
- 22 Monthly Totals of Salmonids and Shad Counted in 1988
- 23-31 Monthly Discharge, Water Quality Data, and Fish Counts January through December 1988
- 32 Monthly Count of Chinook Salmon 1957-1988
- 33 Monthly Count of Sockeye Salmon 1957-1988
- 34 Monthly Count of Coho Salmon 1957-1988
- 35 Monthly Count of Steelhead Trout 1957-1988

LIST OF COLUMBIA RIVER TABLES

(continued)

JOHN DAY DAM

Table No.

- 36 Yearly Totals of Salmonids Counted 1968-1988
- 37 Monthly Totals of Salmonids and Shad Counted 1988
- 38-46 Monthly Discharge, Water Quality Data, and Fish Counts
January through December 1988
- 47 Monthly Count of Chinook Salmon 1968-1988
- 48 Monthly Count of Sockeye Salmon 1968-1988
- 49 Monthly Count of Coho Salmon 1968-1988
- 50 Monthly Count of Steelhead Trout 1968-1988

MISCELLANEOUS SPECIES

- 51 Miscellaneous species sighted at Bonneville,
The Dalles, and John Day Dams - 1988

McNARY DAM

- 52 Yearly Totals of Salmonids Counted 1954-1988
- 53 Monthly Totals of Salmonids and Shad counted 1988
- 54-62 Monthly Discharge, Water Quality Data, and Fish Counts
January through December 1988
- 63 Monthly Count of Chinook Salmon 1954-1988
- 64 Monthly Count of Sockeye Salmon 1954-1988
- 65 Monthly Count of Coho Salmon 1954-1988
- 66 Monthly Count of Steelhead Trout 1954-1988

LIST OF SNAKE RIVER TABLES

ICE HARBOR DAM

Table No.

- 67 Yearly Totals of Salmonids Counted 1962-1988
- 68 Monthly Totals of Salmonids and Shad Counted 1988
- 69-77 Monthly Discharge, Water Quality Data, and Fish Counts
January through December 1988
- 78 Monthly Count of Chinook Salmon 1962-1988
- 79 Monthly Count of Steelhead Trout 1962-1988

LOWER MONUMENTAL DAM

- 80 Yearly Totals of Salmonids Counted 1969-1988
- 81 Monthly Totals of Salmonids and Shad Counted 1988
- 82-90 Monthly Discharge, Water Quality Data, and Fish Counts
January through December 1988
- 91 Monthly Count of Chinook Salmon 1969-1988
- 92 Monthly Count of Steelhead Trout 1969-1988

LOWER GRANITE DAM

- 93 Yearly Totals of Salmonids Counted 1975-1988
- 94 Monthly Totals of Salmonids Counted 1988
- 95-105 Monthly Discharge, Water Quality Data, and Fish Counts
January through December 1988
- 106 Monthly Totals of Chinook Counted 1975-1988
- 107 Monthly Totals of Steelhead Trout Counted 1975-1988

LIST OF PLATES

Plate No.

- 1 Columbia and Snake River Projects
- 2 Juvenile By-pass Systems
- 3 General Site Map, Fish Passage Facilities
Bonnevillle Dam
- 4 General Site Map, Fish Passage Facilities
The Dalles Dam
- 5 General Site Map, Fish Passage Facilities
John Day Dam
- 6 General Site Map, Fish Passage Facilities
McNary Dam
- 7 General Site Map, Fish Passage Facilities
Ice Harbor Dam
- 8 General Site Map, Fish Passage Facilities
Lower Monumental Dam
- 9 General Site Map, Fish Passage Facilities
Little Goose Dam
- 10 General Site Map, Fish Passage Facilities
Lower Granite Dam

ANNUAL FISH PASSAGE REPORT
COLUMBIA
and SNAKE RIVER PROJECTS
CALENDAR YEAR 1988

BONNEVILLE DAM - 1988

1988 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, 0800-1600 hours Pacific Standard Time.
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 - 30 Nov*	Fish were counted in both ladders for one 8-hour shift each day, 0800-1600 hours Pacific Standard Time.
1 Dec - 31 Dec	No counting.

*Normally, the fish counting season is from 15 March to 15 November, but the counting was extended to observe possible impacts caused by activities related to construction of Bonneville's new navigation lock.

1988 Adult Fish Facilities Operating Schedule.

Bradford Island Fish Ladder:

1 Jan - 12 Feb	Powerhouse 1 collection channel out of service for annual maintenance.
12 Jan - 13 Jan	A-branch dewatering, attempted unsuccessfully for annual maintenance.
20 Jan - 12 Feb	A-branch out of service for annual maintenance.
28 Nov - 21 Dec	Powerhouse 1 collection channel out of service for for annual maintenance.

Second Powerhouse Fish Ladder:

- 28 Nov - 28 Dec Cascade Island fish ladder out of service for annual maintenance.
- 29 Nov - 28 Dec Upstream migrant transportation channel out of service for annual maintenance.

Downstream Migrant Facilities Operating Schedule.

First Powerhouse:

- 1 Jan - 20 Jan Downstream migrant transportation channel out of service for annual maintenance.
- 6 Dec - 31 Dec Downstream migrant transportation channel out of service for annual maintenance.

Second Powerhouse:

- 1 Jan - 12 Feb Downstream migrant transportation channel out of service for annual maintenance.
- 29 Dec - 31 Dec Downstream migrant transportation channel out of service for annual maintenance.

Fishway Activities

The Washington Department of Wildlife conducted the 1988 fish counting program under contract with the U.S. Army Corps of Engineers. Fish were counted according to the above schedule 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. Counting was expanded to 1 March through 30 November to provide information for future evaluation of possible impacts of the new navigation lock being constructed.

The National Marine Fisheries Service continued to use the Adult Fish Collection and Monitoring Facility at the second powerhouse to capture marked fish as part of an evaluation of the juvenile salmonid transportation program. All fish were returned to the ladder after examination and were counted at the counting station as usual.

The U.S. Fish and Wildlife Service used the Adult Fish Collection and Monitoring Facility to collect early spawning (tule) fall chinook to supplement low returns of adults to Spring Creek National Fish Hatchery. A total of 2,869 chinook (228 jacks) were trapped between 23 August and 12 September, and were transported to the hatchery. These fish were not counted at the dam and counts were not adjusted for them.

The Washington Department of Fisheries conducted special fish counting again this year to update upriver fall chinook run size estimates.

The National Marine Fisheries Service used the juvenile bypass system fish sampling facilities at both powerhouses to monitor passage of downstream migrants.

The National Marine Fisheries Service conducted a second year of survival studies of juvenile fish passing through a turbine and bypass system of the second powerhouse for the Corps of Engineers. Again, as last year, releases through the spillway were not done because river flow was low and resulting tailwater was too low to be representative of normal spill conditions.

The National Marine Fisheries Service and the Corps of Engineers continued investigation of the juvenile bypass system fish guidance efficiency at the second powerhouse.

Fish guidance efficiency at the first powerhouse was investigated by the National Marine Fisheries Service.

The Corps of Engineers contracted with Biosonics, Inc. to develop hydroacoustic techniques for use in future studies at the first powerhouse.

The Columbia River Inter-tribal Fish Commission used the second powerhouse adult fish collection and monitoring facility to study sockeye salmon.

THE DALLES DAM - 1988

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 - 21 Jan	Out of service for annual maintenance.
22 Jan - 3 Dec	In service.
4 Dec - 31 Dec	Out of service for annual maintenance.

Two small generating units (referred to here as fish units) supply auxiliary water for the adult fish facilities of the powerhouse, associated with the east ladder.

Fish Unit #1:

1 Jan - 13 Mar	Out of service for annual maintenance and to repair cooling system water leaks.
14 Mar - 14 Aug	In service.
15 Aug - 15 Aug	Out of service for semi-annual maintenance.
16 Aug - 9 Dec	In service.
10 Dec - 31 Dec	Out of service for annual maintenance.

Fish Unit #2:

1 Jan - 10 Feb	Out of service for annual maintenance.
11 Feb - 15 Aug	In service.
16 Aug - 16 Aug	Out of service for semi-annual maintenance.
17 Aug - 13 Nov	In service.
14 Nov - 31 Dec	Out of service for annual maintenance.

North Fish Ladder:

1 Jan - 31 Dec	In service.
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Ice and Trash Sluiceway Operating Schedule (for juvenile fish bypass):

1 Jan - 31 Mar	Operated with gatewell orifice flow.
1 Apr - 31 Aug	Operated with gatewell orifice flow. Sluiceway gates 1-1, 1-2, 1-3 open 16 hours daily including sunrise to sunset.
1 Sep - 31 Nov	Operated with gatewell orifice flow. Sluiceway gates 1-1, 1-2, 1-3 open at least from sunrise to sunset.
14 Nov - 31 Dec	Operated with gatewell orifice flow. (Out 1 day early for safety during fish unit #2 dewatering).

Fishway Activities

The Washington Department of Wildlife conducted the 1988 fish counting program under contract with the Corps of Engineers. Fish were counted 16 hours per day for 50 minutes of each hour. Counts were multiplied by 1.2 to estimate passage for the full hour.

Planning progressed for a generating facility to be installed in the North ladder auxiliary water channel for the North Wasco County PUD.

JOHN DAY DAM - 1988

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:

1 Jan - 4 Jan	In service.
5 Jan - 7 Mar	Out of service for annual maintenance.
8 Mar - 31 Dec	In service.

North Fish Ladder:

1 Jan - 5 Dec	In service.
6 Dec - 20 Dec	Out of service for annual maintenance.
21 Dec - 31 Dec	In service.

Fishway activities

The Washington Department of Wildlife conducted the 1988 fish counting program under contract with the Corps of Engineers. Fish were counted 16 hours per day for 50 minutes of each hour. Counts were multiplied by 1.2 to estimate passage for the full hour.

The Corps contracted Biosonics Inc. to provide hydroacoustic monitoring information from which spill was regulated to provide safer passage when juvenile fish passage increased.

The National Marine Fisheries Service continued to operate the airlift sampling device in unit #3 for juvenile fish passage indexing.

MCNARY DAM - 1988

1988 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.

1988 Fish Ladder Operating Schedule

North Ladder:

1 Jan - 3 Jan	In service.
4 Jan - 12 Feb	Out of service for annual inspection and maintenance.
13 Feb - 31 Dec	In service.

South Ladder:

1 Jan - 25 Jan	In service.
26 Jan - 18 Feb	Out of service for annual inspection and maintenance.
19 Feb - 31 Dec	In service.

1988 Fishway Activities

Two 8-hour counting shifts were conducted from 0400 - 2000 hours Pacific Standard Time from 1 April through 31 October. Both fish ladders were counted by direct observation. Fish counting in 1988 was accomplished under contract by the State of Washington Department of Wildlife.

The juvenile collection and transportation system was in operation from 25 March to 21 September.

ICE HARBOR DAM - 1988

1988 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.

1988 Fish Ladder Operating Schedule

North Ladder:

1 Jan - 4 Jan	In-service.
5 Jan - 7 Jan	Out of service for annual inspection and maintenance.
8 Jan - 31 Dec	In-service.

South Ladder:

1 Jan - 10 Jan	In-service.
11 Jan - 13 Jan	Out of service for annual inspection and maintenance.
14 Jan - 31 Dec	In-service.

1988 Fishway Activities

Two 8-hour counting shifts were conducted from 0400-2000 hours Pacific Standard Time from 1 April through 31 October. One counter counted the south ladder by direct observation and the north ladder by closed circuit television. Fish counting in 1988 was accomplished under contract by the by the State of Washington Department of Wildlife.

The ice and trash sluiceway was operated as a juvenile bypass from 31 March to 1 September.

The University of Idaho trapped and collected adult fall chinook in the south ladder during September and October for brood stock for Lyons Ferry Salmon Hatchery.

LOWER MONUMENTAL DAM - 1988

1988 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.

1988 Fish Ladder Operating Schedule

North Ladder:

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

South Ladder:

1 Jan - 15 Feb	In-service.
16 Feb - 17 Feb	Out of service for annual inspection and maintenance.
18 Feb - 31 Dec	In-service.

1988 Fishway Activities

Two 8-hour counting shifts were conducted from 0400-2000 hours Pacific Standard Time from 1 April through 31 October. One counter counted the north ladder by direct observation and the south ladder by closed circuit television. Fish counting in 1988 was accomplished under contract by the Washington Department of Wildlife.

A hydroacoustic evaluation of juvenile salmonid passage was conducted as part of the Corps' spill monitoring program.

Washington Department of Wildlife dipped the gatewells of one of the turbine units as part of the smolt monitoring program for the Fish Passage Center.

The juvenile bypass system operated from 30 March to 1 September.

LITTLE GOOSE DAM - 1988

1988 Fish Counting Schedule

1 Jan - 31 Mar	No counting.
1 Apr - 31 Oct	Counting daily 0400-2000 hours Pacific Standard Time with video motion detector system to monitor total fish passage.
1 Nov - 31 Dec	No counting.

1988 Fish Ladder Operating Schedule

Project Ladder:

1 Jan - 3 Jan	In-service.
4 Jan - 28 Jan	Out of service for annual inspection and maintenance.
29 Jan - 31 Dec	In-service.

1988 Fishway Activities

The juvenile collection and transportation system was in operation from 7 April to 15 July. Counting was done by contract with Washington Department of Wildlife.

LOWER GRANITE DAM - 1988

1988 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 0800-1600 hours Pacific Standard Time.

1988 Fish Ladder Operating Schedule

Project Ladder:

1 Jan - 6 Jan	In-service.
7 Jan - 28 Jan	Out of service for annual inspection and maintenance.
29 Jan - 31 Dec	In-service.

1988 Fishway Activities

One 8-hour counting shift was conducted from 0800-1600 hours Pacific Standard Time from 1 March through 31 March and from 1 November through 15 December. Two 8-hour counting shifts were conducted from 0400-2000 hours Pacific Standard Time from 1 April through 31 October. Fish counting in 1988 was accomplished under contract by the Washington Department of Wildlife.

The National Marine Fisheries Service operated the adult trap as part of the juvenile transportation program evaluation period.

The juvenile fish collection and transportation system was in operation from 25 March to 26 July.

ROCKY REACH DAM

Chelan County Public Utility District

A narrative concerning the fishway activities, the counting schedule, and operating and maintenance schedule will be included in the 1989 annual report.

PRIEST RAPIDS DAM - 1988

1988 Fish Counting Schedule

1 Jan - 15 Apr	No counting.
16 Apr - 30 Apr	Counting daily 0800 - 1600 hours Pacific Standard Time.
1 May - 31 Oct	Counting daily 0400 - 2000 hours Pacific Standard Time.
1 Nov - 30 Nov	Counting daily 0800 - 1600 hours Pacific Standard Time.
1 Dec - 31 Dec	No counting.

1988 Fish Ladder Operating and Maintenance Schedule.

Left Bank Ladder

1 Jan - 30 Nov	In-service.
1 Dec - 30 Dec	Out of service for annual inspection and maintenance.

Right Bank Ladder

1 Jan - 25 Dec	In-service.
26 Dec - 13 Jan	Out of service for annual inspection and maintenance.

1988 Fishway Activities ◦

Public Utility District No. 2 of Grant County conducted the 1988 fish counting as it has since 1960. Fish were counted in one or two 8-hour shifts during the periods listed above. Both ladders were counted by direct observation.

The District operated the coded wire tag trap in the left bank ladder of Priest Rapids from 16 April - 27 August for recovery of transported spring chinook and sockeye from Priest Rapids Dam.

The Washington Department of Fisheries trapped fall chinook brood stock once a week from 20 September - 11 October.

The Washington Department of Wildlife trapped and examined steelhead once a week from 1 August - 11 October.

TABLE 1
FISH ESCAPEMENT AT MAIN STEM DAMS
COLUMBIA AND SNAKE RIVERS 1988

SPECIES	BONNEVILLE	THE DALLES	JOHN DAY	MGNARY	ICE HARBOR	LOWER MONUMENTAL	LOWER GRANITE	PRIEST RAPIDS	ROCKY REACH
1984									
CHINOOK*	324,425	203,920	188,373	159,071	17,757	17,866	16,517	42,729	14,604
Spring*	51,045	33,848	32,035	27,476	9,183	9,641	7,921	12,622	4,171
Summer*	28,507	22,472	22,795	21,196	6,307	7,016	7,219	17,372	6,999
Fall*	244,873	147,600	133,543	110,401	2,267	1,209	1,377	12,695	3,434
Jacks	107,998	70,798	69,874	56,390	2,596	3,006	3,961	6,576	3,147
STEELHEAD	315,560	219,123	201,154	135,515	94,030	88,655	98,923	26,017	17,228
SOCKEYE	152,541	101,171	107,951	56,906	105	63	49	114,761	73,290
COHO*	29,487	3,142	2,080	2,841	22	26	0	172	923
Adults	16,759	1,860	1,297	897	17	23	0	125	*
Jacks	12,728	1,282	783	1,944	5	3	0	47	*
SHAD	1,275,791	1,190,118	576,516	280,754	8,475	8,144	388	25,172	0
1985									
CHINOOK*	463,873	370,982	337,624	288,483	47,981	42,437	36,567	62,161	20,815
Spring*	90,961	76,514	72,389	63,265	33,527	31,765	27,737	24,706	8,910
Summer*	29,870	25,385	23,489	22,029	5,290	4,845	6,639	17,324	6,781
Fall*	343,042	269,083	241,746	203,189	9,164	5,827	2,191	20,131	5,124
Jacks	167,444	145,007	149,281	120,963	10,574	8,642	5,605	11,065	3,986
STEELHEAD	343,987	276,025	247,093	188,204	128,841	109,718	118,463	34,502	22,718
SOCKEYE	166,340	117,254	124,941	98,457	24	68	35	118,542	54,077
COHO*	56,857	4,625	1,652	6,917	10	24	2	219	613
Adults	38,550	3,070	791	2,784	8	21	2	151	*
Jacks	18,307	1,555	861	4,133	2	3	0	68	*
SHAD	974,951	1,389,547	682,344	438,329	8,120	5,375	692	44,078	0
1986									
CHINOOK*	570,881	443,013	346,700	342,417	52,615	50,584	43,023	68,703	15,340
Spring*	123,043	87,004	77,884	76,077	39,087	39,676	33,074	22,133	4,300
Summer*	31,041	24,826	22,051	25,798	7,745	6,007	7,364	17,074	6,326
Fall*	416,797	331,183	246,765	240,542	5,783	4,901	2,585	29,496	4,714
Jacks	200,152	176,461	133,827	132,936	4,455	5,118	4,363	11,738	2,444
STEELHEAD	379,891	281,953	238,010	193,481	144,292	120,479	134,519	22,401	15,157
SOCKEYE	58,123	48,477	46,327	46,443	20	26	15	43,084	32,912
COHO*	130,853	4,842	1,933	1,374	0	9	1	83	448
Adults	108,649	3,384	1,029	803	0	2	1	72	*
Jacks	22,204	1,458	904	571	0	7	0	11	*
SHAD	858,170	1,361,854	609,363	307,361	5403	2,781	156	33,969	0
1987									
CHINOOK*	547,494	421,190	327,752	286,638	47,477	42,434	37,677	73,214	19,230
Spring*	101,807	77,453	62,313	60,396	32,083	31,945	29,781	18,775	3,586
Summer*	37,707	30,804	22,244	25,353	6,982	5,941	6,551	14,573	8,238
Fall*	407,980	312,933	243,195	200,889	8,412	4,548	1,345	39,866	7,406
Jacks	78,884	65,115	53,794	50,722	2,807	2,393	2,000	5,540	1,804
STEELHEAD	303,081	217,768	170,554	148,811	74,491	62,586	70,151	14,011	7,178
SOCKEYE	116,993	87,599	75,529	72,190	13	16	29	76,578	41,115
COHO*	27,635	3,310	3,355	615	0	6	0	108	932
Adults	17,922	1,357	2,110	335	0	0	0	56	*
Jacks	9,713	1,953	1,245	280	0	6	0	52	*
SHAD	943,835	1,289,699	739,690	610,042	8,209	6,563	1,037	40,041	0
1988									
CHINOOK*	494,025	378,080	277,251	243,608	48,066	44,262	37,882	52,881	13,261
Spring*	94,746	73,663	55,195	51,178	34,394	34,618	30,419	13,342	4,824
Summer*	36,524	29,892	23,569	23,621	7,790	6,613	6,507	13,841	3,581
Fall*	362,755	274,525	198,487	168,809	5,882	3,031	956	25,698	48,856
Jacks	82,129	69,631	51,330	58,718	3,510	2,758	1,615	5,043	1,750
STEELHEAD	279,072	198,499	164,650	151,765	99,714	84,746	87,040	10,208	5,677
SOCKEYE	79,714	55,802	48,095	50,080	22	35	23	51,135	34,090
COHO*	39,620	9,226	6,813	2,010	0	3	0	68	306
Adults	27,054	6,525	4,243	1,111	0	2	0	52	*
Jacks	12,566	2,701	2,57	899	0	1	0	16	*
SHAD	1,164,320	2,008,572	890,997	665,925	112,081	55,787	2,977	31,780	0

ASSUMED DATES FOR CHINOOK RUNS (MAY VARY FOR PREVIOUS YEARS)

	1 MARCH - 31 MAY	1 APRIL - 3 JUNE	1 APR - 5 JUN	1 APR - 8 JUN	1 APR - 11 JUN	1 APR - 13 JUN	1 MAR - 17 JUN	16 APR - 13 JUN	18 APR - 19 JUN
SPRING									
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	18 JUN - 17 AUG	14 JUN - 13 AUG	20 JUN - 19 AU
FALL	1 AUG - 30 NOV	4 AUG - 31 OCT	6 AUG - 31 OCT	9 AUG - 31 OCT	12 AUG - 31 OCT	14 AUG - 31 OCT	18 AUG - 15 DEC	14 AUG - 30 NOV	20 AUG - 15 NOV

*INCLUDES JACK COUNTS. FISH CLASSIFIED AS JACKS ARE UNDER 22 INCHES IN LENGTH.

TABLE 2

STEELHEAD OVER COLUMBIA AND SNAKE DAMS - 1953-1988
BY RUN-YEAR (JUNE 1 - MAY 31)

Estimating the size of the upriver steelhead run has previously been hampered because of the calendar year approach used in summary tables. A problem in accountability arises due to overwintering behavior of summer steelhead trout, especially Snake River stocks which often have sizable proportions of the runs remaining below mainstream projects during the winter months. Movement of these steelhead trout 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 (June 1 to May 31). Because all stocks of summer steelhead cross Bonneville during the calendar year, those summary counts for steelhead have not been modified.

Run - Year	The Dalles	John Day	Mcary	Ice Harbor	Lower Monumental	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	
1971 - 72	151,329	117,402	110,450	66,196	68,704	
1972 - 73	135,730	149,704	95,837	63,584	66,650	
1973 - 74	100,924	93,951	62,158	37,245	38,288	
1974 - 75	71,336	40,868	26,191	12,170	14,851	2,789 *
1975 - 76	57,695	33,640	25,150	15,895	17,236	16,592
1976 - 77	83,194	59,368	54,409	24,140	21,801	22,562
1977 - 78	133,096	102,193	86,962	54,911	48,160	57,029
1978 - 79	58,995	43,554	34,580	27,252	19,849	26,473
1979 - 80	86,317	59,825	54,213	26,790	20,073	28,758
1980 - 81	93,309	77,113	63,957	47,778	32,599	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
Totals	4,182,618	2,286,052	3,231,805	1,648,986	1,050,406	817,590
10-Year Average	163,572	139,682	108,322	74,939	63,678	71,862

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

COLUMBIA RIVER TABLES

TABLE 3
 YEARLY TOTALS OF SALMONID FISH COUNTED OVER BONNEVILLE DAM
 1938 - 1988

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	1,199	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	10	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
Total	18,627,870	8,218,422	4,613,193	1,598,046	38,691	1,519	33,097,741
10-Year Average	377,533	240,017	89,202	47,135	56	30	753,972

TABLE 4

MONTHLY TOTALS OF SALMONID AND SHAD COUNTED OVER BONNEVILLE DAM
1988

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CHINOOK			2,663	69,689	22,394	18,191	18,333	111,905	236,662	13,656	532		494,025
STEELHEAD			1,158	3,728	5,016	13,615	72,718	113,791	63,864	4,421	761		279,072
SOCKEYE					11	44,409	35,168	121	5	0	0		79,714
COHO							78	3,377	26,303	8,614	1,248		39,620
CHUM							4			5	53		62
PINK										3	1		4
TOTAL			3,821	73,417	27,421	76,215	126,301	229,194	326,834	26,699	2,595		892,497
SHAD				20	408,822	734,635	20,146	697	0	0	0		1,164,320

TABLE 5

DISCHARGE AND WATER QUALITY DATA
BONNEVILLE PROJECT - 1988

JANUARY				FEBRUARY			
DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F
1	141.1	5.0	41.0	1	170.8	2.0	40.0
2	139.6	5.0	41.0	2	181.7	2.0	39.0
3	167.4	5.0	41.0	3	161.6	4.0	39.0
4	174.6	5.0	40.0	4	166.1	4.0	39.0
5	168.4	5.0	40.0	5	151.6	4.0	40.0
6	166.3	5.0	39.0	6	139.9	5.5	39.0
7	179.3	5.0	39.0	7	126.1	6.0	39.0
8	182.3	4.5	39.0	8	142.5	3.7	40.0
9	145.4	4.5	39.0	9	130.4	3.7	40.0
10	158.5	4.5	39.0	10	147.3	4.7	41.0
11	164.7	4.5	39.0	11	144.1	4.5	41.0
12	166.8	4.0	39.0	12	131.2	3.5	41.0
13	176.7	4.0	39.0	13	119.7	3.8	41.0
14	177.0	4.3	39.0	14	140.4	4.0	40.0
15	171.9	4.2	41.0	15	123.2	3.0	40.0
16	148.8	4.2	40.0	16	151.4	3.0	40.0
17	123.8	4.2	40.0	17	159.0	3.0	40.0
18	156.2	0.7	40.0	18	159.9	3.0	40.0
19	149.4	2.2	40.0	19	144.1	3.0	40.0
20	161.9	2.0	40.0	20	126.6	5.0	41.0
21	173.0	1.8	40.0	21	122.6	5.0	41.0
22	166.1	0.5	40.0	22	140.0	5.3	41.0
23	152.9	1.3	40.0	23	159.3	5.5	41.0
24	150.6	1.5	40.0	24	140.5	5.3	41.0
25	156.0	3.0	40.0	25	133.6	5.3	41.0
26	144.4	2.2	40.0	26	121.6	4.8	41.0
27	140.8	1.7	40.0	27	129.1	5.0	42.0
28	110.7	1.7	40.0	28	116.6	5.2	42.0
29	110.7	1.5	40.0	29	106.3	5.5	42.0
30	136.3	1.0	40.0				
31	156.9	2.0	40.0				
AVG.	155.4	3.3	39.8	AVG.	140.9	4.2	40.4

TABLE 5

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

TABLE 6

BONNEVILLE PROJECT
MARCH 1988

DATE	FISH COUNTS						RIVER CONDITIONS						
	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KFCS	SPILL KFCS	TURBIDITY SECCHI	DEG F
1	16			0				38		111.0	0.0	6.0	44.0
2	32			0				36		126.4	0.0	5.0	43.0
3	26			0				28		125.8	0.0	5.7	43.0
4	21			0				32		144.9	0.0	5.5	42.0
5	14			0				24		120.2	0.0	6.0	44.0
6	12			0				21		126.1	0.0	5.0	44.0
7	12			0				14		144.6	0.0	5.5	43.0
8	2			0				23		154.7	0.0	5.0	43.0
9	4			0				22		117.2	0.0	5.0	43.0
10	6			0				43		136.5	0.0	4.5	43.0
11	1			0				18		153.9	0.0	4.5	43.0
12	2			0				20		120.8	0.0	4.3	44.0
13	13			0				38		120.6	0.0	5.4	44.0
14	13			0				49		128.3	0.0	5.3	44.0
15	5			1				36		129.6	0.0	5.3	44.0
16	29			0				28		130.5	0.0	5.0	44.0
17	21			1				42		127.1	0.0	4.5	45.0
18	46			0				60		106.1	0.0	4.0	45.0
19	42			0				33		104.2	0.0	5.0	45.0
20	41			0				47		100.2	0.0	5.5	45.0
21	92			1				109		123.8	0.0	5.7	46.0
22	95			1				34		116.4	0.0	5.8	46.0
23	150			2				44		124.3	0.0	5.8	46.0
24	136			0				3		167.3	0.0	5.8	46.0
25	95			0				66		173.9	0.0	4.5	46.0
26	127			0				38		110.5	0.0	4.4	46.0
27	160			1				31		137.4	0.0	4.5	46.0
28	354			0				31		158.7	0.0	4.5	46.0
29	385			0				34		165.3	0.0	4.7	46.0
30	494			1				56		171.9	0.0	4.5	46.0
31	208			1				60		124.0	0.0	4.6	46.0
TOTAL	2,654			9				1,158		132.3	0.0		
AVG	86			0.3				37					

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

TABLE 7

BONNEVILLE PROJECT
 APRIL 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1	1392			0				96	0	116.3	0.0	5.3	47.0
2	1312			2				88	0	100.1	0.0	5.0	47.0
3	1693			0				112	0	104.5	0.0	4.8	47.0
4	2547			4				104	0	134.4	0.0	4.4	47.0
5	1201			3				64	0	164.1	0.0	4.8	47.0
6	998			6				73	0	162.8	0.0	4.5	47.0
7	1614			5				87	0	146.0	0.0	5.0	47.0
8	1965			9				132	0	126.9	0.0	5.0	47.0
9	1667			9				158	0	109.5	0.0	4.4	48.0
10	1632			13				146	0	105.3	0.0	4.0	48.0
11	2017			14				143	0	120.0	0.0	5.0	48.0
12	2614			17				104	0	122.3	0.0	3.5	49.0
13	4181			25				145	0	122.9	0.0	4.8	49.0
14	3407			8				188	0	139.6	0.0	4.0	50.0
15	2805			34				153	0	151.2	0.0	4.0	50.0
16	3586			22				135	0	148.5	0.0	4.5	51.0
17	4455			46				208	1	150.3	0.0	4.3	51.0
18	5114			71				144	0	146.9	0.0	4.3	51.0
19	3428			79				130	0	150.3	0.0	4.5	51.0
20	2162			59				112	0	149.6	0.0	4.2	51.0
21	2138			47				137	0	150.1	0.0	4.0	51.0
22	1892			50				84	0	149.9	0.0	3.8	51.0
23	2132			47				87	0	149.4	0.0	4.0	52.0
24	2212			61				92	0	151.0	0.0	3.8	51.0
25	1667			68				121	0	151.0	0.0	3.8	52.0
26	2100			69				127	1	153.9	0.7	4.2	52.0
27	1872			76				148	4	156.5	0.0	3.5	52.0
28	1834			108				156	4	157.9	0.4	3.2	53.0
29	1736			117				108	9	156.6	0.3	3.2	53.0
30	1133			114				146	1	150.7	0.0	3.2	53.0
TOTAL	68,506			1,183				3,728	20	140.0	0.0		
AVG	2,284			39				124	1				

TABLE 7

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

TABLE 8

BONNEVILLE PROJECT
MAY 1988

DATE	FISH COUNTS					RIVER CONDITIONS						
	CHINOOK ADULTS SPRING	CHINOOK ADULTS SUMMER	CHINOOK ADULTS FALL	CHINOOK JACKS	COHO ADULTS JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KFCS	SPILL KFCS	TURBIDITY SECCHI	DEG F
1	956			126		0	120	1	150.8	0.0	2.8	53.0
2	650			97		0	120	10	150.9	2.4	3.3	53.0
3	767			90		0	89	21	190.5	40.0	3.2	53.0
4	1068			104		0	103	7	195.6	43.1	3.0	53.0
5	991			106		0	128	3	189.9	37.3	3.5	53.0
6	733			134		0	79	73	162.5	10.3	2.5	54.0
7	695			126		0	121	72	163.4	22.9	2.8	54.0
8	698			128		0	127	91	174.6	35.2	3.3	54.0
9	513			120		0	79	194	182.5	34.2	3.0	55.0
10	654			163		0	123	165	207.8	52.3	2.8	56.0
11	623			196		0	156	63	233.2	72.9	2.8	56.0
12	813			235		0	165	204	231.4	71.7	2.7	56.0
13	683			137		0	161	238	223.8	53.6	2.8	57.0
14	853			167		0	219	494	221.6	50.0	1.5	57.0
15	803			156		0	208	1625	204.2	37.3	3.0	57.0
16	585			107		0	181	4759	204.3	41.0	2.0	57.0
17	480			81		0	205	2265	226.1	57.3	2.5	57.0
18	387			70		0	149	1565	225.1	59.7	3.0	58.0
19	418			69		1	164	634	219.4	66.7	2.0	58.0
20	492			108		0	213	4699	234.4	72.0	2.5	58.0
21	557			74		0	153	11794	232.9	71.8	2.3	59.0
22	414			65		0	130	75711	194.4	37.9	3.0	60.0
23	435			56		0	147	40629	191.1	40.0	3.0	59.0
24	457			45		0	122	11022	218.9	57.9	3.0	59.0
25	503			56		0	181	31469	239.7	76.4	2.9	59.0
26	470			36		0	183	34167	229.2	57.8	2.9	59.0
27	516			34		6	237	31662	216.8	49.7	2.2	59.0
28	448			34		3	248	70689	184.5	25.7	2.8	59.0
29	516			31		0	235	31892	152.3	0.0	3.2	58.0
30	582			31		1	228	37663	150.6	4.8	3.0	58.0
31	612			40		0	242	14941	191.0	46.5	3.0	58.0
TOTAL	19,372			3,022			11	5,016	408,822	199.8	42.9	
AVG.	625			97			0.4	162	13,188			

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

TABLE 9

BONNEVILLE PROJECT
 JUNE 1988

DATE	FISH COUNTS						RIVER CONDITIONS						
	CHINOOK ADULTS SPRING	CHINOOK ADULTS SUMMER	CHINOOK ADULTS FALL	CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1		618		40			1	315	20782	243.0	77.5	2.5	58.0
2		544		34			2	213	24434	239.3	74.0	2.8	58.0
3		465		32			9	204	48246	237.6	70.0	3.5	59.0
4		403		35			17	246	45134	216.2	59.6	3.6	59.0
5		485		38			15	247	37886	209.0	55.3	3.2	59.0
6		611		37			38	313	42695	214.9	70.9	3.2	59.0
7		473		46			50	250	51368	203.6	56.3	3.2	59.0
8		457		26			90	247	56727	192.7	39.3	3.2	59.0
9		413		28			97	223	20699	216.0	70.0	3.4	59.0
10		639		45			227	322	21541	195.6	53.7	3.3	60.0
11		682		52			318	428	52270	150.6	12.0	3.3	60.0
12		837		37			569	583	35619	133.2	0.0	3.8	61.0
13		467		24			554	382	6127	155.3	14.7	3.8	60.0
14		913		69			1266	594	43267	129.5	0.0	4.3	60.0
15		678		50			1648	648	35314	157.0	9.7	4.5	62.0
16		681		58			2277	629	33921	162.4	13.6	4.5	62.0
17		622		50			2738	629	27937	156.1	9.1	5.4	62.0
18		694		42			2651	559	27663	152.1	5.9	4.2	62.0
19		581		21			2761	601	17430	144.8	0.0	5.4	62.0
20		514		65			2886	563	13925	144.3	0.0	4.9	63.0
21		705		80			3659	535	10547	141.4	0.0	5.2	63.0
22		707		88			4669	710	19155	142.6	5.7	5.5	64.0
23		537		94			4569	632	10553	167.8	23.8	4.0	64.0
24		486		89			1755	479	4908	164.0	17.7	3.5	64.0
25		443		66			933	397	11897	151.6	6.7	4.0	65.0
26		304		62			830	334	5527	142.8	0.0	3.7	65.0
27		381		71			831	357	2375	144.6	0.0	4.5	65.0
28		423		44			2179	463	3164	134.7	0.0	4.7	66.0
29		427		81			2927	648	1493	148.6	0.0	4.3	66.0
30		456		41			3843	864	2031	113.5	0.0	4.3	66.0
TOTAL		16,646		1,545			44,409	13,615	734,635	170.2	24.9		
AVG.		555		52			1,480	454	24,488				

TABLE 9

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

TABLE 10

BONNEVILLE PROJECT

JULY 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1		597		109	0	0	4208	1143	3867	101.1	0.0	4.8	65.0
2		508		98	0	0	3952	1020	3105	100.3	0.0	5.5	65.0
3		362		95	0	0	3196	863	1718	111.8	0.0	4.6	65.0
4		598		147	0	0	3648	1112	1673	106.5	0.0	5.2	66.0
5		429		93	0	0	2943	1080	741	94.3	0.0	5.0	66.0
6		391		130	0	0	3346	1070	607	123.6	0.0	4.0	66.0
7		467		132	0	0	2792	1140	680	137.7	0.0	4.0	66.0
8		495		75	0	0	2547	1174	524	124.1	0.0	4.0	66.0
9		501		129	0	1	1891	1632	570	112.6	0.0	4.3	66.0
10		590		74	0	0	1524	2052	751	115.5	0.0	4.4	66.0
11		525		65	0	0	957	1876	693	113.1	0.0	4.4	66.0
12		548		194	0	0	907	1709	1359	122.6	0.0	4.6	67.0
13		391		182	1	0	575	1801	309	125.9	0.0	4.5	66.0
14		358		126	0	0	551	1444	429	128.3	0.0	5.0	66.0
15		294		105	2	0	391	1078	266	125.1	0.0	5.0	66.0
16		302		132	0	0	336	1456	262	98.3	0.0	4.7	66.0
17		572		230	4	1	357	2085	191	94.8	0.0	4.6	66.0
18		522		153	0	0	221	2219	110	99.3	0.0	5.0	67.0
19		371		111	2	0	202	2566	121	117.4	0.0	4.8	67.0
20		476		147	0	1	92	2982	266	113.3	0.0	5.0	68.0
21		388		82	2	10	101	3232	360	117.0	0.0	5.0	68.0
22		663		148	10	8	84	4380	253	123.3	0.0	5.5	69.0
23		544		133	4	2	73	4305	355	97.9	0.0	5.0	69.0
24		496		115	0	5	60	3651	270	93.1	0.0	5.0	69.0
25		530		110	0	1	45	3489	101	111.2	0.0	5.0	69.0
26		334		118	0	1	39	3099	83	113.8	0.0	5.5	70.0
27		478		125	0	0	54	3285	96	93.6	0.0	5.0	70.0
28		585		93	3	2	30	3757	86	91.8	0.0	5.5	70.0
29		628		87	0	8	20	4988	58	90.8	0.0	5.2	71.0
30		427		65	1	5	20	4208	121	90.6	0.0	4.8	71.0
31		299		61	1	3	6	2822	121	82.6	0.0	4.8	71.0
TOTAL		14,669		3,664	30	48	35,168	72,718	20,146	108.8	0.0		
AVG.		473		118	1	2	1,134	2,346	650				

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 11

BONNEVILLE PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

AUGUST 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1			393	50	1	0	11	2460	69	94.7	1.0	4.8	71.0
2			533	114	1	4	8	3036	64	101.9	0.0	4.8	70.0
3			595	144	5	6	13	2730	41	93.6	0.0	4.8	71.0
4			773	125	4	4	11	3356	62	107.9	0.0	3.3	70.0
5			1408	145	0	13	7	3929	35	94.1	0.0	4.5	71.0
6			983	129	2	6	6	3399	31	91.2	0.0	4.0	71.0
7			869	90	2	6	2	3132	25	96.0	0.0	4.0	71.0
8			570	38	0	4	2	2177	37	103.1	0.0	4.0	70.0
9			682	71	2	5	2	2825	33	94.9	0.0	4.2	70.0
10			1527	82	1	6	3	4021	33	97.5	0.0	4.2	70.0
11			1772	87	1	4	5	4656	40	113.4	0.0	4.2	70.0
12			1589	104	4	9	2	4996	34	118.1	0.0	5.2	70.0
13			2412	140	8	14	11	5567	31	108.3	0.0	5.6	70.0
14			2997	169	3	5	4	5543	30	86.2	0.0	5.5	70.0
15			3272	179	13	16	11	5437	20	97.1	0.0	5.5	70.0
16			2046	147	28	19	1	4039	26	108.4	0.0	5.4	72.0
17			1867	193	12	11	4	3542	9	113.6	0.0	5.3	70.0
18			1253	144	14	20	2	2930	4	96.1	0.0	5.8	70.0
19			4325	215	27	17	2	3222	7	102.2	0.0	6.4	71.0
20			6842	292	88	40	0	3523	19	106.0	0.0	6.5	70.0
21			6936	476	82	22	0	4126	1	97.5	0.0	6.3	70.0
22			4542	456	84	35	0	4080	-1	94.9	0.0	6.5	70.0
23			6087	501	138	88	1	3890	5	97.6	0.0	6.0	70.0
24			6451	487	113	35	5	3936	2	116.3	0.0	5.8	70.0
25			4349	469	111	56	4	3243	-1	122.1	0.0	6.2	70.0
26			4640	591	103	67	0	2937	8	116.5	0.0	5.5	70.0
27			4279	773	125	77	1	2836	10	98.3	0.0	5.8	70.0
28			6428	1111	157	30	0	3318	15	100.4	0.0	7.0	70.0
29			5772	1235	199	70	0	3666	1	100.3	0.0	6.5	70.0
30			6423	1171	453	142	0	3561	4	122.8	0.0	6.5	70.0
31			8024	1338	583	182	3	3678	3	123.9	0.0	6.5	70.0
TOTAL			100,639	11,266	2,364	1,013	121	113,791	697	103.7	0.0		
AVG.			3,246	363	76	33	4	3,671	22				

TABLE 11

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

TABLE 12

BONNEVILLE PROJECT
SEPTEMBER 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1			6963	1601	659	202	2	3786		138.2	1.0	6.5	70.0
2			8621	1534	914	288	0	3564		140.3	0.0	6.5	70.0
3			9424	1649	982	333	1	3493		110.7	0.0	6.5	70.0
4			12029	1654	1035	316	0	3461		102.0	0.0	6.5	70.0
5			10277	1996	866	251	0	3106		101.3	0.0	6.5	70.0
6			7148	2045	553	206	0	2429		141.7	0.0	6.5	70.0
7			4041	1171	338	123	1	1552		120.5	0.0	6.5	70.0
8			7974	1157	266	118	0	1470		123.5	0.0	6.5	71.0
9			12897	1405	251	91	1	1416		115.5	0.0	3.0	70.0
10			22927	2005	627	167	0	2820		116.7	0.0	5.0	69.0
11			24227	3051	1390	242	0	5196		127.1	0.0	5.0	69.0
12			19222	3613	2037	322	0	6492		99.5	0.0	5.0	68.0
13			17277	3637	2406	369	0	5511		98.1	0.0	5.0	68.0
14			6659	3786	1824	335	0	3541		103.7	0.0	5.0	68.0
15			3019	2524	1294	208	0	2225		128.2	0.0	5.2	68.0
16			1526	2312	914	213	0	1717		103.6	0.0	5.2	68.0
17			749	1695	513	167	0	1032		103.1	0.0	5.3	67.0
18			684	1728	376	182	0	1007		114.5	0.0	5.4	67.0
19			1071	1562	389	123	0	987		100.9	0.0	5.8	67.0
20			1018	1706	295	129	0	1043		123.0	0.0	5.5	66.0
21			731	1904	308	174	0	1301		122.1	0.0	6.0	66.0
22			591	1036	305	144	0	1021		121.7	0.0	6.0	66.0
23			799	1345	277	138	0	909		130.4	0.0	6.0	66.0
24			648	1839	336	281	0	1278		101.1	0.0	6.0	66.0
25			783	1473	358	129	0	972		98.5	0.0	5.6	66.0
26			294	772	143	129	0	500		118.8	0.0	6.0	66.0
27			574	807	216	124	0	594		115.2	0.0	4.0	66.0
28			424	838	233	71	0	521		110.2	0.0	5.6	66.0
29			340	674	211	51	0	446		117.6	0.0	5.5	66.0
30			394	812	255	106	0	474		113.3	0.0	5.5	65.0
TOTAL			183,331	53,331	20,571	5,732	5	63,864		115.4	0.0		
AVG.			6,111	1,778	686	191	0	2,129					

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

TABLE 13

BONNEVILLE PROJECT
 OCTOBER 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1			376	738	227	87		396		114.0	1.0	5.0	64.0
2			346	725	232	88		362		96.7	0.0	5.5	64.0
3			404	642	161	134		279		104.5	0.0	7.0	64.0
4			335	602	147	49		298		100.3	0.0	6.5	64.0
5			618	561	139	60		283		94.6	0.0	7.0	64.0
6			424	521	134	66		219		103.5	0.0	6.5	64.0
7			286	275	122	55		189		111.5	0.0	6.5	64.0
8			197	225	107	62		178		98.2	0.0	6.5	64.0
9			245	242	87	37		152		93.0	0.0	6.0	64.0
10			291	358	109	47		140		102.3	0.0	6.0	64.0
11			210	319	83	104		118		117.5	0.0	6.0	64.0
12			201	224	92	153		129		128.9	0.0	6.1	64.0
13			162	200	73	148		96		109.9	0.0	5.5	64.0
14			184	234	150	148		134		100.6	0.0	6.5	64.0
15			136	176	153	164		92		114.5	0.0	5.0	64.0
16			120	188	105	88		114		99.7	0.0	6.0	64.0
17			109	219	113	84		134		107.1	0.0	6.5	64.0
18			105	142	129	81		101		143.8	0.0	6.5	64.0
19			172	130	115	122		129		118.3	0.0	4.0	64.0
20			147	158	217	199		68		122.0	0.0	5.5	63.0
21			126	118	203	183		103		111.2	0.0	6.1	64.0
22			83	112	181	254		70		115.4	0.0	5.0	63.0
23			58	115	81	297		62		110.6	0.0	5.5	63.0
24			66	124	82	291		83		123.4	0.0	5.5	63.0
25			85	153	101	390		77		117.2	0.0	5.5	62.0
26			55	102	87	394		78		114.7	0.0	5.6	62.0
27			69	90	77	222		78		145.5	0.0	5.6	61.0
28			55	58	110	301		67		141.1	0.0	4.8	62.0
29			47	24	78	225		60		103.9	0.0	5.0	61.0
30			56	38	45	143		65		115.8	0.0	5.7	60.0
31			45	30	41	157		67		140.3	0.0	5.4	60.0
TOTAL			5,813	7,843	3,781	4,833		4,421		113.5	0.0		
AVG.			188	253	122	156		143					

TABLE 13

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 14

BONNEVILLE PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

NOVEMBER 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1			26	27	25	69		50		131.9	1.0	5.7	60.0
2			24	29	30	84		37		116.5	0.0	5.2	60.0
3			38	25	40	122		18		111.8	0.0	5.0	60.0
4			35	22	36	81		31		100.6	0.0	5.0	60.0
5			21	12	43	20		34		107.7	0.0	4.5	59.0
6			12	2	21	31		32		107.2	0.0	5.0	58.0
7			12	16	10	40		27		135.9	0.0	5.0	58.0
8			6	16	12	45		28		135.1	0.0	4.8	57.0
9			12	18	13	51		30		133.3	0.0	3.0	57.0
10			10	13	8	46		50		132.8	0.0	4.0	56.0
11			2	12	19	61		51		127.4	0.0	3.5	56.0
12			6	0	2	45		34		124.4	0.0	3.2	55.0
13			17	6	3	21		32		131.5	0.0	4.5	55.0
14			2	18	2	20		14		153.2	0.0	4.8	55.0
15			5	10	8	34		24		145.9	0.0	4.5	55.0
16			-4	9	4	26		14		141.8	0.0	5.0	55.0
17			24	-1	3	25		32		150.5	0.0	4.5	54.0
18			1	2	6	35		13		150.5	0.0	4.8	54.0
19			9	4	13	18		1		139.5	0.0	4.5	54.0
20			5	7	2	15		15		130.2	0.0	4.8	53.0
21			-1	3	1	1		6		143.5	0.0	4.8	52.0
22			0	-1	2	6		3		165.7	0.0	4.2	52.0
23			2	0	1	4		9		170.0	0.0	4.2	51.0
24			0	2	0	4		21		143.4	0.0	4.2	51.0
25			0	3	1	9		11		140.8	0.0	4.2	50.0
26			2	6	1	5		20		142.8	0.0	4.2	50.0
27			0	0	0	2		24		142.0	0.0	4.3	50.0
28			0	0	1	7		50		175.7	0.0	4.3	50.0
29			0	4	1	7		26		151.0	0.0	4.3	49.0
30			0	2	0	6		24		156.9	0.0	4.6	50.0
TOTAL			266	266	308	940		761		138.0	0.0		
AVG.			9	9	10	31		25					

TABLE 15
DISCHARGE AND WATER QUALITY DATA
BONNEVILLE PROJECT - 1988

DECEMBER			
DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F
1	198.7	4.6	50.0
2	162.6	4.7	49.0
3	140.1	4.4	49.0
4	143.3	4.0	50.0
5	160.5	4.9	49.0
6	163.4	4.3	48.0
7	155.3	4.0	48.0
8	175.5	4.0	48.0
9	150.4	4.5	48.0
10	131.1	4.0	48.0
11	172.5	5.0	48.0
12	149.8	5.4	48.0
13	135.8	5.0	49.0
14	165.9	5.0	48.0
15	192.5	4.0	48.0
16	160.1	4.0	48.0
17	136.0	4.8	47.0
18	161.8	5.0	47.0
19	168.7	5.2	46.0
20	162.7	5.2	46.0
21	170.4	5.2	46.0
22	170.8	4.0	46.0
23	170.4	6.0	46.0
24	159.5	6.0	45.0
25	133.0	6.0	45.0
26	130.2	6.0	45.0
27	172.9	6.0	44.0
28	175.7	6.5	44.0
29	176.0	6.0	44.0
30	196.8	6.2	44.0
31	177.0	7.0	44.0
AVG.	161.9	5.1	46.9

TABLE 15

TABLE 16

MONTHLY COUNT OF CHINOOK SALMON
BONNEVILLE DAM - 1938 - 1988

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	SPRING	SUMMER	FALL
														Jan 1- May 31	Jun-1 Jul 31	Aug-1 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	7013	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	5440	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	4363	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
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

TABLE 16

MONTHLY COUNT OF CHINOOK SALMON
BONNEVILLE DAM - 1938 - 1988

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	SPRING Jan 1- May 31	SUMMER Jun-1 Jul 31	FALL Aug-1 Dec 31
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
Total	40	45	50,275	2,668,893	2,031,988	1,593,198	1,238,112	1,862,137	8,794,230	369,991	18,416	355	18,627,680	4,751,241	2,831,310	11,045,129
10-Year Average			1,370	45,835	29,978	16,191	14,402	50,005	201,597	17,606	549		377,533	77,183	30,593	269,757

TABLE 16

TABLE 17
MONTHLY COUNT OF SOCKEYE SALMON
BONNEVILLE DAM - 1938 - 1988

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	23536	39,193	1,615	46				65,741
1942					13	12,624	41,301	1,477	49				55,464
1943					9	4525	33,613	1,697	1				39,845
1944			1		16	3099	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

TABLE 17
 MONTHLY COUNT OF SOCKEYE SALMON
 BONNEVILLE DAM - 1938 - 1988

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
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
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
Total			76	541	7,892	1,769,969	2,790,591	41,353	2,602	136	32	1	4,613,193
10-Year Average					5	52,455	36,363	365	13	1			89,202

TABLE 17

TABLE 18

MONTHLY COUNT OF COHO SALMON
BONNEVILLE DAM - 1938-1988

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

TABLE 18

MONTHLY COUNT OF COHO SALMON
BONNEVILLE DAM - 1938-1988

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Jacks
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
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
Total	21	12	6	1		176	5,018	152,896	1,246,421	166,872	26,557	66	1,598,046	473,801
10-Year Average							106	2,889	35,422	7,073	1,645		47,135	13,368

TABLE 19
MONTHLY COUNT OF STEELHEAD TROUT
BONNEVILLE DAM - 1938-1988

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	1564	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	1169	21,868	24,508	35,907	6,129	1,119	226	100,518	51,585	48,933
1945	1,003	1078	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
1966			658	2,682	2,389	13,051	57,975	25,779	37,733	2,657	737		143,661	97,545	46,116

TABLE 19
 MONTHLY COUNT OF STEELHEAD TROUT
 BONNEVILLE DAM - 1938-1988

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
1967			416	1,182	899	3,062	40,851	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	30,855	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	53,810	46,399	43,275	3,918	320		157,823	100,011	57,812
1974		1,292	4,127	5,547	6,349	57,222	44,266	14,654	3,080	527			137,054	84,402	52,652
1975		1,080	4,284	4,324	6,058	30,813	28,623	9,106	904	338			85,540	71,586	13,954
1976		1,285	3,459	3,677	9,130	38,917	44,204	21,084	1,953	478			124,177	92,370	31,807
1977		1,159	4,121	4,115	11,395	67,534	35,161	66,084	3,298	550			193,437	113,682	79,755
1978		1,750	3,327	4,587	10,883	25,234	25,637	30,461	2,168	334			104,431	64,188	40,243
1979		1,333	1,905	1,785	7,585	33,519	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	56,717	52,435	25,737	2,650	303			159,270	121,785	37,485
1982		1,239	4,188	5,335	8,636	39,119	51,329	44,456	3,146	152			157,640	103,159	54,481
1983		458	1,253	1,638	6,017	69,016	86,066	48,920	4,636	415			218,439	148,853	69,586
1984		579	2,106	4,216	14,454	92,545	93,866	102,877	4,463	453			315,560	189,365	126,195
1985		977	2,956	3,997	13,036	102,115	152,455	63,575	4,088	647			343,987	251,723	92,264
1986		2,712	3,674	4,500	16,655	136,822	129,089	76,532	9,280	827			379,891	279,154	100,737
1987		1,189	2,112	3,233	12,443	104,815	115,481	58,815	4,331	862			303,081	227,013	79,120
1988		1,158	3,728	5,016	13,615	72,113	113,791	63,864	4,421	761			279,072	190,030	89,042
Total	1,565	2,486	50,123	159,443	126,206	292,010	2,729,119	2,622,289	2,067,158	140,517	25,045	2,291	8,218,422	5,507,310	2,714,164
10-Year Average			1,182	2,911	3,502	11,286	73,557	88,498	54,065	4,496	522		240,017	167,556	72,766

TABLE 20
MONTHLY COUNT OF SHAD
BONNEVILLE DAM - 1938-1988

TABLE 20

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
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	0	0	0		1,164,320
Total			3	59	1,147,783	11,096,388	5,004,025	92,187	4,136	593	36		17,345,210
10-Year Average					97,842	825,102	103,725	1,219	109	37	3		1,028,042

TABLE 21
 YEARLY TOTALS OF SALMONID FISH COUNTED OVER THE DALLES DAM
 1957-1988

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	0	0	641,607
Totals	7,747,598	4,377,628	2,080,400	386,824	196	75	14,592,721
10-Year Average	254,583	177,245	63,817	5,798	1	2	501,446

TABLE 22
MONTHLY TOTALS OF SALMONIDS AND SHAD COUNTED OVER THE DALLES DAM
1988

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CHINOOK				51,680	20,756	16,644	13,494	66,509	193,490	15,507			378,080
STEELHEAD				2,520	969	3,984	34,612	54,986	85,061	16,367			198,499
SOCKEYE					5	30,443	25,096	208	50	0			55,802
COHO								232	7,082	1,912			9,226
CHUM													0
PINK													0
TOTAL				54,200	21,730	51,071	73,202	121,935	285,683	33,786			641,607
SHAD				121	568,093	1,398,710	41,006	642	0	0			2,008,572

TABLE 23

DISCHARGE AND WATER QUALITY DATA
THE DALLES PROJECT - 1988

JANUARY				FEBRUARY				MARCH			
DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F
1	141.9	6.8	41.0	1	171.3	1.8	40.0	1	113.6	1.5	42.0
2	135.4	7.0	41.0	2	185.3	1.8	39.0	2	123.8	1.5	42.0
3	152.7	7.2	41.0	3	145.0	3.9	39.0	3	124.8	1.5	42.0
4	184.1	7.1	40.0	4	170.9	4.2	39.0	4	118.5	1.7	42.0
5	159.6	7.3	40.0	5	145.9	4.5	39.0	5	116.2	1.6	42.0
6	153.2	5.0	39.0	6	128.6	4.5	39.0	6	117.7	1.5	42.0
7	196.7	5.0	39.0	7	129.5	1.8	39.0	7	143.9	1.5	42.0
8	175.1	5.5	39.0	8	136.0	4.2	39.0	8	147.5	3.5	42.0
9	136.3	5.5	39.0	9	112.1	3.5	39.0	9	106.0	3.5	42.0
10	159.8	5.5	39.0	10	146.9	3.5	39.0	10	127.8	3.5	43.0
11	157.6	5.5	39.0	11	122.0	1.8	39.0	11	151.8	2.5	40.0
12	171.1	5.5	39.0	12	124.3	1.5	39.0	12	111.4	2.5	42.0
13	176.1	5.5	39.0	13	111.0	2.1	38.5	13	96.8	2.7	42.0
14	164.4	5.5	39.0	14	129.3	2.0	38.5	14	126.0	2.5	42.0
15	146.6	5.5	40.0	15	117.9	3.4	38.5	15	118.8	2.9	43.0
16	127.9	1.0	39.0	16	146.4	2.5	39.0	16	126.8	3.5	42.0
17	122.8	5.8	39.0	17	147.5	2.7	39.0	17	118.5	3.5	44.0
18	141.6	1.0	39.0	18	150.3	2.6	39.0	18	104.9	3.0	44.0
19	155.6	1.5	39.0	19	130.5	2.5	39.0	19	94.9	3.7	44.0
20	154.6	1.5	40.0	20	119.5	2.6	39.0	20	91.0	3.4	44.0
21	169.5	1.5	40.0	21	105.5	2.5	39.0	21	106.0	3.4	44.0
22	165.4	1.5	40.0	22	145.1	2.6	40.0	22	117.8	3.3	44.0
23	141.3	2.7	40.0	23	142.0	3.0	40.0	23	132.8	3.5	44.0
24	144.5	3.0	40.0	24	145.8	3.0	40.0	24	171.8	3.5	44.0
25	157.9	2.7	40.0	25	114.8	4.0	40.0	25	142.8	3.5	44.0
26	147.0	1.0	40.0	26	117.2	3.8	40.0	26	99.4	3.5	44.0
27	125.5	1.0	40.0	27	122.9	4.0	41.0	27	128.0	3.5	44.0
28	112.8	1.7	40.0	28	95.5	4.0	41.0	28	141.4	3.5	45.0
29	104.0	1.1	40.0	29	113.6	4.0	41.0	29	150.5	3.0	45.0
30	127.2	1.8	40.0					30	141.9	3.2	45.0
31	143.5	2.0	40.0					31	125.0	3.6	44.0
AVG.	150.1	3.9	39.7		133.5	3.0	39.4		123.8	2.9	43.1

TABLE 23

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 24

THE DALLES PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

APRIL 1988

DATE	CHINOOK ADULTS			FISH COUNTS					RIVER CONDITIONS				
	SPRING	SUMMER	FALL	CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1	679			1				124	0	111.6	0.0	3.0	44.0
2	630			1				113	0	95.4	0.0	3.0	46.0
3	369			0				104	0	84.2	0.0	3.0	46.0
4	726			1				93	0	125.0	0.0	2.5	45.0
5	666			3				118	0	160.5	0.0	2.5	45.0
6	787			2				100	0	131.8	0.0	2.5	46.0
7	1001			5				72	0	125.2	0.0	2.5	46.0
8	994			10				109	0	115.1	0.0	3.0	46.0
9	2098			11				92	0	92.5	0.0	4.5	46.0
10	1436			7				73	0	90.3	0.0	4.0	46.0
11	2208			14				119	0	116.6	0.0	4.0	47.0
12	885			9				106	0	114.4	0.0	3.0	47.0
13	1183			3				99	0	129.0	6.0	3.0	47.0
14	1462			9				117	0	114.4	0.0	2.5	47.0
15	2590			7				105	0	166.5	0.0	2.9	48.0
16	2601			6				125	0	141.5	0.0	3.0	49.0
17	1795			7				87	1	138.6	0.0	3.0	49.0
18	1502			12				74	0	144.9	0.0	2.5	49.0
19	1859			20				94	1	142.0	0.0	2.8	50.0
20	3195			28				98	3	146.6	0.0	2.0	50.0
21	4130			38				74	7	145.1	0.0	3.0	51.0
22	3238			29				53	-1	141.3	0.0	2.0	51.0
23	1778			21				57	8	137.5	0.0	2.0	51.0
24	3326			50				52	7	144.8	0.0	2.0	51.0
25	1963			33				40	4	152.3	0.0	2.5	51.0
26	2320			37				43	2	148.8	0.0	2.5	51.0
27	1163			32				44	16	147.9	0.0	2.0	51.0
28	1805			37				39	15	152.9	0.0	2.5	52.0
29	1212			49				45	24	148.8	0.0	3.5	53.0
30	1541			56				51	34	146.5	0.0	2.8	53.0
TOTAL	51,142			538				2,520	121	131.7	0.2		
AVG.	1,705			18				84	4				

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 25

THE DALLES PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

MAY 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	SPILL KCFS	DISCH KCFS	TURBIDITY SECCHI	DEG F
	SPRING	SUMMER	FALL										
1	1758			75			0	46	15	144.8	0.0	3.5	53.0
2	870			95			0	33	30	142.6	0.0	2.7	52.0
3	1024			55			0	23	42	179.0	0.0	3.0	53.0
4	799			65			0	29	48	187.2	0.0	2.7	50.0
5	875			85			0	28	66	157.4	0.0	2.5	53.0
6	904			91			0	36	76	163.6	0.0	2.0	54.0
7	810			94			0	23	60	172.9	0.0	2.5	54.0
8	929			130			0	31	193	163.5	0.0	2.0	54.0
9	613			157			0	25	359	164.8	0.0	2.5	54.0
10	503			117			0	30	484	196.7	0.0	2.0	54.0
11	434			115			0	24	711	235.6	0.0	2.0	55.0
12	440			109			0	27	794	225.1	0.0	2.0	56.0
13	579			147			0	13	671	203.1	0.0	2.0	56.0
14	536			133			0	27	929	198.1	0.0	2.0	56.0
15	671			125			1	26	1141	204.9	0.0	2.0	56.0
16	659			160			0	53	2052	194.2	0.0	2.0	56.0
17	503			96			0	39	4762	214.6	0.0	2.0	56.0
18	521			114			0	48	8218	207.7	0.0	2.0	56.0
19	435			65			1	31	6192	219.5	0.0	2.3	57.0
20	307			66			0	39	7797	218.5	0.0	2.0	57.0
21	442			82			1	33	10782	211.7	0.0	2.0	57.0
22	401			84			0	31	18904	183.8	0.0	2.5	57.0
23	391			59			0	46	34675	177.0	0.0	2.5	57.0
24	230			53			0	30	53326	216.7	0.0	2.5	57.0
25	254			54			0	25	50895	222.4	0.0	2.0	57.0
26	325			46			0	12	41386	225.7	0.0	2.0	57.0
27	296			39			0	24	53372	218.7	0.0	2.0	58.0
28	358			33			0	34	58881	161.3	0.0	2.1	58.0
29	387			36			0	28	67239	147.3	0.0	2.0	58.0
30	536			41			2	40	72496	138.9	0.0	2.0	58.0
31	313			32			0	35	71497	203.0	0.0	2.5	58.0
TOTAL	18,103			2,653			5	969	568,093	190.3	0.0		
	545			86			0.2	31	18,326				

TABLE 25

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

TABLE 26

THE DALLES PROJECT
JUNE 1988

DATE	FISH COUNTS						RIVER CONDITIONS						
	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1	396			28			2	48	55579	220.6	0.0	2.0	58.0
2	346			18			0	56	33216	231.0	0.0	2.5	58.0
3	413			26			5	43	41332	207.8	0.0	2.0	58.0
4		400		17			5	44	54344	206.5	0.0	2.5	58.0
5		404		19			11	46	52626	204.9	0.0	2.0	58.0
6		312		23			14	43	57493	208.5	0.0	2.0	58.0
7		316		25			15	51	59214	193.9	0.0	2.0	58.0
8		407		29			22	49	69284	190.0	0.0	2.0	58.0
9		421		23			46	66	78747	207.3	0.0	2.0	58.0
10		372		29			65	70	69035	180.3	0.0	2.0	58.0
11		618		39			116	70	61143	142.1	0.0	2.5	58.0
12		558		32			218	73	69010	126.4	0.0	2.3	59.0
13		912		36			375	110	80544	136.0	0.0	2.5	59.0
14		445		30			303	127	56047	157.5	0.0	2.8	59.0
15		413		20			656	128	66405	149.4	0.0	2.0	59.0
16		591		41			1156	130	73038	166.3	0.0	2.6	60.0
17		696		42			1657	237	66974	153.6	0.0	2.3	60.0
18		791		59			2070	225	65417	148.8	0.0	2.6	60.0
19		654		40			2135	196	62994	141.5	0.0	2.5	62.0
20		891		79			3580	237	49944	144.5	0.0	2.5	60.0
21		572		51			2562	272	32166	136.7	0.0	2.8	60.0
22		658		90			3172	227	30088	137.7	0.0	2.5	61.0
23		503		77			1738	172	25401	166.9	0.0	2.5	61.0
24		430		61			1948	102	18250	158.4	0.0	2.5	62.0
25		672		82			2162	164	16966	151.2	0.0	2.5	64.0
26		562		76			1683	178	15355	126.5	0.0	2.6	61.0
27		397		66			1023	226	15122	153.3	0.0	2.5	65.0
28		253		61			489	137	9424	127.9	0.0	2.5	64.0
29		359		65			1138	155	6876	135.9	0.0	2.4	64.0
30		520		78			2077	302	6676	105.4	0.0	2.7	64.0
TOTAL	1,155	14,127		1,362			30,443	3,984	1,398,710	163.9	0.0		
AVG.	385	523		45			1,015	133	46,624				

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 27

THE DALLES PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

JULY 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1		283		65			1436	171	5534	111.4	0.0	3.0	64.0
2		470		74			2032	228	5456	94.6	0.0	3.3	64.0
3		347		81			1991	245	3518	107.8	0.0	3.0	66.0
4		533		95			2217	339	4385	86.1	0.0	3.0	67.0
5		419		95			2689	387	3063	89.6	0.0	3.5	65.0
6		236		73			1201	285	2542	134.5	0.0	2.0	65.0
7		196		84			1500	342	1484	125.7	0.0	2.5	66.0
8		425		85			1540	471	1638	118.7	0.0	2.8	65.0
9		297		74			1229	491	1791	119.8	0.0	3.0	66.0
10		399		104			1670	600	1155	104.8	0.0	3.0	66.0
11		481		114			1839	935	1109	110.8	0.0	3.0	66.0
12		245		63			893	907	1076	116.3	0.0	2.5	65.0
13		346		87			760	1016	1037	119.6	0.0	3.0	66.0
14		287		68			515	916	874	123.6	0.0	3.0	66.0
15		258		93			605	1287	1085	121.0	0.0	3.0	66.0
16		305		84			485	1362	774	94.2	0.0	2.8	66.0
17		242		69			515	1139	571	77.5	0.0	3.0	66.0
18		379		93			446	1393	389	89.4	0.0	3.0	67.0
19		393		74			319	1424	439	103.9	0.0	3.0	67.0
20		410		133			256	1677	335	131.6	0.0	3.0	69.0
21		351		100			237	1563	503	112.9	0.0	3.0	68.0
22		252		127			129	1563	391	120.3	0.0	3.0	68.0
23		392		87			131	1633	458	92.4	0.0	3.5	68.0
24		233		79			116	1726	267	81.6	0.0	3.0	68.0
25		202		73			60	1832	310	98.0	0.0	3.5	68.0
26		368		98			70	2441	207	104.8	0.0	3.5	69.0
27		352		67			57	1782	126	90.4	0.0	3.5	70.0
28		477		81			58	1765	135	91.1	0.0	2.5	70.0
29		437		125			39	1498	147	90.8	0.0	3.7	70.0
30		242		61			19	1446	121	84.8	0.0	3.5	71.0
31		534		97			42	1748	86	76.2	0.0	3.0	70.0
TOTAL		10,791		2,703			25,096	34,612	41,006	104.0	52.5		
AVG.		348		87			810	1,117	1,323				

TABLE 27

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

TABLE 28

THE DALLES PROJECT
AUGUST 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1		226		52	0	0	14	1484	134	92.6	0.0	3.0	70.0
2		267		89	0	0	18	1796	102	95.8	0.0	3.0	70.0
3		290		57	0	0	9	1366	56	85.6	0.0	3.0	70.0
4			271	53	0	0	19	971	79	102.6	0.0	3.0	70.0
5			748	68	0	0	14	925	45	93.9	0.0	3.7	72.0
6			592	79	0	0	15	747	34	88.4	0.0	2.8	72.0
7			1205	84	0	0	15	1079	22	82.5	0.0	4.5	70.0
8			517	77	0	0	4	1380	36	93.4	0.0	3.0	70.0
9			276	71	0	0	6	1183	28	95.9	0.0	3.5	70.0
10			441	47	0	0	5	1189	55	89.5	0.0	4.0	71.0
11			312	37	0	0	2	906	-1	111.2	0.0	3.4	71.0
12			524	75	0	0	2	1080	33	121.3	0.0	4.5	71.0
13			1365	94	0	0	7	1821	-3	97.1	0.0	4.5	71.0
14			1078	93	1	1	11	2422	17	85.2	0.0	4.0	71.0
15			1027	83	0	0	4	2360	27	97.5	0.0	2.0	71.0
16			3097	137	0	0	6	2861	26	106.6	0.0	3.5	71.0
17			2536	120	1	0	3	2945	4	99.3	0.0	3.5	71.0
18			1628	118	0	0	2	2532	8	99.6	0.0	3.5	71.0
19			1266	116	0	0	9	1654	25	98.4	0.0	3.0	70.0
20			897	128	0	0	4	1619	-10	101.7	0.0	3.5	71.0
21			4922	239	3	6	1	2571	-5	79.1	0.0	3.5	71.0
22			5973	202	2	3	9	2791	6	89.8	0.0	3.3	69.0
23			2279	230	7	2	11	1532	-4	98.1	0.0	3.0	71.0
24			2544	331	11	7	3	1551	4	120.1	0.0	0.6	69.0
25			3506	344	12	9	1	1430	3	113.9	0.0	3.5	69.0
26			4785	520	18	14	5	2396	-13	114.8	0.0	3.5	69.0
27			2251	391	14	6	1	2103	-34	95.0	0.0	3.0	69.0
28			4133	519	22	8	1	2709	-16	86.9	0.0	3.5	70.0
29			4562	584	23	11	0	2210	-13	98.5	0.0	3.5	69.0
30			3090	686	19	11	1	1758	-4	125.5	0.0	3.5	70.0
31			3436	741	12	9	6	1615	1	118.1	0.0	3.5	70.0
TOTAL		783	59,261	6,465	145	87	208	54,986	642	99.3	0.0	3.3	70.3
AVG.		261	2,116	209	5	3	7	1,774	21				

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 29

THE DALLES PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

SEPTEMBER 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1			3254	776	38	31	4	2446		128.9	0.0	3.5	69.0
2			4260	996	43	30	2	1954		138.6	0.0	4.4	70.0
3			6721	1756	100	83	10	2286		97.9	0.0	4.0	70.0
4			7174	1549	67	35	9	1669		99.6	0.0	4.0	71.0
5			7476	1432	126	59	1	1485		99.0	0.0	3.0	70.0
6			6555	968	53	22	1	1017		134.8	0.0	5.0	72.0
7			4672	1407	106	54	3	1755		107.8	0.0	5.0	72.0
8			4080	1311	80	38	0	1656		121.9	0.0	3.5	70.0
9			3568	1369	77	43	6	1836		106.1	0.0	5.0	71.0
10			4484	1103	93	37	0	2007		113.6	0.0	3.5	69.0
11			13571	1056	109	48	10	4745		109.8	0.0	3.5	68.0
12			20371	1699	214	74	1	5687		96.8	0.0	3.2	68.0
13			18977	2316	214	72	0	4273		97.3	0.0	3.5	68.0
14			12582	2808	300	93	1	4792		102.4	0.0	4.0	70.0
15			9210	3352	277	98	1	3729		113.6	0.0	3.2	68.0
16			5090	3239	352	116	0	3599		108.6	0.0	3.5	68.0
17			2424	2109	343	97	1	4466		93.6	0.0	3.7	68.0
18			2186	2495	580	160	0	7824		93.9	0.0	4.0	68.0
19			637	1432	203	78	0	2703		106.0	0.0	3.4	68.0
20			947	1688	246	97	0	3357		119.6	0.0	3.5	68.0
21			855	1093	133	54	0	3247		114.0	0.0	3.2	66.0
22			1144	1393	146	73	0	2609		118.7	0.0	4.0	66.0
23			847	1655	167	96	0	2127		127.9	0.0	3.0	65.0
24			800	1766	213	111	0	2395		86.5	0.0	4.5	64.0
25			758	1302	176	63	0	2382		90.4	0.0	3.0	64.0
26			611	1689	115	70	0	2010		119.1	0.0	3.0	68.0
27			892	1477	136	78	0	2332		99.9	0.0	3.0	64.0
28			418	946	76	57	0	1645		110.2	0.0	3.0	64.0
29			421	689	125	47	0	1526		107.3	0.0	4.0	60.0
30			655	979	121	39	0	1502		113.2	0.0	3.5	63.0
TOTAL			145,640	47,850	5,029	2,053	50	85,061		109.2	0.0		
AVG.			4,855	1,595	168	68	2	2,835					

TABLE 29

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

TABLE 30

THE DALLES PROJECT

OCTOBER 1988

DATE	FISH COUNTS						RIVER CONDITIONS						
	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1			621	739	109	54		1023		107.3	0.0	3.4	63.0
2			442	652	71	31		1062		88.6	0.0	4.0	64.0
3			500	634	100	43		949		89.8	0.0	3.4	64.0
4			396	746	104	39		951		102.4	0.0	3.5	64.0
5			405	621	110	42		854		90.4	0.0	3.7	64.0
6			315	544	123	38		838		98.0	0.0	3.0	64.0
7			366	448	56	31		722		103.9	0.0	4.0	64.0
8			465	478	32	21		567		89.2	0.0	3.5	64.0
9			713	398	33	11		559		83.4	0.0	4.5	64.0
10			187	253	26	13		453		96.6	0.0	3.0	64.0
11			193	246	28	12		506		108.8	0.0	2.8	64.0
12			237	222	57	17		521		110.3	0.0	4.0	64.0
13			400	310	48	11		736		122.1	0.0	3.5	64.0
14			95	170	29	18		531		112.5	0.0	3.5	63.0
15			240	217	37	11		619		109.4	0.0	4.5	64.0
16			156	198	47	14		584		90.8	0.0	3.5	63.0
17			169	142	45	15		657		100.5	0.0	3.3	64.0
18			116	74	54	12		592		125.9	0.0	3.0	64.0
19			207	95	42	19		554		120.6	0.0	3.0	64.0
20			112	77	19	7		349		127.2	0.0	4.0	64.0
21			135	135	25	15		357		112.0	0.0	4.0	64.0
22			140	85	26	10		316		109.9	0.0	3.0	64.0
23			81	85	20	9		315		95.0	0.0	3.5	64.0
24			73	91	14	5		256		124.8	0.0	2.5	63.0
25			65	97	21	15		269		102.2	0.0	4.0	63.0
26			110	49	16	9		228		113.2	0.0	3.2	63.0
27			74	72	8	9		209		147.4	0.0	3.0	63.0
28			123	74	10	10		224		154.8	0.0	3.0	61.0
29			164	45	11	4		234		100.8	0.0	3.4	61.0
30			86	30	14	5		176		97.6	0.0	3.0	60.0
31			61	33	16	11		156		139.3	0.0	3.0	60.0
TOTAL			7,447	8,060	1,351	561		16,367		108.9	0.0		
AVG.			240	260	44	18		528					

TABLE 31

DISCHARGE AND WATER QUALITY DATA
THE DALLES PROJECT - 1988

NOVEMBER				DECEMBER			
DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F
1	122.6	3.0	59.0	1	196.6	3.2	49.0
2	118.1	3.0	59.0	2	140.1	3.2	49.0
3	99.2	3.0	59.0	3	132.7	3.0	49.0
4	88.8	3.5	58.0	4	138.0	3.1	49.0
5	107.6	3.0	58.0	5	161.5	2.9	48.0
6	95.9	3.5	58.0	6	152.2	3.2	48.0
7	134.7	3.8	57.0	7	156.7	3.1	48.0
8	117.8	3.5	58.0	8	166.3	3.2	48.0
9	134.8	3.5	58.0	9	142.8	3.3	48.0
10	130.9	3.8	58.0	10	124.9	3.2	47.0
11	117.0	3.8	56.0	11	168.4	3.3	47.0
12	114.2	3.2	57.0	12	140.7	3.3	47.0
13	125.0	2.0	57.0	13	134.6	4.0	47.0
14	140.5	3.7	54.0	14	166.9	4.0	47.0
15	135.4	2.0	54.0	15	192.8	4.0	47.0
16	140.9	2.0	54.0	16	135.0	4.9	47.0
17	148.6	2.0	54.0	17	150.2	7.0	46.0
18	149.1	2.0	54.0	18	154.9	6.0	47.0
19	119.6	2.0	54.0	19	169.2	6.0	47.0
20	123.2	2.0	54.0	20	162.2	5.8	46.0
21	143.2	2.0	54.0	21	170.8	5.8	46.0
22	152.6	2.0	54.0	22	174.3	6.0	47.0
23	144.0	2.5	51.0	23	161.7	6.0	47.0
24	131.7	3.0	51.0	24	152.0	6.0	47.0
25	134.0	2.5	51.0	25	130.1	3.0	47.0
26	139.9	3.0	50.0	26	128.6	3.0	47.0
27	125.3	2.5	50.0	27	174.8	3.0	47.0
28	165.4	4.0	49.0	28	174.5	3.0	47.0
29	129.9	3.3	49.0	29	161.6	3.0	47.0
30	162.3	3.3	49.0	30	202.5	3.0	47.0
				31	151.2	3.0	47.0
AVG.	129.7	2.9	54.6	AVG.	157.1	4.0	47.3

TABLE 32

MONTHLY COUNT OF CHINOOK SALMON
THE DALLES DAM - 1957 - 1988

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	SPRING Jan 1- Jun 3	SUMMER Jun 4- Aug 3	FALL Aug 4- Dec 31	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
Total			2,082	1,117,366	1,032,651	746,257	728,033	727,044	3,073,909	317,738	2,518		7,747,598	2,193,073	1,485,658	4,068,867	1,986,449
10-Year Average				26,924	24,876	12,409	11,804	28,028	131,575	18,781	168		254,583	52,678	24,288	177,617	72,533

TABLE 33

MONTHLY COUNT OF SOCKEYE SALMON
THE DALLES DAM - 1957 - 1988

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	0			55,802
Total				1	1,381	774,836	1,282,864	20,387	916	14	1		2,080,400
10-Year Average					4	32,422	30,977	402	13				63,817

TABLE 34

MONTHLY COUNT OF COHO SALMON
THE DALLES DAM - 1957-1988

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	1067			4,842	1,458
1987							12	91	2,409	798			3,310	1,953
1988								232	7,082	1,912			9,226	2,701
Total							1,558	20,512	313,982	50,575	197		386,824	159,501
10-Year Average							2	175	4,569	1,044	9		5,798	2,646

TABLE 35

MONTHLY COUNT OF STEELHEAD TROUT
THE DALLES DAM - 1957-1987

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
Total		25	4,072	26,862	23,727	79,407	1,099,785	1,096,896	1,766,244	276,938	3,672		4,377,628
10-Year Average				1,337	873	3,320	39,491	48,222	69,404	14,284	175		177.245

TABLE 36
 YEARLY TOTALS OF SALMONID FISH COUNTED OVER JOHN DAY DAM
 1968 - 1988

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
Totals	4,368,701	2,445,887	1,281,597	210,410	8,306,595
10-Year Average	209,483	151,384	67,318	3,108	431,293

*JACKS INCLUDED

TABLE 37
MONTHLY TOTALS OF SALMONIDS AND SHAD COUNTED OVER JOHN DAY DAM
1988

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL*
CHINOOK				33,323	20,170	14,731	9,648	37,002	147,553	14,824			277,251
STEELHEAD				4,290	525	2,188	17,649	25,741	81,859	32,398			164,650
SOCKEYE						25,001	22,855	225	12	2			48,095
COHO							3	241	5,170	1,399			6,813
CHUM													0
PINK													0
TOTAL				37,613	20,695	41,920	50,155	63,209	234,594	48,623			496,809
SHAD				1	119,330	719,020	52,385	261	0	0			890,997

*Jacks Included

TABLE 38

DISCHARGE AND WATER QUALITY DATA
JOHN DAY PROJECT - 1988

JANUARY				FEBRUARY				MARCH			
DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F
1	141.9	3.0	40.0	1	167.1	1.7	40.0	1	108.4	6.0	44.0
2	135.9	4.0	47.0	2	193.3	1.7	40.0	2	122.7	5.0	43.0
3	153.7	5.0	47.0	3	141.8	1.4	40.0	3	129.0	5.7	43.0
4	182.8	4.0	45.0	4	174.1	1.8	40.0	4	113.8	5.5	42.0
5	164.8	6.5	43.0	5	146.7	5.0	42.0	5	112.1	6.0	44.0
6	152.7	6.5	43.0	6	129.4	7.0	40.0	6	116.8	5.0	44.0
7	202.4	6.0	43.0	7	127.1	7.0	40.0	7	138.6	5.5	43.0
8	175.8	7.0	43.0	8	131.0	6.5	40.0	8	146.9	5.0	43.0
9	136.1	4.0	42.0	9	114.4	6.5	38.0	9	104.5	5.0	43.0
10	159.3	7.0	43.0	10	141.7	2.0	38.0	10	124.3	4.5	43.0
11	156.6	7.5	40.0	11	122.2	2.5	40.0	11	153.1	4.5	43.0
12	174.2	7.5	40.0	12	120.5	5.0	39.0	12	110.7	4.3	44.0
13	175.7	7.0	39.0	13	111.8	3.0	39.0	13	94.0	5.4	44.0
14	163.5	7.0	43.0	14	126.4	3.8	39.0	14	125.8	5.5	44.0
15	136.4	7.0	41.0	15	116.2	3.5	44.0	15	117.9	5.3	44.0
16	126.0	3.5	40.0	16	142.5	3.8	40.0	16	126.2	5.0	44.0
17	116.4	7.0	40.0	17	143.6	4.5	40.0	17	118.6	4.5	45.0
18	139.2	2.8	40.0	18	151.6	3.0	40.0	18	101.9	4.0	45.0
19	151.7	4.4	42.0	19	128.5	4.5	40.0	19	91.6	5.0	45.0
20	154.6	2.1	40.0	20	120.0	6.2	40.0	20	91.1	5.5	45.0
21	169.4	2.5	40.0	21	105.0	5.0	40.0	21	103.7	5.7	46.0
22	166.3	3.2	42.0	22	141.7	5.0	40.0	22	114.0	5.8	46.0
23	139.4	1.9	41.0	23	144.3	5.5	40.0	23	132.4	5.8	46.0
24	143.4	2.1	41.0	24	146.4	5.4	40.0	24	176.0	5.8	46.0
25	160.2	1.9	40.0	25	114.3	4.5	40.0	25	144.5	4.5	46.0
26	146.6	2.1	40.0	26	115.8	4.5	40.0	26	94.4	4.4	46.0
27	125.3	1.4	40.0	27	121.4	4.5	40.0	27	130.2	4.7	46.0
28	115.3	1.7	40.0	28	91.3	4.8	40.0	28	140.6	4.5	46.0
29	100.7	1.7	40.0	29	114.9	4.5	40.0	29	151.1	4.7	46.0
30	123.8	1.8	40.0					30	142.0	4.5	46.0
31	144.3	2.0	40.0					31	125.2	4.6	46.0
AVG.	149.5	4.3	41.5	AVG.	132.6	4.3	40.0	AVG.	122.6	5.1	44.5

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

TABLE 39

JOHN DAY PROJECT
 APRIL 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1	90			0				266	0	105.9	0.0	4.0	43.0
2	32			0				142	0	94.6	0.0	4.7	43.0
3	98			0				155	0	80.7	0.0	3.5	43.0
4	178			0				191	0	126.6	0.0	2.5	43.0
5	174			0				260	0	156.7	0.0	4.5	43.0
6	419			0				207	0	129.8	0.0	4.5	45.0
7	145			0				190	0	125.0	0.0	4.6	45.0
8	313			0				305	0	113.9	0.0	3.5	46.0
9	410			0				285	0	92.3	0.0	3.0	45.0
10	619			0				285	0	88.4	0.0	4.5	46.0
11	925			0				197	0	112.2	0.0	3.0	45.0
12	323			0				118	0	114.1	0.0	3.0	47.0
13	148			0				14	0	119.0	0.0	3.0	46.0
14	55			0				72	0	118.8	0.0	3.5	47.0
15	252			4				158	0	160.8	0.0	4.5	44.0
16	1377			20				147	0	150.7	0.0	4.2	47.0
17	795			2				88	0	139.7	0.0	4.5	45.0
18	3468			36				196	0	143.7	0.0	3.0	46.0
19	1847			59				239	0	142.9	0.0	3.0	46.0
20	434			21				136	0	144.4	0.0	3.2	48.0
21	2597			83				108	0	146.3	0.0	3.5	46.0
22	3072			26				86	0	141.0	0.0	4.0	50.0
23	1896			29				88	0	136.3	0.0	3.5	50.0
24	1404			20				44	0	145.3	0.0	3.2	50.0
25	1521			27				43	0	149.5	0.0	3.5	46.0
26	4338			29				125	0	150.4	0.0	3.2	50.0
27	1847			52				47	0	149.5	0.0	3.2	51.0
28	514			22				34	1	148.4	0.0	1.9	50.0
29	719			34				58	0	150.2	0.0	3.0	52.0
30	2759			90				6	0	148.2	0.0	3.0	52.0
TOTAL	32,769			554				4,290	1	130.8	0.0	3.5	46.7
AVG.	1,092			18				143	0.0				

TABLE 39

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

TABLE 40

JOHN DAY PROJECT
MAY 1988

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	RIVER CONDITIONS			
	SPRING	SUMMER	FALL							DISCH KCFS	SPILL KCFS	TURBIDITY SEECHI	DEG F
1	1550			46				73	0	150.1	0.0	2.8	52.0
2	2144			86				76	2	141.6	0.0	2.5	52.0
3	822			39				89	0	180.9	0.0	2.5	51.0
4	773			86				32	4	186.5	0.0	2.4	52.0
5	988			61				-5	19	159.7	0.0	3.0	53.0
6	1416			98				21	5	164.4	0.0	3.5	52.0
7	768			66				21	11	176.4	0.0	3.0	53.0
8	611			51				26	47	163.8	0.0	3.5	55.0
9	989			102				10	30	164.3	0.0	3.5	55.0
10	460			97				3	60	200.5	0.0	3.5	53.0
11	480			89				26	104	237.8	0.0	4.0	53.0
12	276			61				27	125	231.4	0.0	4.0	55.0
13	657			129				40	129	211.6	0.0	2.5	53.0
14	431			105				11	119	209.6	0.0	4.0	53.0
15	422			66				-37	389	199.0	0.0	4.0	54.0
16	505			112				8	820	200.9	0.0	3.5	54.0
17	666			91				16	231	219.2	0.0	3.0	54.0
18	387			35				-3	366	215.3	0.0	3.5	55.0
19	332			67				17	453	224.4	0.0	3.0	56.0
20	385			37				-6	953	224.9	0.0	3.8	56.0
21	256			40				41	1116	217.2	0.0	3.7	56.0
22	381			42				2	1400	187.7	0.0	3.4	56.0
23	356			53				36	1400	170.4	0.0	4.0	56.0
24	392			42				30	3952	219.7	0.0	4.0	56.0
25	250			30				-2	13521	233.5	0.0	4.0	56.0
26	229			36				-36	14548	227.3	0.0	3.6	56.0
27	242			28				-23	24551	228.6	0.0	4.0	56.0
28	190			29				8	16626	165.5	0.0	3.6	57.0
29	338			19				9	8870	149.7	0.0	4.0	56.0
30	355			24				-4	9534	142.5	0.0	3.6	57.0
31	235			17				19	19945	208.6	0.0	4.0	57.0
TOTAL	18,286			1,884				525	119,330	194.0	0.0		
AVG.	590			61				17	3,849				

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 41

JOHN DAY PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

JUNE 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1	307			15			0	13	50129	227.3	0.0	2.7	57.0
2	184			16			1	3	34564	235.6	0.0	4.1	57.0
3	302			18			2	12	16929	212.0	0.0	3.6	57.0
4	514			24			5	31	14135	213.6	0.0	2.8	57.0
5	303			19			2	20	15594	204.9	0.0	2.8	57.0
6		334		18			8	-21	17515	215.1	0.0	3.0	57.0
7		333		13			14	-7	22430	193.6	0.0	3.5	58.0
8		267		20			20	7	13266	198.2	0.0	3.4	57.0
9		361		28			13	-3	21996	209.4	4.5	3.6	54.0
10		284		34			24	41	13960	182.4	9.4	3.6	54.0
11		344		25			45	58	25996	146.6	0.0	3.8	57.0
12		487		43			63	57	12755	125.0	3.2	3.8	54.0
13		325		30			168	44	16786	136.4	0.0	2.5	60.0
14		585		30			209	45	24562	157.7	7.8	4.2	60.0
15		471		48			416	100	32094	150.2	8.1	4.2	60.0
16		369		36			542	89	39099	167.5	7.7	4.0	60.0
17		643		44			1024	77	32972	155.1	4.6	4.0	60.0
18		592		41			1273	104	19605	153.1	7.2	4.5	60.0
19		655		56			1621	107	37461	141.0	3.2	4.5	61.0
20		712		101			2307	134	38028	146.5	6.3	4.5	60.0
21		818		99			2439	183	38078	140.9	6.2	5.5	60.0
22		536		54			2408	158	45472	136.7	7.0	5.0	61.0
23		537		53			2038	111	25624	169.4	8.5	5.0	62.5
24		533		32			1838	108	18813	163.5	6.9	5.0	63.0
25		379		20			1333	86	28641	153.2	8.0	5.2	64.0
26		772		53			2735	153	17728	122.9	6.6	5.4	64.0
27		583		37			1741	126	12593	154.8	4.7	3.0	64.0
28		405		35			804	123	10571	129.8	5.1	3.8	64.0
29		355		50			840	140	9990	134.0	5.9	3.0	64.0
30		320		29			1068	89	11634	104.0	4.8	4.4	64.0
TOTAL	1,610	12,000		1,121			25,001	2,188	719,020	166.0	4.2		
AVG.	322	480		37			833	73	23,967				

TABLE 41

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

TABLE 42

JOHN DAY PROJECT
JULY 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
	SPRING	SUMMER	FALL										
1		306		51	0	0	1140	95	6986	109.6	4.7	4.7	64.0
2		389		63	0	0	1531	128	7901	98.6	4.9	4.2	64.0
3		366		43	0	0	1486	92	5185	102.9	5.2	5.0	64.0
4		479		82	0	0	1901	189	4267	84.8	3.2	5.0	65.0
5		410		49	0	0	1957	197	3634	88.9	4.9	4.7	65.0
6		243		33	0	0	1527	134	2112	134.6	5.4	5.0	64.0
7		291		45	0	0	1395	189	4088	124.6	4.8	4.8	64.0
8		189		34	0	0	1287	147	3473	120.1	5.7	5.0	64.0
9		286		37	0	0	1415	228	2568	122.4	5.6	3.8	64.0
10		203		53	0	0	941	221	1597	105.3	3.2	5.0	65.0
11		392		66	0	0	1715	488	1160	107.3	0.1	3.6	65.0
12		302		162	0	0	1255	462	1641	114.4	0.6	5.0	65.0
13		297		52	0	0	932	413	1296	122.3	5.6	5.0	65.0
14		165		39	0	0	434	355	553	120.0	5.3	4.5	65.0
15		313		48	0	0	560	630	793	121.2	0.0	3.5	65.0
16		180		58	0	0	631	851	1472	92.9	0.0	4.8	65.5
17		271		47	0	0	576	773	626	78.4	0.0	3.0	65.5
18		190		53	0	0	387	842	590	86.5	0.8	4.8	66.0
19		123		39	0	0	274	560	408	104.0	3.7	4.0	66.0
20		152		74	0	0	240	723	312	131.9	5.6	4.3	67.0
21		185		58	0	0	249	769	224	115.5	4.9	5.5	67.0
22		183		68	0	0	248	1162	169	120.3	4.9	3.5	67.0
23		191		102	0	0	181	973	211	92.1	4.4	5.5	67.0
24		229		69	0	0	144	764	174	78.2	1.8	3.5	67.0
25		211		39	0	0	85	975	156	96.5	4.1	4.0	68.0
26		111		47	0	0	55	833	254	103.3	4.0	4.0	67.0
27		284		61	1	2	126	1358	241	90.9	4.7	4.5	68.0
28		119		44	0	0	52	972	72	90.1	4.4	4.5	68.0
29		254		43	0	0	51	832	46	85.4	4.5	4.8	68.0
30		146		40	0	0	49	592	105	85.7	3.0	5.3	68.0
31		424		65	0	0	31	702	71	76.7	0.7	4.8	69.0
TOTAL		7,884		1,764	1	2	22,855	17,649	52,385	103.4	3.6	4.5	65.9
AVG.		254		57	0.0	0.1	737	569	1,690				

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 43

JOHN DAY PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

AUGUST 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1		109		30	0	0	26	830	26	89.9	3.7	5.5	69.5
2		125		49	1	0	21	514	58	92.5	0.0	5.2	69.5
3		68		21	0	0	17	313	60	85.4	0.0	7.0	69.0
4		96		43	0	0	9	403	29	104.6	5.4	5.0	70.0
5		292		59	0	0	19	680	38	93.5	0.0	4.9	70.0
6			295	52	0	0	13	582	8	88.4	2.0	5.0	70.0
7			315	52	0	0	11	439	8	81.5	4.9	5.0	70.0
8			283	48	0	0	10	382	14	96.1	0.7	5.0	70.0
9			351	55	0	0	11	339	10	93.1	0.1	3.5	70.0
10			131	31	2	0	14	432	3	90.2	0.0	5.0	70.0
11			69	35	0	0	7	311	1	109.0	0.0	4.5	70.0
12			293	37	0	0	3	294	-4	121.7	0.0	3.2	69.5
13			248	48	0	0	7	333	10	98.5	0.6	4.0	69.0
14			774	59	1	0	4	511	3	84.2	4.2	3.0	69.5
15			541	68	1	2	3	726	3	97.2	4.4	4.0	69.0
16			601	64	0	0	5	995	8	106.1	2.4	3.5	69.0
17			2168	108	1	1	8	1038	12	98.7	0.0	4.0	69.0
18			391	66	1	1	4	580	5	98.1	0.0	5.0	69.0
19			1076	82	1	1	5	736	6	100.8	0.0	4.5	69.0
20			810	56	2	2	2	749	-7	104.5	0.0	4.0	68.5
21			663	41	0	0	3	636	-1	77.9	0.0	4.2	69.5
22			3564	138	3	5	4	787	-2	90.4	0.0	4.0	69.0
23			2693	105	12	18	4	828	-5	100.7	0.0	4.5	68.0
24			2145	171	11	27	2	1415	-6	121.7	0.0	4.5	69.0
25			1501	195	12	7	3	1375	-2	118.5	0.0	4.5	69.0
26			3007	324	13	7	4	1776	-4	115.6	0.0	4.5	69.0
27			3564	348	10	9	2	1425	-5	97.5	0.0	5.0	69.0
28			2301	274	16	4	0	1560	-4	87.0	0.0	5.5	69.0
29			2320	287	20	7	3	1758	-5	102.2	0.0	4.5	69.0
30			1855	313	24	9	1	1808	1	128.1	0.0	5.5	69.0
31			872	222	3	7		1186	3	120.0	0.0	5.5	69.0
TOTAL		690	32,831	3,481	134	107	225	25,741	261	99.8	0.9		
AVG.		138	1,263	112	4	3	8	830	8				

TABLE 43

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 44

JOHN DAY PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

SEPTEMBER 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1			3471	872	10	10	2	1100		134.7	0.0	4.5	71.0
2			2514	590	20	14	0	935		141.1	0.0	5.2	69.0
3			3426	537	34	43	1	1410		101.8	0.0	4.2	68.0
4			5757	813	56	36	1	1582		100.6	0.0	5.2	69.0
5			3739	617	14	32	0	1529		105.5	0.0	4.0	69.0
6			4812	855	38	27	2	1107		137.0	0.0	5.2	69.0
7			5550	1360	30	18	1	1299		111.1	0.0	4.5	69.0
8			2592	910	44	27	0	1181		124.9	0.0	4.0	70.0
9			3244	872	23	29	0	1061		107.8	0.0	3.5	70.0
10			2658	533	35	50	0	824		118.0	0.0	4.5	67.0
11			3557	824	24	30	0	1357		112.0	0.0	3.5	70.0
12			8315	917	32	32	0	1525		96.7	0.0	3.5	68.0
13			10459	964	60	38	0	2270		100.2	0.0	4.0	70.0
14			14411	1617	165	198	0	2580		104.6	0.0	4.0	68.0
15			11289	2040	112	97	0	4331		116.7	0.0	4.5	68.0
16			8080	2061	284	237	0	4418		112.7	0.0	3.5	68.0
17			5131	2248	212	140	1	5347		93.2	0.0	3.5	68.0
18			3206	2014	313	159	2	4826		85.5	0.0	4.0	66.0
19			2504	1972	243	96	1	7116		115.3	0.0	3.5	66.0
20			1276	1045	228	89	1	5425		125.7	0.0	4.0	65.0
21			573	749	108	45	0	3063		116.4	0.0	4.0	65.0
22			1013	1943	189	75	0	4156		120.7	0.0	4.0	65.0
23			916	1027	146	67	0	3353		131.8	0.0	4.4	65.0
24			680	1171	107	59	0	3382		89.3	0.0	4.0	65.0
25			1344	1354	146	83	0	3161		92.6	0.0	4.4	65.0
26			509	1034	139	59	0	3502		118.6	0.0	4.5	65.0
27			717	1177	114	66	0	2978		101.8	0.0	5.0	63.0
28			652	1148	122	43	0	2695		111.4	0.0	3.5	66.0
29			242	623	70	49	0	2189		110.9	0.0	5.5	63.0
30			408	621	76	28	0	2157		116.0	0.0	4.5	63.0
TOTAL			113,045	34,508	3,194	1,976	12	81,859		111.8	0.0		
AVG.			3,768	1,150	106	66	0.4	2,729					

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 45

JOHN DAY PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

OCTOBER 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1			291	576	69	37	0	1818		110.3	0.0	5.5	63.0
2			415	545	66	28	0	1580		89.2	0.0	4.2	63.0
3			198	305	52	34	1	1669		92.5	0.0	5.5	63.0
4			441	756	84	48	1	1937		100.7	0.0	4.8	63.0
5			432	639	65	48	0	1678		89.2	0.0	5.5	63.0
6			211	419	47	18	0	1664		100.5	0.0	5.5	63.0
7			367	650	69	37	0	1289		105.0	0.0	5.5	63.0
8			445	612	78	31	0	1227		90.4	0.0	5.0	63.0
9			248	296	34	27	0	824		81.5	0.0	4.5	67.0
10			315	377	25	15	0	1132		98.7	0.0	5.4	63.5
11			267	250	12	7	0	655		103.3	0.0	4.5	67.0
12			180	218	23	7	0	904		114.1	0.0	3.5	64.0
13			267	256	28	25	0	890		121.2	0.0	3.0	63.5
14			389	193	32	15	0	936		114.3	0.0	4.3	63.0
15			115	141	14	8	0	810		107.7	0.0	4.2	63.0
16			178	105	18	5	0	816		88.0	0.0	3.5	63.0
17			145	200	30	5	0	1897		100.9	0.0	4.4	63.0
18			317	223	27	13	0	1988		126.4	0.0	3.5	63.0
19			176	140	26	11	0	1107		119.8	0.0	4.5	63.0
20			134	150	43	21	0	1548		129.0	0.0	3.5	63.0
21			230	101	12	9	0	782		111.1	0.0	4.4	62.5
22			217	158	8	5	0	654		110.2	0.0	5.0	63.0
23			90	80	17	6	0	592		93.1	0.0	3.5	63.0
24			57	77	7	4	0	726		123.2	0.0	5.0	62.0
25			105	105	3	3	0	409		101.1	0.0	2.4	63.0
26			86	97	2	7	0	518		111.6	0.0	5.0	62.0
27			32	47	3	1	0	608		144.6	0.0	5.0	63.0
28			58	60	1	0	0	568		156.6	0.0	5.0	60.0
29			146	117	5	3	0	384		101.7	0.0	4.5	61.0
30			149	73	6	5	0	352		97.9	0.0	4.5	61.0
31			105	52	8	2	0	436		138.8	0.0	4.0	59.0
TOTAL			6,806	8,018	914	485	2	32,398		108.8	0.0		
AVG.			220	259	29	16	0.1	1,045					

TABLE 45

TABLE 46

DISCHARGE AND WATER QUALITY DATA
JOHN DAY PROJECT - 1988

NOVEMBER				DECEMBER			
DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F
1	124.5	4.3	56.0	1	197.9	4.0	48.0
2	115.1	4.3	56.0	2	144.3	4.3	48.0
3	99.3	4.3	56.0	3	131.4	4.0	48.0
4	85.9	4.0	56.0	4	139.1	4.5	48.0
5	107.1	4.3	56.0	5	162.8	4.0	48.0
6	93.4	4.0	57.0	6	157.3	5.0	48.0
7	133.6	4.0	57.0	7	155.4	5.0	47.0
8	115.1	4.0	57.0	8	170.6	5.5	48.0
9	131.0	3.5	56.0	9	142.2	3.0	46.0
10	131.9	4.5	55.0	10	126.2	6.0	47.0
11	115.9	5.0	55.0	11	168.7	5.0	47.0
12	111.3	4.0	55.0	12	141.3	5.5	47.0
13	125.9	4.8	54.0	13	131.7	5.0	46.0
14	144.0	3.7	54.0	14	167.1	3.7	44.0
15	135.4	4.0	54.0	15	193.6	4.0	43.0
16	142.6	4.2	53.0	16	139.8	3.5	46.0
17	150.5	4.5	53.0	17	148.7	3.7	46.0
18	150.0	3.5	52.0	18	156.9	4.0	43.0
19	122.7	4.0	51.0	19	171.2	4.0	43.0
20	122.2	4.0	52.0	20	163.3	3.5	43.0
21	144.2	4.5	51.0	21	170.6	3.7	43.0
22	155.2	3.5	50.0	22	176.0	5.0	44.0
23	141.4	5.0	51.0	23	165.0	4.5	43.0
24	130.2	3.5	50.0	24	150.9	3.5	43.0
25	135.0	4.0	50.0	25	130.3	4.6	43.0
26	139.0	3.5	49.0	26	129.4	4.3	43.0
27	126.6	4.5	48.0	27	172.7	4.0	43.0
28	156.8	4.4	48.0	28	180.5	4.0	42.0
29	138.7	4.0	49.0	29	166.5	6.0	42.0
30	163.6	4.0	49.0	30	210.4	4.0	42.0
				31	150.7	5.0	41.0
AVG.	129.6	4.1	53.0	AVG.	158.5	4.4	44.9

TABLE 47
 MONTHLY COUNT OF CHINOOK SALMON
 JOHN DAY DAM - 1968 - 1988

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
Total		27		475,278	676,807	323,861	352,817	319,879	1,919,887	296,104	4,041		4,368,701	1,191,182	670,134	2,507,385	1,396,855
10-Year Average				18,217	25,907	10,987	10,037	16,576	107,977	19,397	383		209,483	45,669	20,439	143,375	66,030

TABLE 48

MONTHLY COUNT OF SOCKEYE SALMON
JOHN DAY DAM - 1968 - 1988

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
Total					8	465,423	803,410	12,335	378	42	1		1,281,597
10-Year Average						28,300	38,495	510	12	1			67,318

TABLE 49

MONTHLY COUNT OF COHO SALMON
JOHN DAY DAM - 1968-1988

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
Total							48	7,365	168,694	33,762	541		210,410
10-Year Average								85	2,348	640	35		3,108

TABLE 50
MONTHLY COUNT OF STEELHEAD TROUT
JOHN DAY DAM - 1968-1987

	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
Total			3,925	58,460	27,358	26,589	297,062	438,250	1,155,032	425,949	13,262		2,445,887
10-Year Average				3,207	854	1,625	17,519	27,398	68,731	30,503	1,187		151,384

MISCELLANEOUS SPECIES SIGHTED AT BONNEVILLE, THE DALLES AND JOHN DAY DAMS, 1988.

Adult fish counters at Portland District projects recorded the presence of species other than those counted under contract. These records reflect the total sighted, upstream and downstream, and are not adjusted for counters' break time.

Lamprey, chubs, squawfish, suckers, whitefish and carp were the most frequently sighted species, and abundance was recorded descriptively (i.e. few, many). Numbers were greatest at Bonneville and during late spring to early summer.

Bass, catfish, walleye and sturgeon were counted (Table 51). Size and direction in the ladder were recorded for all sturgeon and most other species. Abundance was greatest at the upstream projects and usually on the Oregon shore. Abundance was greatest on the Washington shore at Bonneville. Bass were the most common species counted, and size ranged from 6" to 14". Bass were most abundant during May and more than 99% were headed upstream. Catfish were most abundant during July, ranging in size from 12" to 24" and approximately 85% were headed upstream. Walleye were most abundant during September, size varying from 9" to 24" and approximately 99% were moving upstream. Sturgeon were primarily sighted at The Dalles during July. Size ranged from 2' to 6' (most were 3-4') and 92% were headed upstream.

Other species sighted infrequently include crappie; bluegill and pumpkinseed sunfish; rainbow, brown and cutthroat trout, and sculpins. A beaver was also recorded heading swiftly downstream at John Day.

Table 51 follows

TABLE 51
 MISCELLANEOUS SPECIES COUNTED
 BONNEVILLE, THE DALLES AND JOHN DAY PROJECTS
 1988
 WASHINGTON SHORE/OREGON SHORE

BONNEVILLE	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	TOTAL WA /OR
BASS		18/1	9/0	7/1	15/1	30/3	36/4	4/2	119/12
CATFISH				1/0	1/0	3/1			5/1
WALLEYE									0/0
STURGEON		1/0	1/0	2/1	3/1	3/5	6/1		15/9
THE DALLES									
BASS	0/16	110/166	96/32	29/19	2/25	13/60	18/49		268/367
CATFISH		4/1	2/7	4/21	1/5	2/5	0/6		13/45
WALLEYE	0/5	0/26	2/18	2/27	3/66	3/232	0/116		10/490
STURGEON		0/5	1/27	5/58	1/36	0/27	1/26		8/179
JOHN DAY									
BASS	2/5	86/285	19/82	40/110	49/55	40/73	32/46		268/656
CATFISH			0/6	0/24	2/8	0/4	0/1		2/43
WALLEYE				1/1	13/3	15/10	20/9		49/23
STURGEON				0/1	2/0	1/0			3/1

TABLE 52

YEARLY TOTALS OF SALMONID FISH COUNTED OVER MCNARY DAM
1945-1988

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
Totals	6,076,667	3,378,299	2,216,255	379,151	12,050,372
10-Year Average	180,075	119,694	48,879	3,645	352,293

TABLE 53

MONTHLY TOTALS OF SALMONIDS AND SHAD COUNTED OVER MCNARY DAM
1988

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL*
CHINOOK			26,267	22,245	14,605	9,282	30,714	115,878	24,617				243,608
STEELHEAD			4,176	1,095	2,106	11,609	25,875	69,259	37,634				151,754
SOCKEYE					23,466	25,984	599	14	17				50,080
COHO							17	1,210	783				2,010
CHUM													
PINK													0
TOTAL			30,443	23,340	40,177	46,875	57,205	186,361	63,051				447,452
SHAD				16,087	558,027	90,444	1,367	0					665,925

*Jacks Included

TABLE 54
DISCHARGE AND WATER QUALITY DATA
MCNARY DAM 1988

JANUARY				FEBRUARY				MARCH			
DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F
1	140.7	2.8	43.0	1	135.1	3.9	39.0	1	103.1	2.0	40.0
2	134.4	3.2	43.0	2	182.8	3.7	38.0	2	127.9	2.1	40.0
3	156.9	3.0	41.0	3	137.0		38.0	3	125.1	2.4	41.0
4	173.2	3.6	41.0	4	158.6		37.0	4	146.9	2.6	41.0
5	161.7	3.4	41.0	5	160.1		37.0	5	138.5	3.0	42.0
6	148.9	4.0	40.0	6	149.0	1.8	37.0	6	123.7	1.8	42.0
7	165.0	4.0	40.0	7	135.3	2.8	37.0	7	129.6	1.8	42.0
8	195.1	4.0	40.0	8	116.3	2.9	37.0	8	122.4	2.3	42.0
9	124.1	4.0	40.0	9	117.6	3.5	37.0	9	94.7	2.4	42.0
10	147.3	5.0	41.0	10	145.0	3.5	37.0	10	136.9	2.9	42.0
11	164.2	5.0	41.0	11	105.6	4.4	37.0	11	147.9	3.2	42.0
12	158.9	5.0	41.0	12	114.1	4.2	39.0	12	106.0	3.9	42.0
13	172.7	4.5	41.0	13	109.7	2.4	39.0	13	93.8	4.7	42.0
14	143.3	4.0	41.0	14	124.3	3.3	39.0	14	110.5	3.6	42.0
15	114.6	5.0	41.0	15	110.3	2.8	39.0	15	106.3	3.8	42.0
16	122.1	3.6	40.0	16	140.8	3.0	39.0	16	122.7	3.2	42.0
17	121.2	1.0	41.0	17	130.6	4.2	39.0	17	108.8	3.7	42.0
18	133.1	0.9	40.0	18	140.3	4.8	39.0	18	100.6	3.7	42.0
19	163.8	0.8	40.0	19	128.6	3.6	40.0	19	111.7	3.7	43.0
20	162.6	1.0	40.0	20	115.7	3.4	40.0	20	81.2	3.7	43.0
21	157.4	1.3	40.0	21	104.0	3.5	40.0	21	96.7	3.8	43.0
22	149.8	1.3	40.0	22	135.2	3.5	40.0	22	110.3	3.5	43.0
23	145.3	1.2	40.0	23	129.7	3.2	40.0	23	132.7	3.5	43.0
24	124.7	2.0	40.0	24	135.2	3.0	40.0	24	157.8	3.2	44.0
25	146.3	1.5	40.0	25	109.7	3.4	40.0	25	130.4	3.6	43.0
26	135.0	4.6	40.0	26	127.1	3.5	40.0	26	115.9	3.0	43.0
27	141.4	4.0	40.0	27	119.6	3.6	40.0	27	127.2	3.2	43.0
28	125.3	3.6	40.0	28	91.2	2.1	40.0	28	126.7	3.3	43.0
29	91.5	4.5	39.0	29	110.6	2.6	40.0	29	133.8	3.2	43.0
30	134.4	4.0	39.0					30	129.6	3.4	43.0
31	142.3	4.5	40.0					31	130.8	3.7	44.0
AVG.	145.1	3.2	40.5	AVG.	128.2	3.0	38.8	AVG.	120.3	3.2	42.3

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

TABLE 55

MCNARY PROJECT
 APRIL 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KFCS	SPILL KFCS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1	6			0				101		97.6	0.0	3.7	44.0
2	12			0				105		95.2	0.0	3.1	44.0
3	35			0				165		94.5	0.0	3.5	44.0
4	125			4				204		125.1	0.0	3.4	44.0
5	44			2				193		125.7	0.0	3.0	45.0
6	16			0				150		118.5	0.0	4.3	46.0
7	174			0				106		122.0	0.0	3.8	47.0
8	296			0				183		105.0	0.0	2.6	47.0
9	280			0				177		98.2	0.0	3.3	47.0
10	162			0				168		86.9	0.0	3.3	47.0
11	375			0				172		104.7	0.0	3.3	47.0
12	312			3				176		104.4	0.0	3.6	47.0
13	446			0				169		104.4	0.0	3.7	48.0
14	678			2				187		123.0	0.0	3.0	50.0
15	565			2				234		159.9	0.0	3.4	50.0
16	102			0				155		144.2	0.0	3.5	50.0
17	85			0				185		112.4	0.0	3.5	50.0
18	795			2				172		157.0	0.0	3.3	50.0
19	493			4				101		134.9	0.0	3.5	50.0
20	261			0				111		135.4	0.0	3.5	51.0
21	1939			8				86		142.7	0.0	3.5	51.0
22	1201			8				170		132.8	0.0	3.3	51.0
23	1965			3				123		131.1	0.0	3.1	51.0
24	2080			20				163		130.4	0.0	2.6	51.0
25	3236			34				94		129.5	0.0	2.8	51.0
26	1494			20				66		153.6	0.0	3.0	51.0
27	1126			12				67		134.4	0.0	3.0	52.0
28	2698			17				48		137.5	0.0	3.0	52.0
29	3708			38				70		135.5	0.0	2.9	53.0
30	1355			24				75		149.5	0.0	3.2	53.0
TOTAL	26,064			203				4,176		124.2	0.0		
AVG.	869			7				139					

TABLE 55

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 57

MCNARY PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

JUNE 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KFCs	SPILL KFCs	TURBIDITY SECCHI	DEG F
	SPRING	SUMMER	FALL										
1	290			39			0	49	2577	218.2	0.0	3.0	58.0
2	479			35			0	63	4352	211.8	0.0	3.0	58.0
3	136			12			0	29	2553	221.0	0.0	2.9	58.0
4	292			66			6	22	4292	205.3	0.0	3.2	58.0
5	264			25			0	29	4161	181.7	0.0	3.3	57.0
6	196			20			5	28	6713	211.7	0.0	3.4	58.0
7	438			17			2	41	4822	181.1	0.0	3.4	58.0
8	341			16			8	40	6923	200.3	0.0	3.3	58.0
9		411		14			15	44	5546	203.5	0.0	3.3	58.0
10		340		16			14	27	9092	168.7	0.0	3.3	58.0
11		412		29			17	34	13801	130.1	0.0	3.0	58.0
12		375		26			28	41	22749	127.1	0.0	4.5	58.0
13		421		25			95	43	18992	128.3	0.0	3.5	58.0
14		574		35			89	112	18570	171.8	0.0	3.6	59.0
15		505		41			175	35	20096	142.0	0.0	4.1	59.0
16		502		44			211	77	48129	154.3	0.0	4.0	60.0
17		307		30			370	73	26068	157.9	0.0	4.0	62.0
18		691		39			569	78	30926	156.6	0.0	4.1	62.0
19		623		31			1299	92	35470	121.1	0.0	3.5	62.0
20		436		35			1293	111	31582	136.0	0.0	3.6	63.0
21		669		30			2111	102	29949	145.7	0.0	3.5	64.0
22		532		25			2719	122	32480	158.0	0.0	3.6	64.0
23		495		33			3146	143	35521	163.3	0.0	3.6	66.0
24		506		32			1842	126	42439	160.4	0.0	3.8	66.0
25		624		38			1728	86	41957	148.8	0.0	3.9	66.0
26		707		60			1800	79	18652	120.3	0.0	3.9	66.0
27		599		46			1557	78	15921	139.7	0.0	3.9	66.0
28		622		24			2251	125	10320	121.3	0.0	3.1	66.0
29		429		18			1264	101	4395	127.0	0.0	3.1	66.0
30		455		33			852	76	8979	114.2	0.0	3.1	66.0
TOTAL	2,436	11,235		934			23,466	2,106	558,027	160.9	0.0		
AVG.	305	511		31			782	70	18,601				

TABLE 57

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 58

MCNARY PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

JULY 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	RIVER CONDITIONS		
	SPRING	SUMMER	FALL								SPILL KCFS	TURBIDITY SECCHI	DEG F
1		314		27			628	67	9505	112.0	0.0	3.1	66.0
2		317		28			657	88	6634	109.9	0.0	3.5	66.0
3		354		35			988	93	8676	97.7	0.0	3.1	66.0
4		457		45			1521	134	9445	80.1	0.0	3.1	66.0
5		300		50			1352	103	7394	98.5	0.0	3.6	66.0
6		262		39			1849	94	7853	125.7	0.0	3.8	66.0
7		263		28			1351	104	7084	120.3	0.0	3.5	66.0
8		294		63			1283	90	4682	102.6	0.0	3.6	67.0
9		229		28			1028	108	2955	119.0	0.0	3.5	67.0
10		232		31			1241	128	2675	105.1	0.0	3.8	67.0
11		389		63			1678	247	3801	110.4	0.0	3.8	67.0
12		229		49			1210	250	2359	124.0	0.0	3.5	67.0
13		362		63			2469	235	2609	128.8	0.0	3.7	67.0
14		305		65			1779	247	3097	110.2	0.0	3.7	67.0
15		340		59			1037	382	1127	108.0	0.0	3.5	67.0
16		241		37			854	402	727	74.6	0.0	2.9	66.0
17		234		44			658	446	660	79.9	0.0	3.5	66.0
18		233		40			795	387	1287	105.6	0.0	4.2	66.0
19		164		38			528	354	1147	126.9	0.0	5.0	66.0
20		213		36			571	443	1659	126.2	0.0	4.0	68.0
21		218		32			477	473	1401	118.2	0.0	4.1	68.0
22		158		40			414	461	746	121.3	0.0	4.1	68.0
23		234		51			413	708	583	94.4	0.0	5.8	68.0
24		204		37			318	699	559	82.3	0.0	5.7	68.0
25		136		29			241	449	630	90.7	0.0	5.8	69.0
26		107		39			149	318	421	104.0	0.0	6.7	70.0
27		154		44			103	246	207	91.4	0.0	6.0	70.0
28		172		39			100	308	133	91.7	0.0	6.2	70.0
29		325		56			126	1021	136	81.9	0.0	5.4	70.0
30		166		38			92	1273	124	84.2	0.0	5.6	70.0
31		356		43			74	1251	128	72.0	0.0	5.5	70.0
TOTAL		7,966		1,316			25,984	11,609	90,444	103.1	0.0		
AVG.		257		42			838	374	2,918				

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

TABLE 59

MCNARY PROJECT

AUGUST 1988

RIVER CONDITIONS

FISH COUNTS

DAY	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
	SPRING	SUMMER	FALL										
1		267		40	0	0	67	1893	135	91.8	0.0	5.6	69.0
2		432		62	0	0	133	1576	125	88.2	0.0	5.3	69.0
3		191		38	0	0	70	785	76	98.8	0.0	5.2	70.0
4		201		31	0	0	37	594	41	94.1	0.0	5.2	70.0
5		183		37	0	0	29	685	181	94.5	0.0	5.0	70.0
6		197		35	0	0	22	739	105	98.7	0.0	4.0	70.0
7		255		50	0	0	31	699	58	94.6	0.0	4.0	70.0
8		337		44	0	0	43	718	61	80.2	0.0	5.0	70.0
9			283	39	0	0	13	426	70	103.4	0.0	3.0	70.0
10			408	51	0	0	18	656	117	93.1	0.0	3.3	70.0
11			220	28	0	0	16	388	50	111.8	0.0	3.7	70.0
12			214	34	0	0	8	360	49	108.9	0.0	4.2	70.0
13			160	28	0	0	8	400	31	93.7	0.0	4.0	70.0
14			189	23	0	0	15	344	10	84.5	0.0	4.0	70.0
15			313	48	0	0	7	353	25	79.3	0.0	3.7	70.0
16			768	62	0	0	10	466	37	100.5	0.0	3.0	70.0
17			710	47	0	0	11	599	38	94.9	0.0	3.0	70.0
18			555	32	0	0	5	812	29	97.4	0.0	4.5	69.0
19			601	47	0	0	10	865	35	108.6	0.0	3.8	69.0
20			758	77	0	0	4	575	68	109.6	0.0	4.5	69.0
21			529	68	0	0	7	845	29	82.7	0.0	4.6	69.0
22			1100	85	0	0	3	634	57	58.6	0.0	4.0	69.0
23			587	80	0	0	2	697	17	112.8	0.0	4.4	69.0
24			760	100	2	0	10	795	17	123.9	0.0	4.1	69.0
25			2410	256	4	0	2	823	9	98.7	0.0	4.0	69.0
26			3156	291	0	0	10	1339	6	144.1	0.0	4.0	69.0
27			1975	230	0	0	1	1245	4	101.3	0.0	4.1	69.0
28			1324	179	0	0	2	900	10	83.5	0.0	3.0	70.0
29			3578	379	5	0	2	1129	8	102.3	0.0	3.0	71.0
30			3057	301	2	1	2	1592	-98	128.4	0.0	3.2	69.0
31			1865	309	3	0	1	1943	-33	121.6	0.0	3.5	70.0
TOTAL		2,063	25,520	3,131	16	1	599	25,875	1,367	99.8	0.0		
AVG.		258	1,110	101	0.5	0.0	19	835	44				

TABLE 59

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 60

MCNARY PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

SEPTEMBER 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KFCS	SPILL KFCS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1			1409	288	1	0	2	1230		125.4	0.0	3.9	69.0
2			1451	324	5	0	0	1380		109.8	0.0	3.8	69.0
3			1057	345	2	1	0	1064		122.2	0.0	4.0	69.0
4			1682	568	1	0	0	927		106.8	0.0	4.0	69.0
5			3259	645	12	11	0	1393		108.4	0.0	4.0	69.0
6			3535	636	1	0	0	1476		113.8	0.0	3.3	69.0
7			2639	774	7	6	0	1734		126.3	0.0	3.3	69.0
8			2793	809	4	0	0	1477		117.6	0.0	3.3	69.0
9			2160	847	10	6	1	931		124.7	0.0	3.3	69.0
10			2270	1190	6	7	0	924		114.0	0.0	3.3	70.0
11			2192	1352	17	6	1	1230		101.8	0.0	3.3	70.0
12			3299	1344	19	11	0	866		85.9	0.0	3.3	69.0
13			2466	1066	2	6	0	961		115.6	0.0	3.4	68.0
14			2098	808	6	15	0	1056		108.9	0.0	3.4	68.0
15			3774	884	8	11	0	1185		109.0	0.0	3.4	68.0
16			6584	1308	26	32	1	2276		114.0	0.0	2.0	69.0
17			7949	1774	99	90	0	2605		93.4	0.0	2.0	68.0
18			6325	1821	57	35	0	2563		89.2	0.0	3.0	68.0
19			4904	1633	31	19	0	2658		102.0	0.0	2.8	68.0
20			4337	2099	21	20	0	3435		127.1	0.0	3.8	68.0
21			2333	2306	16	15	1	3639		115.5	0.0	3.8	65.0
22			1871	1986	21	12	0	3681		119.0	0.0	3.8	65.0
23			1351	1680	52	35	2	4677		103.9	0.0	3.8	65.0
24			967	1393	50	22	0	5263		99.1	0.0	3.8	64.0
25			854	1271	56	49	0	2845		113.2	0.0	3.8	64.0
26			1408	1686	20	32	1	4057		95.6	0.0	3.8	64.0
27			1747	1935	38	20	0	5596		111.4	0.0	3.4	63.0
28			926	1744	41	32	2	3966		115.4	0.0	3.6	63.0
29			732	1484	37	20	1	2348		109.0	0.0	3.8	62.0
30			408	1098	11	20	2	1816		103.9	0.0	3.8	63.0
TOTAL			78,780	37,098	677	533	14	69,259		110.1	0.0		
AVG			2,626	1,237	23	18	0.5	2,309					

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

TABLE 61

MCNARY PROJECT

OCTOBER 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KFCS	SPILL KFCS	TURBIDITY SECCHI	DEG F
	SPRING	SUMMER	FALL										
1			473	1079	9	12	0	1504		114.8	0.0	3.9	64.0
2			523	1028	9	13	1	2140		69.3	0.0	3.8	64.0
3			356	754	11	16	2	1520		77.2	0.0	4.5	64.0
4			466	758	7	13	0	1673		92.2	0.0	5.6	64.0
5			389	731	17	9	0	1808		116.5	0.0	5.8	64.0
6			578	827	12	17	1	2321		106.2	0.0	4.8	64.0
7			609	872	11	11	1	2480		101.1	0.0	4.0	64.0
8			573	970	24	17	1	1552		102.0	0.0	5.0	64.0
9			427	736	9	10	0	1320		80.5	0.0	5.6	64.0
10			427	676	14	13	1	872		97.2	0.0	3.0	64.0
11			408	621	10	11	1	856		108.4	0.0	5.0	64.0
12			378	461	14	18	1	908		98.8	0.0	5.0	64.0
13			463	446	12	14	1	802		119.8	0.0	5.0	64.0
14			273	404	23	24	0	941		116.0	0.0	4.8	64.0
15			610	632	30	17	4	2546		91.8	0.0	4.8	64.0
16			517	494	29	22	2	3057		76.4	0.0	4.8	64.0
17			394	378	17	17	0	1491		80.8	0.0	4.8	64.0
18			137	144	10	10	0	550		99.4	0.0	4.8	64.0
19			252	190	8	8	0	623		123.4	0.0	4.3	64.0
20			189	261	10	8	0	993		119.5	0.0	4.3	64.0
21			245	224	18	7	0	1738		97.7	0.0	4.0	63.0
22			208	184	11	15	1	1399		114.6	0.0	4.0	63.0
23			259	170	22	10	0	1325		93.5	0.0	4.0	63.0
24			184	170	7	5	0	491		108.8	0.0	4.0	63.0
25			222	256	9	7	0	286		99.0	0.0	3.8	62.0
26			93	142	6	2	0	335		118.3	0.0	3.8	64.0
27			125	131	11	8	0	378		131.2	0.0	3.8	61.0
28			230	141	10	12	0	629		141.8	0.0	3.8	61.0
29			160	138	17	6	0	401		110.4	0.0	3.8	60.0
30			115	77	11	11	0	342		104.7	0.0	3.7	58.0
31			158	81	10	2	0	353		134.6	0.0	3.8	58.0
TOTAL			10,441	14,176	418	365	17	37,634		104.7	0.0		
AVG			337	457	13	12	0.5	1,214					

TABLE 61

TABLE 62

DISCHARGE AND WATER QUALITY DATA
MCNARY PROJECT - 1988

NOVEMBER				DECEMBER			
DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F
1	117.7	3.0	57.0	1	173.9	4.0	50.0
2	112.1	3.0	57.0	2	156.2	4.7	50.0
3	100.2	3.0	57.0	3	128.6	4.7	48.0
4	88.2	3.0	57.0	4	141.4	4.7	48.0
5	99.4	3.0	57.0	5	148.4	5.0	48.0
6	102.8	3.7	57.0	6	153.3	5.0	48.0
7	122.7	3.4	57.0	7	140.3	5.0	48.0
8	115.2	3.3	57.0	8	151.4	5.0	48.0
9	135.5	3.3	57.0	9	152.4	5.0	48.0
10	109.5	3.4	57.0	10	162.2	4.8	48.0
11	129.9	3.7	57.0	11	130.2	4.9	48.0
12	111.9	3.6	57.0	12	136.3	5.1	48.0
13	115.8	3.6	57.0	13	134.2	5.2	48.0
14	126.5	4.8	57.0	14	155.2	5.2	48.0
15	129.2	4.0	55.0	15	167.7	5.0	48.0
16	144.1	4.0	53.0	16	159.1	5.3	47.0
17	146.5	4.6	54.0	17	161.5	5.7	47.0
18	139.1	4.0	53.0	18	159.6	5.0	47.0
19	136.7	4.0	53.0	19	162.9	4.2	47.0
20	119.2	4.0	53.0	20	159.5	4.4	47.0
21	143.0	4.0	54.0	21	162.7	4.6	47.0
22	136.0	4.0	54.0	22	163.0	4.6	47.0
23	136.5	4.0	54.0	23	166.5	4.6	44.0
24	137.1	4.0	52.0	24	147.1	4.6	47.0
25	122.0	4.0	52.0	25	126.7	4.6	46.0
26	142.2	4.0	52.0	26	126.5	4.6	47.0
27	117.0	4.0	52.0	27	168.7	6.0	43.0
28	136.9	4.0	52.0	28	178.7	6.0	42.0
29	147.0	4.0	52.0	29	163.5	5.0	41.0
30	164.1	4.0	50.0	30	204.3	6.0	41.0
				31	155.1	6.0	41.0
AVG.	126.1	3.7	54.8	AVG.	154.7	5.0	46.6

TABLE 63

MONTHLY COUNT OF CHINOOK SALMON
MCNARY DAM - 1954 - 1988

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			108,915	21,309	71,180	16,426
1956			7	307	10,746	34,360	50,409	11,073	5,636	1,360			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	14,520	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			144,148	68,414	31,589	44,145
1979			6	5,424	13,696	9,763	14,601	8,030	34,702	8,171		1,376	95,275	21,153	24,161	49,961
1980			3	3,481	18,108	6,705	12,166	7,001	24,409	8,284		882	80,773	23,001	18,862	38,910
1981			3	12,923	16,904	8,288	8,243	5,584	23,323	4,926		616	80,619	32,330	15,141	33,148
1982			3	1,638	23,487	10,357	8,749	5,091	44,276	8,624		425	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	8,840	79,004	23,391			159,071	27,474	21,196	109,919
1985			18	18,267	41,962	14,117	9,912	17,222	140,034	46,951		767	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
Total			62	505,788	1,157,967	754,338	862,819	420,137	1,960,910	409,859	4,787		6,076,667	1,797,050	1,611,272	2,667,863
10-Year Average				12,925	26,191	10,968	10,663	11,646	83,561	23,849	269		180,075	41,486	20,893	117,647

TABLE 64

MONTHLY COUNT OF SOCKEYE SALMON
MCNARY DAM - 1954 - 1988

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						28,742	42,464	889	85	6			72,190
1988						4	23,466	25,984	599	14	17		50,080
Total				1	169	310,944	1,810,680	81,418	9,268	3,771	4		2,216,255
10-Year Average						16,024	31,871	690	188	105			48,879

TABLE 65

MONTHLY COUNT OF COHO SALMON
MCNARY DAM - 1954-1988

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
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
Total				1	14	50	513	19,450	307,116	48,884	3,122	1	379,151
10-Year Average							38	377	2,520	633	71		3,645

TABLE 66

MONTHLY COUNT OF STEELHEAD TROUT

Year	MCNARY DAM - 1954-1988												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1954			376	5,569	2,307	128	2,628	20,939	26,944	11,627	2,937	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			34,740
1979			970	681	156	93	4,955	9,970	14,648	15,580	1,299		50,304
1980			1,753	3,355	608	381	2,740	14,431	27,706	12,776	3,251		66,524
1981			861	1,479	809	878	7,212	12,839	19,961	15,652	2,774		61,985
1982			1,530	1,764	825	321	4,279	12,621	36,282	17,477	2,294		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
Total	1,059	925	10,897	71,503	32,592	30,402	311,482	702,331	1,565,647	629,708	19,376	3,377	3,378,299
10-Year Average				2,411	678	961	10,975	23,113	52,818	26,950	991		119,694

SNAKE RIVER TABLES

TABLE 67

YEARLY TOTALS OF SALMONID FISH COUNTED OVER ICE HARBOR DAM
1962-1988

Year	Chinook	Steelhead	Sockeye	Coho	Totals
1962	94,301	115,796	38	3,207	213,342
1963	61,190	74,529	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	0	196,927
1987	47,477	74,491	13	0	121,981
1988	48,066	99,714	22		147,802
Totals	1,453,318	1,743,255	10,247	43,772	3,250,592
10-Year Average	30,754	81,752	78	138	112,722

TABLE 68
MONTHLY TOTALS OF SALMONIDS AND SHAD COUNTED OVER ICE HARBOR DAM
1988

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CHINOOK				14,274	17,196	8,609	1,904	702	3,621	1,760			48,066
STEELHEAD				4,865	580	671	3,251	5,955	46,838	37,554			99,714
SOCKEYE						10	9	3					22
COHO													
TOTAL				19,139	17,776	9,290	5,164	6,660	50,459	39,314			147,802
SHAD					318	79,038	32,428	297					112,081

TABLE 69

DISCHARGE AND WATER QUALITY DATA
ICE HARBOR PROJECT - 1988

JANUARY				FEBRUARY				MARCH			
DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F
1	25.4	4.2	40.0	1	22.0	0.5	37.0	1	23.8	1.0	40.0
2	20.3	4.4	39.0	2	26.0	0.6	37.0	2	24.6	1.0	40.0
3	21.6	4.4	38.0	3	16.0	1.0	37.0	3	28.8	1.0	40.0
4	33.3	4.4	38.0	4	25.1	1.0	37.0	4	33.2	1.0	41.0
5	26.5	5.4	38.0	5	17.3	1.2	37.0	5	27.8	2.0	42.0
6	23.6	5.4	38.0	6	15.7	1.9	37.0	6	25.9	2.6	42.0
7	40.9	6.0	38.0	7	19.1	1.3	37.0	7	30.4	2.7	42.0
8	29.9	6.0	38.0	8	17.9	2.5	37.0	8	30.0	3.0	42.0
9	16.0	6.0	38.0	9	17.0	2.3	37.0	9	31.0	3.0	42.0
10	20.4	6.0	38.0	10	22.8	2.3	37.0	10	40.4	2.6	42.0
11	26.9	7.7	38.0	11	29.6	2.3	38.0	11	38.1	2.7	42.0
12	25.7	7.7	37.0	12	22.6	2.3	38.0	12	24.9	3.2	42.0
13	32.5	7.0	37.0	13	23.5	3.4	38.0	13	24.9	3.4	44.0
14	22.8	7.0	37.0	14	28.9	3.4	38.0	14	28.4	3.6	44.0
15	27.1	6.2	37.0	15	22.6	3.4	38.0	15	33.8	4.0	44.0
16	22.9	6.2	37.0	16	22.3	3.4	38.0	16	30.8	4.2	43.0
17	17.9	6.2	37.0	17	29.3	2.0	38.0	17	27.7	3.6	42.0
18	24.0	6.2	37.0	18	25.0	2.0	38.0	18	19.0	3.6	43.0
19	24.1	6.2	37.0	19	22.8	2.0	38.0	19	11.4	3.6	43.0
20	25.0	5.3	37.0	20	24.1	2.0	38.0	20	12.9	4.2	43.0
21	25.2	3.4	37.0	21	16.2	2.0	38.0	21	22.8	4.2	43.0
22	25.1	3.0	37.0	22	24.5	0.8	39.0	22	33.5	4.0	43.0
23	24.3	3.0	37.0	23	21.5	0.8	39.0	23	26.0	4.0	43.0
24	15.4	3.3	37.0	24	23.1	0.8	39.0	24	36.9	4.0	43.0
25	23.1	3.3	37.0	25	25.1	0.8	40.0	25	20.6	4.2	44.0
26	21.1	2.5	37.0	26	21.8	0.8	40.0	26	15.8	4.2	44.0
27	24.8	0.9	37.0	27	21.7	0.8	40.0	27	12.1	4.2	44.0
28	22.5	0.9	37.0	28	18.1	0.6	40.0	28	42.7	4.2	44.0
29	25.9	0.5	37.0	29	20.9	0.7	40.0	29	28.9	4.2	44.0
30	15.2	0.5	37.0					30	26.7	4.2	44.0
31	23.1	0.6	37.0					31	29.5	4.7	44.0
AVG.	24.3	4.5	37.5	AVG.	22.2	1.7	38.1	AVG.	27.2	3.3	42.7

TABLE 69

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 70

ICE HARBOR

U.S. ARMY ENGINEER DISTRICT, PORTLAND

APRIL 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISHC KFCS	SPILL KFCS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1	2			0				94		30.6	0.0	4.7	44.0
2	1			0				115		20.0	0.0	4.8	45.0
3	2			0				77		25.0	0.0	4.0	45.0
4	5			0				190		37.9	0.0	4.0	45.0
5	9			0				202		37.8	0.0	4.2	45.0
6	10			0				203		35.0	0.0	5.2	45.0
7	18			0				169		27.3	0.0	5.2	45.0
8	9			0				208		32.8	0.0	5.2	46.0
9	46			0				212		32.3	0.0	4.2	46.0
10	74			0				230		20.6	0.0	4.1	46.0
11	36			0				173		33.9	0.0	4.1	46.0
12	123			0				183		25.5	0.0	4.4	48.0
13	279			0				157		38.7	0.0	4.5	48.0
14	66			0				190		45.6	0.0	4.1	48.0
15	220			0				173		50.7	0.0	4.1	48.0
16	143			0				219		59.1	0.0	4.1	48.0
17	189			0				235		60.0	0.0	4.1	48.0
18	9			0				158		63.8	0.0	4.5	48.0
19	13			0				231		64.1	0.0	4.5	48.0
20	61			1				197		61.7	0.0	3.0	48.0
21	781			0				196		62.4	0.0	3.0	50.0
22	468			1				180		65.0	0.0	3.0	50.0
23	504			0				193		58.8	0.0	3.0	50.0
24	730			4				170		50.2	0.0	3.0	51.0
25	2532			14				148		49.1	0.0	2.0	51.0
26	2026			9				88		52.3	0.0	2.0	51.0
27	1344			14				82		35.4	0.0	2.0	51.0
28	879			10				69		37.1	0.0	2.0	53.0
29	2023			12				69		41.2	0.0	2.0	53.0
30	1594			13				54		44.6	0.0	2.0	54.0
TOTAL	14,196			78				4,865		43.3	0.0	3.7	48.1
AVG.	473			3				162					

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 71

ICE HARBOR

U.S. ARMY ENGINEER DISTRICT, PORTLAND

MAY 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISHC KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1	852			17				50	0	49.4	0.0	2.0	54.0
2	991			19				64	0	42.4	0.0	2.0	53.0
3	827			35				42	0	44.6	0.0	2.0	53.0
4	1176			42				34	0	51.1	0.0	3.3	53.0
5	711			31				22	0	81.1	0.0	3.3	53.0
6	1054			26				32	0	77.2	0.0	2.8	53.0
7	473			22				23	0	90.4	0.0	2.2	54.0
8	546			28				28	0	74.4	0.0	2.2	54.0
9	745			35				23	0	81.2	0.0	2.2	54.0
10	671			32				21	0	74.9	0.0	2.4	54.0
11	697			50				39	0	42.7	0.0	2.4	54.0
12	468			21				21	0	61.4	0.0	2.5	54.0
13	830			45				12	0	72.8	0.0	3.0	55.0
14	348			37				18	0	68.4	0.0	4.0	55.0
15	676			34				6	0	58.6	0.0	4.2	56.0
16	609			47				14	1	67.7	0.0	4.0	56.0
17	375			18				12	0	71.5	0.0	4.4	56.0
18	522			43				3	0	82.1	0.0	4.6	56.0
19	204			21				19	1	68.5	0.0	4.9	56.0
20	378			33				8	1	68.3	0.0	4.1	56.0
21	308			24				14	2	54.4	0.0	4.1	56.0
22	421			21				8	9	51.4	0.0	3.2	56.0
23	417			32				5	11	61.6	0.0	5.5	56.0
24	305			29				9	7	80.3	0.0	3.0	57.0
25	165			27				7	24	75.9	0.0	3.0	57.0
26	183			23				7	14	82.7	0.0	3.0	58.0
27	271			27				8	21	76.0	0.0	3.0	58.0
28	368			14				5	61	75.6	0.0	3.0	58.0
29	251			18				11	33	63.0	0.0	3.0	58.0
30	284			21				8	39	53.4	0.0	3.0	58.0
31	175			23				7	94	78.5	0.0	3.2	58.0
TOTAL	16,301			895				580	318	67.1	0.0	3.2	55.5
AVG.	526			29				19	10				

TABLE 71

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

TABLE 72

ICE HARBOR PROJECT

JUNE 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISHC KFCFS	SPILL KFCFS	TURBIDITY SECCHI	DEG F
	SPRING	SUMMER	FALL										
1	302			12			0	4	294	58.3	0.0	3.2	58.0
2	284			5			0	10	338	58.0	0.0	3.2	58.0
3	189			7			0	0	531	61.2	0.0	3.2	58.0
4	175			8			0	1	549	67.4	0.0	4.2	58.0
5	148			5			0	5	326	66.2	0.0	4.2	58.0
6	194			6			0	5	317	73.7	0.0	4.2	58.0
7	227			8			0	6	541	64.7	0.0	4.1	58.0
8	249			4			0	1	328	74.5	0.0	4.1	58.0
9	338			8			0	11	209	67.3	0.0	4.1	58.0
10	445			15			0	10	170	41.5	0.0	4.1	58.0
11	288			7			0	13	347	53.9	0.0	4.0	58.0
12		371		12			0	3	268	43.0	0.0	4.5	58.0
13		242		10			0	6	303	49.6	0.0	4.5	57.0
14		237		6			1	11	367	45.3	0.0	5.0	57.0
15		440		12			0	11	738	46.8	0.0	5.0	57.0
16		373		10			0	24	2025	45.4	0.0	5.0	58.0
17		406		19			1	23	5132	42.3	0.0	5.0	58.0
18		216		13			0	12	4226	38.4	0.0	4.8	59.0
19		322		14			0	22	8384	39.4	0.0	4.6	60.0
20		175		14			0	18	3810	50.0	0.0	6.1	61.0
21		405		18			1	30	4022	41.2	0.0	6.0	61.0
22		351		22			1	24	6894	40.5	0.0	6.0	62.0
23		275		13			0	48	4698	29.8	0.0	5.4	62.0
24		170		14			1	46	4233	27.8	0.0	5.8	62.0
25		197		12			1	66	13468	30.6	0.0	5.8	62.0
26		330		12			0	53	7572	32.1	0.0	5.8	63.0
27		270		12			3	53	2136	30.6	0.0	6.0	64.0
28		246		9			0	59	2168	35.2	0.0	6.0	64.0
29		298		8			0	56	1929	27.0	0.0	6.2	65.0
30		125		6			1	40	2715	23.8	0.0	6.2	65.0
TOTAL	2,839	5,449		321			10	671	79,038	46.9	0.0	4.9	59.8
AVG.	258	287		11			0.3	22	2,635				

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

TABLE 73

ICE HARBOR PROJECT
 JULY 1988

DATE	FISH COUNTS			RIVER CONDITIONS									
	CHINOOK ADULTS SPRING	CHINOOK ADULTS SUMMER	FALL	CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KFCS	SPILL KFCS	TURBIDITY SECCHI	DEG F
1		210		7			0	52	3421	22.6	0.0	4.2	65.0
2		141		8			0	41	2845	28.2	0.0	4.2	65.0
3		163		14			0	73	3343	23.1	0.0	4.2	66.0
4		151		26			0	79	2956	17.8	0.0	4.2	66.0
5		150		14			0	69	2252	24.1	0.0	4.2	66.0
6		109		12			1	87	1686	19.3	0.0	4.2	66.0
7		111		5			1	48	2107	21.9	0.0	4.2	66.0
8		52		0			0	39	2117	19.1	0.0	4.2	66.0
9		47		9			1	62	1986	19.1	0.0	4.2	66.0
10		46		4			1	57	1070	18.5	0.0	5.5	66.0
11		56		1			0	80	554	21.3	0.0	5.5	66.0
12		51		5			0	155	744	18.2	0.0	5.5	66.0
13		34		7			0	120	1644	14.5	0.0	3.8	66.0
14		73		12			0	100	653	15.1	0.0	3.8	66.0
15		30		0			1	70	542	21.8	0.0	3.5	66.0
16		34		1			1	97	561	16.8	0.0	3.5	66.0
17		22		4			1	108	490	12.1	0.0	5.0	66.0
18		33		2			1	84	686	21.1	0.0	5.0	66.0
19		28		6			0	132	517	11.8	0.0	5.7	67.0
20		20		3			0	77	407	12.0	0.0	5.7	67.0
21		8		0			0	70	415	12.1	0.0	5.7	67.0
22		20		2			0	102	367	11.6	0.0	7.0	68.0
23		22		3			1	98	225	11.8	0.0	7.0	68.0
24		13		5			0	106	226	11.6	0.0	7.0	68.0
25		28		6			0	131	188	16.3	0.0	7.7	68.0
26		27		2			0	160	158	15.0	0.0	7.7	68.0
27		9		1			0	144	113	16.4	0.0	7.0	69.0
28		13		0			0	245	50	19.0	0.0	7.5	69.0
29		8		0			0	191	40	19.8	0.0	7.7	69.0
30		14		1			0	200	41	11.8	0.0	7.5	70.0
31		19		2			0	174	24	12.8	0.0	7.5	70.0
TOTAL		1,742		162			9	3,251	32,428	17.3	0.0	5.5	66.9
AVG.		56		5			0.3	105	1,046				

TABLE 73

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 74

ICE HARBOR PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

AUGUST 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS		FALL	CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISHC KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER										SECCHI	DEG F
1		40		3			0	296	16	13.8	0.0	7.5	70.0
2		31		5			0	416	40	12.7	0.0	7.5	70.0
3		24		2			0	262	37	11.7	0.0	7.5	70.0
4		7		1			0	151	19	13.0	0.0	7.7	70.0
5		18		1			1	176	17	13.2	0.0	7.7	71.0
6		5		0			1	262	14	17.2	0.0	7.7	71.0
7		18		1			1	384	11	14.9	0.0	7.7	71.0
8		13		2			0	184	22	16.3	0.0	7.7	71.0
9		8		0			0	198	9	11.6	0.0	7.7	71.0
10		6		4			0	115	6	12.1	0.0	7.7	71.0
11		12		0			0	89	4	11.8	0.0	7.7	71.0
12			17	3			0	95	18	16.6	0.0	7.7	71.0
13			8	3			0	120	7	16.7	0.0	7.7	71.0
14			16	3			0	169	8	21.6	0.0	7.7	71.0
15			11	1			0	145	4	22.3	0.0	7.7	71.0
16			8	1			0	178	1	19.1	0.0	7.7	71.0
17			8	0			0	91	4	19.0	0.0	7.7	71.0
18			16	0			0	67	13	13.6	0.0	7.7	71.0
19			9	1			0	107	7	19.3	0.0	8.0	72.0
20			16	0			0	117	4	18.0	0.0	8.0	72.0
21			16	0			0	158	7	17.9	0.0	8.0	72.0
22			12	0			0	113	2	18.9	0.0	8.0	72.0
23			20	4			0	161	5	17.5	0.0	8.0	72.0
24			42	1			0	142	6	22.9	0.0	7.7	72.0
25			24	1			0	221	2	16.0	0.0	8.0	72.0
26			23	8			0	269	0	21.5	0.0	8.0	72.0
27			25	4			0	213	5	19.6	0.0	8.0	72.0
28			24	2			0	175	8	17.8	0.0	8.0	72.0
29			32	7			0	170	1	23.9	0.0	8.0	72.0
30			66	10			0	435	0	23.9	0.0	8.0	72.0
31			49	10			0	276	0	14.5	0.0	8.0	72.0
TOTAL		182	442	78			3	5,955	297	17.1	0.0	7.8	71.3
AVG.		17	22	3			0.1	192	10				

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 75

ICE HARBOR PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

SEPTEMBER

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISHC KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
	SPRING	SUMMER	FALL										
1			34	9				120		32.6	0.0	8.0	72.0
2			75	5				313		21.3	0.0	8.0	72.0
3			24	9				226		10.8	0.0	8.0	72.0
4			46	16				138		11.0	0.0	8.0	72.0
5			19	9				62		10.6	0.0	8.0	72.0
6			34	22				143		26.9	0.0	8.0	72.0
7			186	35				704		12.0	0.0	8.0	72.0
8			103	29				815		14.7	0.0	6.0	72.0
9			78	15				392		18.4	0.0	6.0	72.0
10			67	27				457		22.0	0.0	6.0	72.0
11			44	28				527		22.9	0.0	6.0	72.0
12			99	19				291		24.5	0.0	6.0	71.0
13			89	30				510		16.8	0.0	6.0	70.0
14			144	42				683		17.0	0.0	6.0	69.0
15			142	31				1290		20.2	0.0	6.0	69.0
16			162	56				2268		19.6	0.0	6.0	69.0
17			80	31				2262		17.7	0.0	6.0	69.0
18			105	29				1579		12.0	0.0	6.0	68.0
19			159	37				1383		21.7	0.0	5.8	68.0
20			158	56				2105		21.9	0.0	5.8	68.0
21			99	62				2034		23.8	0.0	5.4	68.0
22			94	35				1898		23.6	0.0	5.0	68.0
23			116	59				4133		23.7	0.0	5.0	68.0
24			81	51				3614		19.4	0.0	5.0	67.0
25			66	51				2948		21.6	0.0	5.0	67.0
26			78	48				4327		25.1	0.0	6.0	66.0
27			49	48				3399		22.9	0.0	6.0	66.0
28			87	40				3674		26.9	0.0	6.0	65.0
29			40	56				2687		23.6	0.0	6.4	65.0
30			36	42				1856		26.9	0.0	6.4	64.0
TOTAL			2,594	1,027				46,838		20.4	0.0	6.3	69.2
AVG.			86	34				1,561					

TABLE 75

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

TABLE 76

ICE HARBOR PROJECT

OCTOBER 1988

DATE	FISH COUNTS			SOCKEYE	STEELHEAD	SHAD	RIVER CONDITIONS			
	CHINOOK ADULTS SPRING	CHINOOK ADULTS SUMMER	CHINOOK ADULTS FALL				CHINOOK JACKS	COHO ADULTS	COHO JACKS	DISHC KCFS
1			59	60		2385	14.4	0.0	6.4	64.0
2			52	42		1624	15.5	0.0	7.1	64.0
3			38	55		1427	31.7	0.0	7.2	64.0
4			25	49		1979	25.1	0.0	7.2	64.0
5			51	59		2037	12.3	0.0	7.2	64.0
6			54	31		1570	13.1	0.0	7.2	64.0
7			31	38		1564	13.6	0.0	7.0	64.0
8			24	33		1574	10.7	0.0	7.5	64.0
9			11	28		1378	11.7	0.0	7.5	64.0
10			37	39		1509	16.9	0.0	7.5	64.0
11			31	43		1211	14.6	0.0	7.5	63.0
12			27	29		1413	18.4	0.0	7.5	63.0
13			19	34		1314	16.6	0.0	7.5	63.0
14			28	23		1256	12.2	0.0	7.5	63.0
15			23	29		1427	15.3	0.0	7.0	63.0
16			42	34		1052	17.0	0.0	7.0	63.0
17			12	23		667	15.8	0.0	7.0	63.0
18			19	29		883	20.7	0.0	7.0	63.0
19			11	29		1671	20.3	0.0	6.0	62.0
20			7	19		1050	19.5	0.0	6.0	62.0
21			18	27		1325	21.3	0.0	6.0	62.0
22			23	30		1250	18.7	0.0	5.8	61.0
23			35	17		1125	12.6	0.0	5.8	61.0
24			20	17		1019	22.3	0.0	5.0	61.0
25			19	35		941	17.7	0.0	4.6	61.0
26			15	17		836	18.5	0.0	4.6	60.0
27			20	10		400	21.4	0.0	4.6	60.0
28			10	12		346	43.4	0.0	4.7	59.0
29			22	25		650	11.7	0.0	4.7	59.0
30			18	16		374	9.3	0.0	4.3	59.0
31			10	17		297	11.3	0.0	4.3	59.0
TOTAL			811	949		37,554	17.5	0.0	6.3	62.3
AVG.			26	31		1,211				

TABLE 77

DISCHARGE AND WATER QUALITY DATA
ICE HARBOR PROJECT - 1988

NOVEMBER				DECEMBER			
DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F
1	11.2	4.8	59.0	1	36.9	3.8	50.0
2	16.0	6.0	59.0	2	20.8	3.8	50.0
3	23.0	5.1	58.0	3	9.6	3.8	50.0
4	18.4	5.1	58.0	4	11.0	4.0	49.0
5	20.9	5.1	58.0	5	25.3	4.0	49.0
6	18.1	5.1	58.0	6	17.8	4.0	49.0
7	27.1	5.1	57.0	7	22.2	5.2	48.0
8	25.2	5.1	57.0	8	18.4	5.2	48.0
9	24.6	4.8	57.0	9	18.6	5.0	47.0
10	21.3	4.8	57.0	10	18.2	5.6	47.0
11	22.0	5.8	56.0	11	17.2	5.6	47.0
12	19.6	5.8	56.0	12	22.9	6.3	46.0
13	20.1	5.8	56.0	13	25.1	6.2	46.0
14	23.1	5.5	54.0	14	23.5	6.2	46.0
15	20.0	5.5	54.0	15	27.7	6.0	46.0
16	29.5	5.0	54.0	16	20.2	6.0	46.0
17	26.6	5.0	54.0	17	10.9	6.0	46.0
18	23.0	5.0	53.0	18	10.3	6.0	46.0
19	16.9	5.0	53.0	19	17.0	6.0	45.0
20	10.8	5.0	53.0	20	21.7	5.8	45.0
21	24.7	5.0	53.0	21	23.0	5.8	44.0
22	21.3	5.0	53.0	22	22.6	5.8	44.0
23	23.5	5.0	53.0	23	31.3	5.8	44.0
24	27.5	5.0	53.0	24	22.5	5.8	43.0
25	21.9	5.0	52.0	25	21.0	5.8	43.0
26	31.3	5.0	52.0	26	24.3	5.8	42.0
27	26.5	5.0	52.0	27	23.7	5.8	42.0
28	27.2	4.6	51.0	28	27.2	5.8	42.0
29	27.7	4.6	51.0	29	19.0	5.8	42.0
30	25.7	3.8	51.0	30	17.4	5.8	42.0
				31	24.6	5.8	42.0
AVG.	22.9	5.1	54.6	AVG.	21.0	5.4	45.7

TABLE 78
MONTHLY COUNT OF CHINOOK SALMON
ICE HARBOR DAM - 1962 - 1988

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	SPRING Apr 1- Jun 11	SUMMER Jun 12- Aug 11	FALL Aug 12- Oct 31
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			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	677	22	60,097	24,304	24,696	11,097
1965			4	1,677	9,649	5,072	10,209	803	9,318	2,152	156	17	39,233	12,178	14,701	12,354
1966				23,382	19,294	10,611	7,166	1,933	10,756	2,740	349		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			32,444	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	17,625	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
Total		1	206	225,645	547,056	245,228	186,858	27,746	164,770	53,063	2,671	74	1,453,318	834,868	382,409	236,041
10-Year Average				6,598	12,702	5,175	1,805	341	2,915	1,212			30,754	21,056	5,329	4,369

TABLE 79

MONTHLY COUNT OF STEELHEAD TROUT
ICE HARBOR DAM - 1962-1988

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
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
Total	268	287	11,329	61,109	18,588	5,937	68,699	147,106	896,064	505,976	25,804	2,088	1,743,255
10-Year Average				2,559	411	178	3,226	6,494	38,880	28,500			81,752

TABLE 80

YEARLY TOTALS OF SALMONID FISH COUNTED OVER LOWER MONUMENTAL DAM
1969-1988

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
Totals	869,738	1,130,274	4,504	16,357	2,020,873
10-Year Average	28,079	69,756	70	60	97,964

TABLE 81

MONTHLY TOTALS OF SALMONIDS AND SHAD COUNTED OVER LOWER MONUMENTAL DAM
1988

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CHINOOK				11,451	19,823	7,851	1,832	607	1,752	946			44,262
STEELHEAD				4,274	604	411	1,903	5,725	35,290	36,539			84,746
SOCKEYE						9	23	3					35
COHO										3			3
TOTAL				15,725	20,427	8,271	3,758	6,335	37,042	37,488			129,046
SHAD					13	31,788	23,803	183					55,787

TABLE 82

DISCHARGE AND WATER QUALITY DATA
LOWER MONUMENTAL PROJECT - 1988

JANUARY				FEBRUARY				MARCH			
DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F
1	27.4			1	22.8			1	24.9		
2	19.5			2	24.0			2	25.1		
3	19.7			3	17.5			3	29.1		
4	36.9			4	25.1			4	31.6		
5	26.2			5	18.0			5	30.0		
6	24.1			6	18.2			6	26.8		
7	39.7			7	17.1			7	33.0		
8	29.4			8	19.6			8	30.5		
9	19.0			9	17.4			9	32.4		
10	16.5			10	23.5			10	40.0		
11	29.8			11	28.5			11	36.6		
12	27.5			12	23.6			12	27.9		
13	31.4			13	24.1			13	25.4		
14	23.9			14	26.4			14	27.1		
15	25.8			15	23.1			15	33.0		
16	23.8			16	24.2			16	32.8		
17	18.7			17	26.9			17	27.5		
18	23.5			18	25.7			18	17.2		
19	26.2			19	24.4			19	13.5		
20	24.1			20	23.6			20	13.2		
21	25.6			21	17.6			21	24.1		
22	24.9			22	24.4			22	32.9		
23	25.4			23	21.7			23	28.0		
24	14.9			24	23.2			24	33.3		
25	22.3			25	26.0			25	19.8		
26	22.6			26	23.6			26	17.3		
27	26.1			27	20.7			27	13.0		
28	22.2			28	19.5			28	43.9		
29	26.1			29	20.6			29	30.1		
30	15.1	TEMPERATURE AND				TEMPERATURE AND		30	27.5	TEMPERATURE AND	
31	22.2	TURBIDITY NOT TAKEN				TURBIDITY NOT TAKEN		31	30.5	TURBIDITY NOT TAKEN	
AVG.	24.5			AVG.	22.4			AVG.	27.7		

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

TABLE 83

LOWER MONUMENTAL PROJECT
 APRIL 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1	0			0				176		31.1	0.0	3.5	44.0
2	0			0				105		22.9	0.0	3.5	44.0
3	1			0				134		26.3	0.0	3.5	44.0
4	1			0				136		36.5	0.0	3.5	44.0
5	4			1				171		37.5	0.0	3.5	45.0
6	2			0				115		35.4	0.0	3.5	45.0
7	1			0				152		29.6	0.0	3.5	45.0
8	10			0				190		36.3	0.0	3.5	45.0
9	16			0				268		34.1	0.0	3.5	45.0
10	17			0				269		23.9	0.0	3.5	45.0
11	21			0				144		32.9	0.0	3.5	45.0
12	50			0				156		28.4	0.0	2.0	47.0
13	33			0				151		37.8	0.0	2.0	48.0
14	42			1				123		48.2	0.0	1.8	48.0
15	64			0				135		48.8	1.6	2.0	48.0
16	203			1				132		62.6	1.5	2.0	48.0
17	46			0				134		61.4	1.4	2.0	49.0
18	208			1				195		67.2	0.0	2.0	50.0
19	217			2				176		67.4	0.0	2.0	50.0
20	30			0				118		64.2	0.0	2.0	50.0
21	10			0				87		65.7	0.0	2.8	50.0
22	306			3				198		64.4	4.0	2.8	50.0
23	401			4				122		60.8	3.5	2.8	51.0
24	401			2				157		52.0	3.5	2.8	51.0
25	455			6				115		51.2	3.5	2.8	51.0
26	1621			12				115		55.1	4.7	2.8	52.0
27	1849			11				118		37.8	5.2	2.8	52.0
28	1184			14				36		38.2	1.9	2.8	52.0
29	1861			23				65		42.4	2.5	2.8	52.0
30	2309			7				81		47.0	4.1	2.8	52.0
TOTAL	11,363			88				4,274		44.9	1.2		
AVG.	379			3				142					

TABLE 83

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

TABLE 84

LOWER MONUMENTAL PROJECT
MAY 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1	1628			6				43	0	50.6	6.3	2.8	52.0
2	774			12				44	0	45.6	5.4	2.8	52.0
3	1251			10				56	0	45.4	5.3	2.8	53.0
4	781			24				39	0	51.9	6.5	2.8	53.0
5	1076			21				42	0	83.5	13.1	2.0	51.0
6	1128			15				28	0	79.6	13.0	2.0	51.0
7	1066			25				26	0	91.5	16.9	2.0	51.0
8	486			26				19	0	79.5	14.6	2.0	52.0
9	475			12				19	0	81.3	15.1	2.0	52.0
10	924			42				29	0	75.0	13.8	2.0	53.0
11	573			34				21	0	41.8	7.6	2.0	53.0
12	1003			44				43	0	64.8	6.0	2.0	53.0
13	495			31				19	0	73.1	11.6	2.0	53.0
14	858			33				17	0	70.9	15.1	2.7	52.0
15	328			21				21	0	64.6	14.9	2.7	52.0
16	290			19				9	0	70.8	13.8	2.7	52.0
17	954			51				18	0	71.3	12.8	2.7	52.0
18	688			45				4	0	85.3	15.1	2.7	53.0
19	609			49				12	0	67.1	11.9	2.7	53.0
20	367			24				7	0	69.0	11.9	2.7	55.0
21	307			15				13	0	59.0	10.1	2.7	54.0
22	416			37				4	0	56.2	8.9	2.7	56.0
23	321			16				8	0	63.3	5.9	2.7	56.0
24	412			31				10	0	79.2	10.9	2.7	56.0
25	314			16				13	0	74.8	8.8	2.7	56.0
26	193			18				8	0	83.6	11.5	2.7	56.0
27	191			25				9	0	85.9	3.3	2.7	56.0
28	203			18				1	1	76.2	1.0	2.7	56.0
29	302			32				14	1	64.1	3.8	2.7	56.0
30	495			29				7	4	54.2	0.0	2.5	56.0
31	121			13				1	7	80.7	0.0	2.5	56.0
TOTAL	19,029			794				604	13	69.0	9.5		
AVG.	614			26				19	0.4				

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

TABLE 85

LOWER MONUMENTAL PROJECT
 JUNE 1988

DATE	FISH COUNTS			RIVER CONDITIONS									
	CHINOOK ADULTS SPRING	CHINOOK ADULTS SUMMER	CHINOOK ADULTS FALL	CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1	112			6			0	1	18	56.7	3.2	2.7	56.0
2	284			12			0	6	8	59.0	5.3	2.7	56.0
3	166			7			0	5	19	65.9	6.9	2.7	56.0
4	160			7			0	3	33	70.5	8.8	2.7	57.0
5	228			8			0	0	22	67.8	3.0	2.7	57.0
6	250			9			0	3	50	73.6	0.0	2.7	57.0
7	107			15			0	2	24	68.1	0.0	2.7	57.0
8	217			14			0	2	19	72.0	0.0	2.7	57.0
9	297			4			0	1	2	69.4	0.0	2.7	57.0
10	382			13			0	7	2	45.2	0.0	2.7	57.0
11	348			13			0	6	0	56.0	0.0	2.7	57.0
12	299			3			0	5	45	44.2	0.0	2.7	56.0
13	380			3			0	8	60	49.4	4.1	2.7	56.0
14		304		13			0	8	211	49.1	0.0	2.7	56.0
15		214		7			0	7	228	49.3	3.8	2.7	56.0
16		310		9			0	6	271	48.1	0.2	2.7	57.0
17		277		14			0	9	174	44.1	0.0	4.0	60.0
18		300		5			0	9	510	40.7	0.0	4.0	57.0
19		137		5			0	7	1317	42.3	0.0	4.0	58.0
20		281		16			0	10	1247	49.4	0.0	4.0	60.0
21		222		4			0	8	1040	42.5	0.0	4.0	61.0
22		262		9			0	13	1463	40.3	0.0	4.0	63.0
23		320		22			0	15	2937	31.2	0.0	4.0	63.0
24		261		8			0	18	2449	34.0	0.0	4.0	61.0
25		96		13			3	17	5665	33.5	0.0	4.0	65.0
26		134		11			3	17	4876	32.0	0.0	4.5	65.0
27		370		15			2	73	2689	30.7	0.0	4.5	65.0
28		263		13			1	60	2242	38.7	0.0	4.5	65.0
29		259		11			0	49	899	27.0	0.0	4.0	65.0
30		308		14			0	36	3268	26.2	0.0	4.0	65.0
TOTAL	3,230	4,318		303			9	411	31,788	48.6	1.2		
AVG.	248	254		10			0.3	14	1,060				

TABLE 85

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

TABLE 86

LOWER MONUMENTAL PROJECT

JULY 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1		129		5			1	41	2927	29.1	0.0	4.0	65.0
2		132		10			0	21	2166	28.3	0.0	4.5	65.0
3		171		2			0	31	1943	23.4	0.0	4.5	65.0
4		144		9			2	29	2223	19.9	0.0	4.5	65.0
5		118		11			1	57	1541	24.2	0.0	4.5	65.0
6		166		4			1	66	958	21.4	0.0	4.5	65.0
7		79		10			0	52	1488	25.7	0.0	4.5	65.0
8		63		5			0	45	1716	22.3	0.0	4.5	65.0
9		66		3			2	29	1505	21.8	0.0	4.5	65.0
10		80		9			1	46	1265	18.5	0.0	4.7	67.0
11		46		6			3	58	790	20.3	0.0	4.5	67.0
12		75		4			1	98	750	19.2	0.0	4.5	67.0
13		46		6			1	47	250	15.0	0.0	4.5	67.0
14		23		9			0	93	277	17.8	0.0	4.5	67.0
15		50		13			2	69	781	27.2	0.0	4.5	67.0
16		27		2			0	119	381	16.7	0.0	4.5	68.0
17		19		5			1	56	302	15.4	0.0	4.5	68.0
18		9		2			2	53	447	20.1	0.0	4.5	68.0
19		20		3			0	75	144	15.6	0.0	4.5	68.0
20		33		3			1	106	444	12.1	0.0	4.5	68.0
21		30		5			0	53	318	15.7	0.0	4.5	68.0
22		25		4			0	42	198	13.5	0.0	4.5	68.0
23		17		8			1	48	218	13.6	0.0	4.5	68.0
24		11		3			0	66	127	13.0	0.0	4.5	68.0
25		22		3			0	36	140	16.8	0.0	4.5	70.0
26		7		0			1	58	136	17.9	0.0	4.5	70.0
27		18		6			0	63	66	17.7	0.0	4.5	70.0
28		14		3			0	59	76	21.7	0.0	4.0	70.0
29		15		0			0	90	102	20.6	0.0	4.0	70.0
30		4		3			1	94	54	13.5	0.0	4.5	70.0
31		17		0			1	103	70	14.7	0.0	4.8	70.0
TOTAL		1,676		156			23	1,903	23,803	19.1	0.0		
AVG.		54		5			1	61	768				

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

TABLE 87

LOWER MONUMENTAL PROJECT
 AUGUST 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1		18		6			0	143	37	15.3	0.0	4.8	70.0
2		37		4			0	164	24	14.2	0.0	4.8	70.0
3		35		4			1	180	16	14.1	0.0	4.8	70.0
4		37		0			0	281	24	14.0	0.0	4.8	70.0
5		13		9			0	290	14	16.7	0.0	4.8	70.0
6		10		0			0	254	6	17.1	0.0	4.8	71.0
7		28		2			1	343	9	18.3	0.0	4.8	71.0
8		4		1			0	310	7	15.6	0.0	4.8	71.0
9		18		3			0	322	6	15.4	0.0	4.8	72.0
10		18		1			0	155	9	15.4	0.0	4.8	72.0
11		3		1			0	105	6	13.5	0.0	4.8	72.0
12		1		1			0	127	7	17.6	0.0	4.8	72.0
13		19		1			0	163	2	18.7	0.0	4.8	72.0
14			10	4			0	196	1	22.9	0.0	4.8	72.0
15			17	2			0	167	0	22.0	0.0	4.8	72.0
16			9	1			0	279	1	20.9	0.0	4.8	72.0
17			5	0			1	132	6	18.2	0.0	4.8	72.0
18			11	0			0	183	0	18.8	0.0	4.8	72.0
19			14	2			0	156	5	20.2	0.0	4.8	72.0
20			2	2			0	145	0	20.5	0.0	4.8	72.0
21			10	3			0	95	0	18.4	0.0	4.8	72.0
22			12	2			0	115	0	18.9	0.0	4.8	72.0
23			9	0			0	128	0	19.9	0.0	4.8	72.0
24			4	2			0	165	1	22.1	0.0	4.8	72.0
25			32	5			0	122	0	19.4	0.0	4.8	71.0
26			12	4			0	180	0	24.5	0.0	2.5	71.0
27			21	2			0	163	2	21.9	0.0	2.5	71.0
28			22	5			0	172	0	17.6	0.0	2.5	71.0
29			18	3			0	136	0	25.6	0.0	2.5	71.0
30			38	7			0	199	0	24.5	0.0	2.5	71.0
31			36	7			0	155	0	15.7	0.0	2.5	71.0
TOTAL		241	282	84			3	5,725	183	18.6	0.0		
AVG.		19	16	3			0.1	185	6				

TABLE 87

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

TABLE 88

LOWER MONUMENTAL PROJECT
SEPTEMBER 1988

DATE	FISH COUNTS			SOCKEYE	STEELHEAD	SHAD	RIVER CONDITIONS			
	CHINOOK ADULTS SPRING	CHINOOK ADULTS SUMMER	CHINOOK ADULTS FALL				CHINOOK JACKS	COHO ADULTS	COHO JACKS	DISCH KCFS
1			44	20		303	32.3	0.0	2.5	71.0
2			45	13		360	21.6	0.0	2.5	71.0
3			36	1		161	12.4	0.0	3.0	71.0
4			9	1		137	12.3	0.0	3.0	71.0
5			9	2		111	10.2	0.0	3.0	71.0
6			26	12		172	21.4	0.0	3.0	71.0
7			16	13		190	12.8	0.0	3.0	70.0
8			22	13		253	14.9	0.0	3.0	70.0
9			23	18		367	22.7	0.0	3.0	70.0
10			53	15		644	21.4	0.0	3.0	70.0
11			29	20		577	23.4	0.0	3.0	69.0
12			52	19		614	24.2	0.0	3.0	69.0
13			34	23		348	17.6	0.0	3.0	67.0
14			36	15		331	16.1	0.0	3.0	67.0
15			48	34		379	19.1	0.0	3.0	67.0
16			21	41		1098	21.3	0.0	3.0	67.0
17			35	24		1229	17.6	0.0	3.0	67.0
18			24	42		1651	12.2	0.0	3.0	67.0
19			46	39		1390	21.3	0.0	3.0	67.0
20			50	35		1498	21.8	0.0	3.0	66.0
21			42	29		1157	21.7	0.0	3.0	66.0
22			32	53		1975	25.1	0.0	3.0	65.0
23			32	56		2033	24.6	0.0	3.0	65.0
24			29	27		2269	17.7	0.0	3.0	65.0
25			59	43		2389	22.3	0.0	3.0	65.0
26			55	49		3253	25.1	0.0	3.0	64.0
27			9	27		1973	23.4	0.0	3.0	64.0
28			9	26		3020	26.0	0.0	3.0	63.0
29			11	36		2768	23.6	0.0	3.0	63.0
30			58	12		2640	25.8	0.0	3.0	63.0
TOTAL			994	758		35,290	20.4	0.0		
AVG.			33	25		1,176				

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

TABLE 89

LOWER MONUMENTAL PROJECT
 OCTOBER 1988

DATE	FISH COUNTS			RIVER CONDITIONS									
	CHINOOK ADULTS SPRING	CHINOOK ADULTS SUMMER	CHINOOK ADULTS FALL	CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1			31	21	0	0		2139		16.8	0.0	3.0	63.0
2			19	25	0	0		2396		14.7	0.0	3.0	63.0
3			13	13	0	0		1362		30.9	0.0	3.5	64.0
4			17	26	0	0		1360		23.4	0.0	3.5	64.0
5			7	18	0	0		1017		15.0	0.0	3.5	62.0
6			11	32	0	0		1216		13.3	0.0	3.5	62.0
7			4	39	0	0		1829		13.0	0.0	3.5	62.0
8			9	19	0	0		997		11.2	0.0	3.5	62.0
9			6	23	0	0		1227		10.9	0.0	3.5	63.0
10			8	19	0	0		1604		17.7	0.0	3.5	63.0
11			7	12	0	0		1002		13.8	0.0	3.5	63.0
12			6	17	0	0		937		19.1	0.0	3.5	62.0
13			9	20	0	0		1288		15.7	0.0	3.5	62.0
14			33	31	0	0		2262		14.5	0.0	3.5	62.0
15			23	39	0	0		1937		16.1	0.0	3.5	62.0
16			20	23	0	0		1745		16.3	0.0	3.5	62.0
17			6	12	0	1		643		15.0	0.0	4.7	61.0
18			10	11	0	0		675		20.1	0.0	4.7	61.0
19			25	17	2	0		742		20.5	0.0	4.7	61.0
20			18	22	0	0		1183		18.8	0.0	4.7	61.0
21			13	15	0	0		1192		21.3	0.0	4.7	60.0
22			21	26	0	0		1596		18.2	0.0	4.7	60.0
23			1	7	0	0		923		13.5	0.0	4.7	60.0
24			5	20	0	0		867		21.5	0.0	4.7	60.0
25			8	11	0	0		859		18.4	0.0	4.7	60.0
26			2	8	0	0		792		17.7	0.0	4.7	60.0
27			7	2	0	0		599		21.8	0.0	4.7	60.0
28			10	12	0	0		811		39.9	0.0	4.5	59.0
29			6	16	0	0		658		11.7	0.0	4.5	59.0
30			9	7	0	0		331		11.7	0.0	4.5	58.0
31			7	12	0	0		350		11.1	0.0	4.5	58.0
TOTAL			371	575	2	1		36,539		17.5	0.0		
AVG.			12	19	0.1	0.0		1,179					

TABLE 89

TABLE 90

DISCHARGE AND WATER QUALITY DATA
LOWER MONUMENTAL PROJECT - 1988

NOVEMBER				DECEMBER			
DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F
1	12.1			1	34.8		
2	13.9			2	20.4		
3	21.0			3	9.8		
4	18.2			4	13.7		
5	21.1			5	24.6		
6	18.6			6	19.0		
7	25.0			7	22.8		
8	25.5			8	13.6		
9	24.2			9	19.6		
10	20.9			10	18.8		
11	22.5			11	18.4		
12	19.0			12	21.6		
13	19.2			13	24.7		
14	23.4			14	22.2		
15	20.1			15	28.7		
16	29.7			16	21.2		
17	26.1			17	12.4		
18	20.3			18	9.4		
19	16.2			19	16.7		
20	13.6			20	21.0		
21	24.0			21	23.1		
22	21.7			22	22.0		
23	23.1			23	32.5		
24	27.6			24	22.5		
25	21.7			25	19.4		
26	30.8			26	26.2		
27	25.8			27	24.0		
28	26.5			28	27.6		
29	26.8	TEMPERATURE AND		29	18.7	TEMPERATURE AND	
30	26.1	TURBIDITY NOT TAKEN		30	16.8	TURBIDITY NOT TAKEN	
				31	23.1		
AVG.	22.2			AVG.	20.5		

TABLE 91

MONTHLY COUNT OF CHINOOK SALMON
LOWER MONUMENTAL DAM - 1969 - 1988

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
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
Total	1		2	125,024	394,384	170,256	98,697	12,048	50,185	18,671	462	8	869,738
10-Year Average				4,692	13,563	5,093	1,892	273	1,546	1,021			28,079

TABLE 92
MONTHLY COUNT OF STEELHEAD TROUT
LOWER MONUMENTAL DAM - 1969-1988

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
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
Total	252	1,030	3,466	49,346	16,166	2,214	40,955	103,054	512,385	394,820	5,804	782	1,130,274
10-Year Average				2,538	437	111	2,328	5,784	30,328	28,231			69,756

TABLE 93

YEARLY TOTALS OF SALMONID FISH COUNTED OVER LOWER GRANITE DAM
1975-1988

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	0	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	0	107,857
1988	37,882	87,040	23	0	124,945
Totals	413,570	897,337	2,144	2,572	1,315,623
10-Year Average	25,007	77,390	82	33	102,513

TABLE 94
MONTHLY TOTALS OF SALMONIDS AND SHAD COUNTED OVER LOWER GRANITE DAM
1988

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CHINOOK				4,722	20,615	8,771	2,654	212	429	371	104	4	37,882
STEELHEAD		2,108	4,562		623	173	768	1,806	27,071	43,066	6,307	556	87,040
SOCKEYE						4	16	2		1			23
COHO													
TOTAL		2,108	9,284	21,238	8,948	3,438	2,020	27,500	43,438	6,411	560		124,945
SHAD						111	2,756	110					2,977

TABLE 95

DISCHARGE AND WATER QUALITY DATA
LOWER GRANITE PROJECT - 1988

JANUARY				FEBRUARY			
DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F	DATE	DISCH KCFS	TURBIDITY SECCHI	TEMP DEG F
1	26.9			1	20.0		
2	20.6			2	17.4		
3	18.5			3	20.5		
4	31.1			4	22.6		
5	27.7			5	16.4		
6	26.5			6	17.8		
7	34.8			7	19.7		
8	27.0			8	18.0		
9	20.2			9	16.5		
10	18.1			10	23.5		
11	29.5			11	26.1		
12	24.8			12	24.0		
13	29.6			13	24.9		
14	22.1			14	20.3		
15	20.3			15	21.4		
16	23.5			16	22.7		
17	16.3			17	23.1		
18	19.8			18	25.7		
19	24.7			19	23.9		
20	26.6			20	22.7		
21	24.6			21	17.0		
22	23.1			22	22.1		
23	24.1			23	20.9		
24	15.4			24	23.4		
25	20.9			25	24.4		
26	22.3			26	23.6		
27	21.9			27	18.2		
28	21.1			28	19.6		
29	25.8			29	20.0		
30	16.4		TEMPERATURE AND				TEMPERATURE AND
31	20.2		TURBIDITY NOT TAKEN				TURBIDITY NOT TAKEN
AVG.	23.4			AVG.	21.3		

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

TABLE 96

LOWER GRANITE PROJECT
MARCH 1988

DATE	FISH COUNTS						RIVER CONDITIONS						
	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1								38		25.1	0.0	4.2	40.0
2								58		24.5	0.0	4.3	40.0
3								26		27.1	0.0	4.5	40.0
4								29		28.1	0.0	4.6	40.0
5								47		29.3	0.0	4.6	39.0
6								30		27.0	0.0	4.8	39.0
7								36		32.1	0.0	4.2	41.0
8								22		28.6	0.0	4.0	41.0
9								47		30.6	0.0	4.0	41.0
10								47		37.5	0.0	4.1	41.0
11								62		30.7	0.0	4.0	41.0
12								37		27.4	0.0	4.1	42.0
13								70		24.4	0.0	4.0	42.0
14								38		26.2	0.0	4.0	42.0
15								71		25.4	0.0	4.0	42.0
16								70		23.8	0.0	4.0	43.0
17								62		25.1	0.0	4.0	43.0
18								115		21.3	0.0	4.4	43.0
19								95		18.0	0.0	4.4	43.0
20								103		16.7	0.0	4.4	43.0
21								90		22.8	0.0	4.4	44.0
22								47		30.6	0.0	4.3	43.0
23								64		27.0	0.0	4.5	43.0
24								59		21.9	0.0	4.5	43.0
25								242		23.3	0.0	4.5	46.0
26								108		25.6	0.0	4.5	44.0
27								61		17.6	0.0	4.2	44.0
28								102		35.5	0.0	4.5	44.0
29								103		28.6	0.0	4.4	45.0
30								46		30.7	0.0	4.6	45.0
31								83		27.7	0.0	4.2	45.0
TOTAL								2,108		26.5	0.0		
AVG.								68					

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

TABLE 97

LOWER GRANITE PROJECT
 APRIL 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1	0			0				225		28.3	0.0	4.2	45.0
2	0			0				186		22.7	0.0	3.8	46.0
3	0			0				186		29.4	0.0	2.0	46.0
4	0			0				146		32.9	0.0	3.2	46.0
5	0			0				139		33.2	0.0	3.0	46.0
6	0			0				198		30.2	0.0	3.4	45.0
7	0			0				193		28.3	0.0	3.4	46.0
8	0			0				212		34.2	0.0	3.8	46.0
9	1			0				184		31.8	0.0	3.6	46.0
10	0			0				191		25.2	0.0	2.4	47.0
11	0			0				169		28.6	0.0	2.8	47.0
12	1			0				159		28.8	0.0	2.2	48.0
13	5			0				190		32.5	0.0	3.6	49.0
14	6			0				154		46.6	0.0	3.6	48.0
15	17			0				228		56.2	0.0	3.7	48.0
16	14			0				111		55.3	0.0	3.4	48.0
17	34			0				150		62.8	0.0	3.3	49.0
18	12			0				75		65.3	0.0	3.3	50.0
19	15			0				144		70.3	0.0	3.2	52.0
20	29			0				121		65.6	0.0	2.5	52.0
21	48			0				96		61.3	0.0	2.5	52.0
22	84			0				115		62.9	0.0	3.0	51.0
23	177			0				143		61.0	0.0	3.0	50.0
24	62			0				166		53.1	0.0	3.0	49.0
25	96			0				133		51.1	0.0	3.1	50.0
26	157			0				150		49.7	0.0	3.1	50.0
27	474			2				99		41.8	0.0	3.4	51.0
28	390			4				90		37.1	0.0	3.5	51.0
29	1985			9				108		41.2	0.0	3.5	51.0
30	1090			10				101		47.2	0.0	3.6	51.0
TOTAL	4,697			25				4,562		43.8	0.0		
AVG.	157			1				152					

TABLE 97

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

TABLE 98

LOWER GRANITE PROJECT

MAY 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1	1388			11				95		48.2	0.0	3.5	51.0
2	812			4				54		43.1	0.0	3.8	52.0
3	1470			8				32		45.4	0.0	3.6	52.0
4	1098			14				51		55.5	0.0	4.0	51.0
5	423			9				48		82.1	0.0	4.2	52.0
6	1463			14				24		75.8	0.0	4.1	52.0
7	530			9				32		89.5	0.0	4.4	53.0
8	1037			20				21		81.8	0.0	4.5	52.0
9	129			12				12		79.0	0.0	4.5	51.0
10	100			3				10		75.0	0.0	4.5	49.0
11	627			21				13		45.4	0.0	4.5	50.0
12	1101			29				24		58.4	0.0	4.5	50.0
13	1708			52				28		68.3	0.0	4.4	50.0
14	760			25				30		73.5	0.0	4.4	56.0
15	613			27				9		69.3	0.0	4.3	56.0
16	228			21				9		69.4	0.0	4.5	56.0
17	544			37				16		71.0	0.0	4.4	54.0
18	302			32				18		81.5	0.0	4.4	54.0
19	582			29				11		72.0	0.0	4.3	54.0
20	993			57				12		60.8	0.0	4.4	53.0
21	568			28				8		57.8	0.0	4.5	54.0
22	509			52				8		60.1	0.0	4.6	54.0
23	251			28				4		65.3	0.0	4.5	58.0
24	340			26				8		77.3	0.0	4.5	58.0
25	516			28				9		82.1	0.0	4.6	58.0
26	313			18				7		82.2	0.0	4.8	58.0
27	333			28				7		78.5	0.0	4.9	59.0
28	390			23				3		75.4	0.0	4.9	59.0
29	348			15				9		70.0	0.0	4.4	59.0
30	304			19				7		63.3	0.0	4.3	59.0
31	117			19				4		69.0	0.0	4.4	59.0
TOTAL	19,897			718				623		68.6	0.0		
AVG.	642			23				20					

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

TABLE 99

LOWER GRANITE PROJECT
 JUNE 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1	215			15			0	2	0	56.7	0.0	4.4	54.0
2	155			16			0	3	0	65.3	0.0	4.5	54.0
3	297			9			0	2	0	63.5	0.0	4.4	54.0
4	148			13			0	2	0	70.8	0.0	4.4	53.0
5	208			10			0	2	0	65.1	0.0	4.4	53.0
6	96			3			0	4	0	70.5	0.0	4.6	53.0
7	177			5			0	1	0	68.6	0.0	4.7	56.0
8	196			15			0	2	0	64.9	0.0	4.8	55.0
9	238			15			0	3	0	61.1	0.0	4.6	56.0
10	307			15			0	1	0	55.4	0.0	4.6	56.0
11	352			8			0	0	0	55.3	0.0	4.8	56.0
12	341			10			0	1	1	49.9	0.0	4.8	56.0
13	353			12			0	0	2	46.8	0.0	5.0	56.0
14	595			12			0	5	0	49.5	0.0	5.0	56.0
15	351			4			0	6	2	50.4	0.0	5.0	58.0
16	495			12			0	6	0	43.4	0.0	5.0	60.0
17	377			7			0	6	0	45.3	0.0	5.0	62.0
18		242		9			0	2	2	46.4	0.0	5.0	62.0
19		179		7			0	0	4	41.5	0.0	5.0	62.0
20		270		16			0	1	2	45.1	0.0	5.0	65.0
21		224		7			0	9	6	39.8	0.0	4.5	65.0
22		231		20			0	3	9	37.4	0.0	4.8	68.0
23		202		12			0	5	6	35.3	0.0	5.0	68.0
24		527		18			0	15	9	34.4	0.0	5.0	68.0
25		311		20			0	7	4	33.5	0.0	5.0	69.0
26		362		10			0	2	1	26.8	0.0	5.0	69.0
27		164		9			1	11	26	31.4	0.0	5.0	69.0
28		317		22			1	13	7	33.8	0.0	5.0	69.0
29		309		21			0	28	5	25.1	0.0	5.0	69.0
30		169		11			2	31	25	33.7	0.0	5.0	69.0
TOTAL	4,901	3,507		363			4	173	111	48.2	0.0		
AVG.	288	270		12			0.1	6	4				

TABLE 99

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 100

LOWER GRANITE PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

JULY 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1		397		20			0	36	9	28.2	0.0	5.0	70.0
2		227		13			0	29	31	28.2	0.0	5.0	71.0
3		190		5			0	41	36	22.4	0.0	5.0	70.0
4		165		9			0	26	50	21.2	0.0	4.5	69.0
5		148		15			0	26	177	24.4	0.0	4.6	68.0
6		198		7			1	30	260	21.7	0.0	5.0	70.0
7		165		11			1	25	445	24.4	0.0	5.0	69.0
8		180		12			2	22	144	23.3	0.0	4.8	70.0
9		54		0			0	12	124	20.6	0.0	5.0	71.0
10		59		6			1	15	89	20.2	0.0	5.0	71.0
11		54		2			1	32	53	19.2	0.0	5.0	70.0
12		79		2			0	28	45	19.8	0.0	5.0	69.0
13		75		5			1	24	168	13.2	0.0	5.0	68.0
14		61		3			0	30	222	17.5	0.0	5.0	68.0
15		78		5			0	39	280	16.2	0.0	5.0	69.0
16		64		8			0	52	193	19.1	0.0	5.0	70.0
17		48		10			0	33	98	18.9	0.0	5.0	70.0
18		18		3			2	27	83	19.0	0.0	5.0	71.0
19		30		3			0	23	3	16.0	0.0	5.0	70.0
20		18		0			2	35	5	15.0	0.0	5.0	70.0
21		26		0			1	11	19	16.1	0.0	5.0	70.0
22		23		5			1	24	38	14.3	0.0	5.0	70.0
23		15		2			0	29	33	16.8	0.0	5.0	71.0
24		25		4			1	17	36	13.3	0.0	5.0	71.0
25		4		1			1	9	9	15.6	0.0	5.0	71.0
26		15		2			0	11	14	19.2	0.0	5.0	71.0
27		13		2			0	10	13	18.0	0.0	5.0	72.0
28		29		8			0	26	33	21.4	0.0	5.0	72.0
29		14		0			0	24	29	18.7	0.0	5.0	72.0
30		8		1			1	7	8	15.1	0.0	5.0	72.0
31		8		2			0	15	9	14.9	0.0	5.0	72.0
TOTAL		2,488		166			16	768	2,756	19.1	0.0		
AVG.		80		5			0.5	25	89				

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 101

LOWER GRANITE PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

AUGUST 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
	SPRING	SUMMER	FALL										
1		9		2			1	29	12	13.7	0.0	5.0	72.0
2		10		1			1	16	10	11.7	0.0	5.0	72.0
3		7		1			0	13	14	15.1	0.0	5.0	72.0
4		8		1			0	20	12	13.5	0.0	5.0	72.0
5		8		1			0	21	9	15.1	0.0	5.0	72.0
6		9		1			0	58	9	15.0	0.0	5.0	71.0
7		19		2			0	59	12	14.3	0.0	5.0	71.0
8		10		0			0	53	3	16.3	0.0	5.0	71.0
9		12		0			0	67	3	14.7	0.0	5.0	72.0
10		15		1			0	87	6	14.1	0.0	5.0	72.0
11		5		0			0	49	7	15.4	0.0	5.0	72.0
12		7		1			0	42	1	15.7	0.0	5.0	72.0
13		4		1			0	30	5	17.3	0.0	5.0	72.0
14		6		0			0	66	5	24.5	0.0	5.0	72.0
15		6		2			0	55	2	17.5	0.0	5.0	72.0
16		12		0			0	118	0	21.6	0.0	5.0	72.0
17		3		0			0	62	0	17.7	0.0	4.8	72.0
18			5	0			0	126	0	19.1	0.0	5.0	73.0
19			1	0			0	89	0	18.6	0.0	5.0	72.0
20			6	1			0	84	0	18.6	0.0	5.0	72.0
21			1	0			0	53	0	17.5	0.0	5.0	72.0
22			2	0			0	39	0	18.5	0.0	5.0	72.0
23			2	0			0	38	0	17.8	0.0	5.0	72.0
24			6	1			0	50	0	21.0	0.0	5.0	71.0
25			0	0			0	40	0	19.0	0.0	5.0	72.0
26			2	0			0	104	0	24.4	0.0	5.0	72.0
27			1	1			0	55	0	21.9	0.0	5.0	72.0
28			0	0			0	56	0	19.5	0.0	5.0	72.0
29			4	0			0	54	0	27.5	0.0	5.0	72.0
30			2	0			0	45	0	12.7	0.0	5.0	72.0
31			13	0			0	128	0	18.3	0.0	5.0	72.0
TOTAL		150	45	17			2	1,806	110	17.7	0.0		
AVG		9	3	1			0.1	58	4				

TABLE 101

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

TABLE 102

LOWER GRANITE PROJECT
SEPTEMBER 1988

DATE	FISH COUNTS				SOCKEYE	STEELHEAD	SHAD	RIVER CONDITIONS			
	CHINOOK ADULTS		CHINOOK JACKS	COHO ADULTS				COHO JACKS	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI
1			10	0		85		21.5	0.0	5.0	71.0
2			6	1		136		20.2	0.0	5.0	71.0
3			7	1		124		11.9	0.0	5.0	71.0
4			13	1		88		12.3	0.0	5.0	71.0
5			7	0		110		10.2	0.0	5.0	71.0
6			0	1		117		17.8	0.0	5.0	70.0
7			15	1		418		18.7	0.0	5.0	70.0
8			6	0		399		21.4	0.0	5.0	70.0
9			9	4		337		24.9	0.0	5.0	70.0
10			12	1		522		19.4	0.0	5.0	70.0
11			8	10		482		21.5	0.0	5.0	70.0
12			8	1		351		27.0	0.0	5.0	70.0
13			5	4		472		18.3	0.0	5.0	69.0
14			4	4		378		16.5	0.0	5.0	69.0
15			3	3		373		20.6	0.0	5.0	69.0
16			2	6		679		22.0	0.0	5.0	69.0
17			14	8		408		17.9	0.0	5.0	69.0
18			7	6		421		12.1	0.0	5.0	69.0
19			11	6		441		20.6	0.0	5.0	69.0
20			9	3		576		22.0	0.0	5.0	69.0
21			17	13		1590		21.8	0.0	5.0	68.0
22			14	4		1587		25.2	0.0	5.0	68.0
23			7	10		1502		25.3	0.0	5.0	68.0
24			14	8		2085		19.2	0.0	5.0	68.0
25			14	13		1241		22.0	0.0	5.0	68.0
26			8	18		2184		25.1	0.0	5.0	68.0
27			8	3		2136		24.4	0.0	5.0	68.0
28			5	11		2442		22.7	0.0	5.0	67.0
29			9	7		2370		26.9	0.0	5.0	67.0
30			25	4		3017		25.3	0.0	5.0	67.0
TOTAL			277	152		27,071		20.5	0.0		
AVG.			9	5		902					

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 103

LOWER GRANITE PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

OCTOBER 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1			10	4			0	2564		16.6	0.0	5.0	67.0
2			10	7			0	2878		13.4	0.0	5.0	67.0
3			11	2			0	1946		20.7	0.0	5.0	67.0
4			2	10			0	1755		15.7	0.0	5.0	67.0
5			13	9			0	1666		15.2	0.0	5.0	61.0
6			6	6			1	1640		17.5	0.0	5.0	60.0
7			10	5			0	1464		16.5	0.0	5.0	61.0
8			14	10			0	1441		16.3	0.0	5.0	61.0
9			7	5			0	1291		13.8	0.0	5.0	61.0
10			3	3			0	1153		16.4	0.0	5.0	61.0
11			2	4			0	848		15.1	0.0	5.0	62.0
12			2	2			0	1200		17.7	0.0	5.0	61.0
13			2	3			0	914		16.1	0.0	5.0	61.0
14			10	5			0	1910		14.8	0.0	5.0	61.0
15			6	6			0	2677		16.5	0.0	5.0	61.0
16			2	4			0	2086		16.0	0.0	5.0	61.0
17			3	4			0	1082		14.9	0.0	5.0	61.0
18			11	8			0	1657		20.6	0.0	5.0	61.0
19			8	4			0	938		20.5	0.0	5.0	61.0
20			7	5			0	1240		18.1	0.0	4.8	60.0
21			6	6			0	1205		20.2	0.0	4.8	61.0
22			13	3			0	1690		19.4	0.0	4.8	61.0
23			10	6			0	872		14.8	0.0	4.8	61.0
24			9	4			0	1003		20.1	0.0	4.8	61.0
25			5	2			0	783		17.8	0.0	4.8	61.0
26			3	1			0	854		18.0	0.0	4.9	61.0
27			3	5			0	1006		17.6	0.0	4.8	61.0
28			8	3			0	1069		22.9	0.0	5.0	61.0
29			10	2			0	1004		11.3	0.0	5.0	61.0
30			15	4			0	718		12.3	0.0	5.0	61.0
31			6	2				512		18.4	0.0	5.0	58.0
TOTAL			227	144			1	43,066		16.9	0.0		
AVG.			7	5			0.0	1,389					

TABLE 103

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 104

LOWER GRANITE PROJECT

U.S. ARMY ENGINEER DISTRICT, PORTLAND

NOVEMBER 1988

DATE	FISH COUNTS			RIVER CONDITIONS									
	CHINOOK ADULTS SPRING	CHINOOK ADULTS SUMMER	CHINOOK ADULTS FALL	CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY SECCHI	DEG F
1			4	2				247		17.4	0.0	5.0	61.0
2			4	1				281		19.4	0.0	5.0	61.0
3			4	2				330		18.8	0.0	5.0	61.0
4			4	2				445		18.9	0.0	5.0	58.0
5			7	5				378		22.0	0.0	5.0	57.0
6			5	1				242		20.9	0.0	5.0	56.0
7			5	1				251		20.8	0.0	5.0	56.0
8			4	5				260		25.5	0.0	5.0	56.0
9			6	4				242		23.0	0.0	5.0	54.0
10			1	0				379		21.3	0.0	5.0	54.0
11			10	1				238		21.5	0.0	5.0	54.0
12			5	2				184		20.0	0.0	5.0	54.0
13			4	0				224		21.1	0.0	5.0	54.0
14			1	0				157		21.2	0.0	4.8	53.0
15			1	0				158		19.3	0.0	4.8	53.0
16			4	0				226		32.0	0.0	4.9	53.0
17			2	0				185		23.1	0.0	4.9	53.0
18			1	0				148		16.8	0.0	5.0	51.0
19			2	1				230		17.0	0.0	5.0	51.0
20			0	0				151		17.1	0.0	5.0	50.0
21			0	0				146		23.2	0.0	5.0	51.0
22			1	0				250		21.7	0.0	5.0	51.0
23			0	0				132		22.9	0.0	5.0	50.0
24			0	0				136		26.8	0.0	5.0	50.0
25			0	0				114		20.3	0.0	4.8	50.0
26			0	0				157		29.8	0.0	4.8	50.0
27			0	0				162		25.9	0.0	4.8	50.0
28			1	0				82		25.5	0.0	4.8	50.0
29			0	1				92		24.1	0.0	4.8	50.0
30			0	0				80		23.3	0.0	4.8	50.0
TOTAL			76	28				6,307		22.0	0.0		
AVG.			3	1				210					

MONTHLY FISH PASSAGE SUMMARY REPORT

TABLE 105

LOWER GRANITE PROJECT

U S. ARMY ENGINEER DISTRICT, PORTLAND

DECEMBER 1988

FISH COUNTS

RIVER CONDITIONS

DATE	CHINOOK ADULTS			CHINOOK JACKS	COHO ADULTS	COHO JACKS	SOCKEYE	STEELHEAD	SHAD	DISCH KCFS	SPILL KCFS	TURBIDITY	
	SPRING	SUMMER	FALL									SECCHI	DEG F
1			1	0				54		24.9	0.0	4.8	48.0
2			1	0				67		21.1	0.0	4.8	46.0
3			0	1				91		22.6	0.0	4.8	46.0
4			0	0				60		15.5	0.0	4.8	45.0
5			0	0				14		22.3	0.0	5.0	45.0
6			0	1				29		18.9	0.0	5.0	46.0
7			0	0				29		16.3	0.0	4.8	45.0
8			0	0				35		22.8	0.0	5.0	45.0
9			0	0				41		16.7	0.0	5.0	45.0
10			0	0				40		19.4	0.0	5.0	45.0
11			0	0				24		19.3	0.0	5.0	44.0
12			0	0				19		21.4	0.0	5.0	44.0
13			0	0				20		23.0	0.0	5.0	44.0
14			0	0				25		20.5	0.0	5.0	44.0
15			0	0				8		23.4	0.0	5.0	44.0
16										20.3	0.0		
17										16.1	0.0		
18										14.9	0.0		
19										16.1	0.0		
20										19.5	0.0		
21										21.0	0.0		
22										20.4	0.0		
23										30.0	0.0		
24										24.3	0.0		
25										19.0	0.0		
26										24.1	0.0		
27										23.8	0.0		
28										25.8	0.0		
29										19.0	0.0		
30										21.0	0.0		
										20.8	0.0		
TOTAL			2	2				556		20.8	0.0		
AVG.			0.1	0.1				37					

TABLE 105

TABLE 106

MONTHLY TOTALS OF CHINOOK SALMON COUNTED OVER LOWER GRANITE DAM
1975 - 1988

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
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		12,549
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
Total			1	33,144	210,706	93,158	49,408	5,349	12,656	8,062	1,060	26	413,570
10-Year Average				1,684	13,178	5,582	2,788	230	893	576	74		25,007

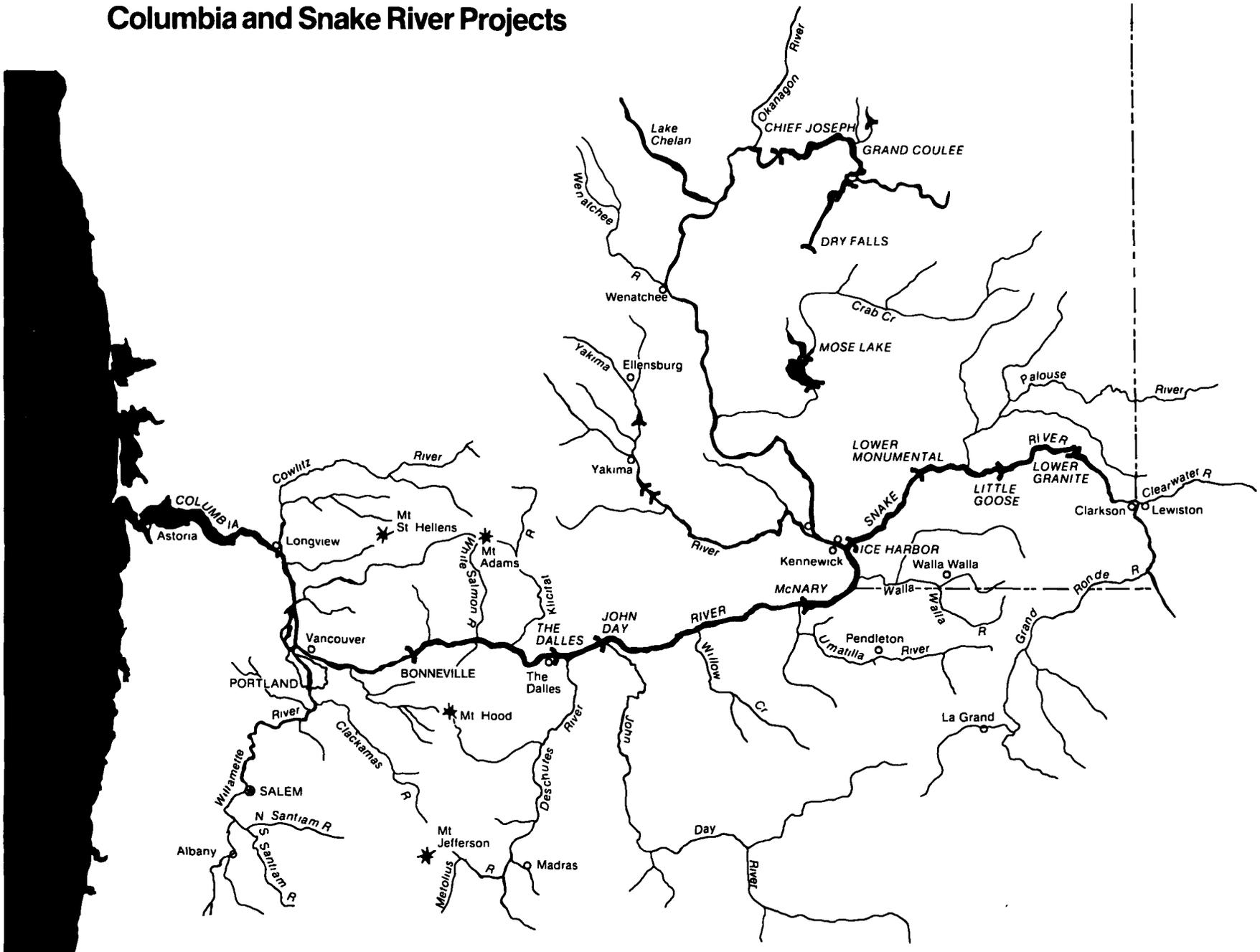
TABLE 107

MONTHLY COUNT OF STEELHEAD TROUT OVER LOWER GRANITE DAM
1975 - 1988

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
Total	539	790	29,086	39,152	8,659	987	15,448	53,088	303,626	390,120	51,165	4,677	897,337
10-Year Average			2,649	3,306	654	70	1,280	4,056	26,139	34,268	4,586	377	77,390

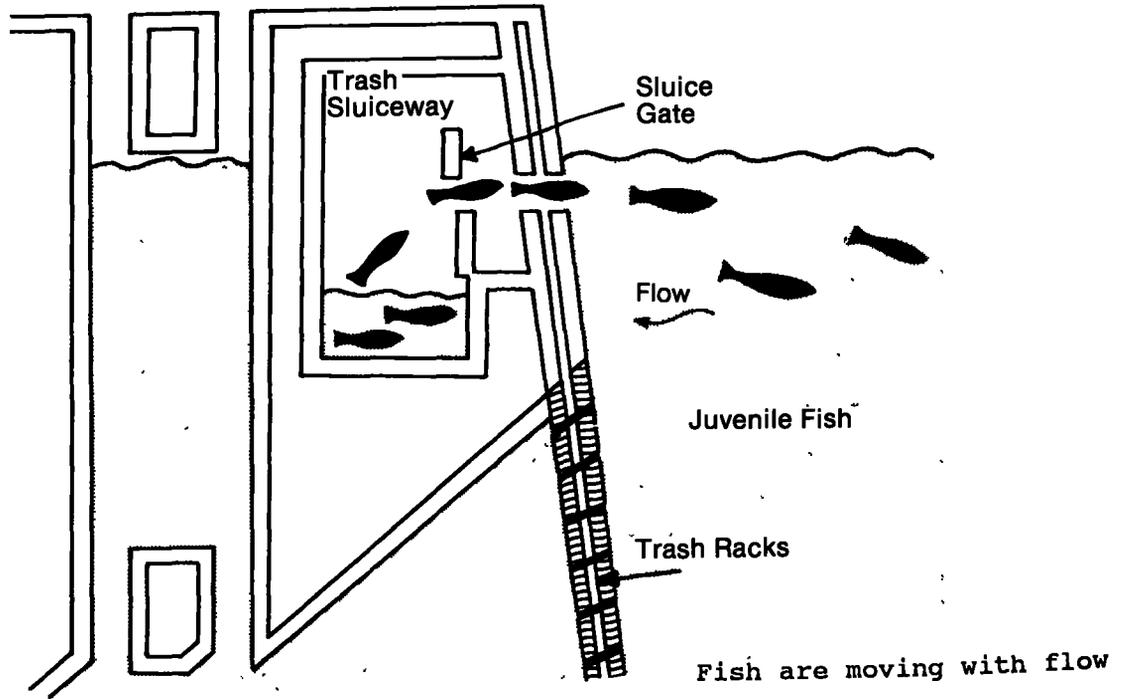
PROJECT SITE MAPS

Columbia and Snake River Projects



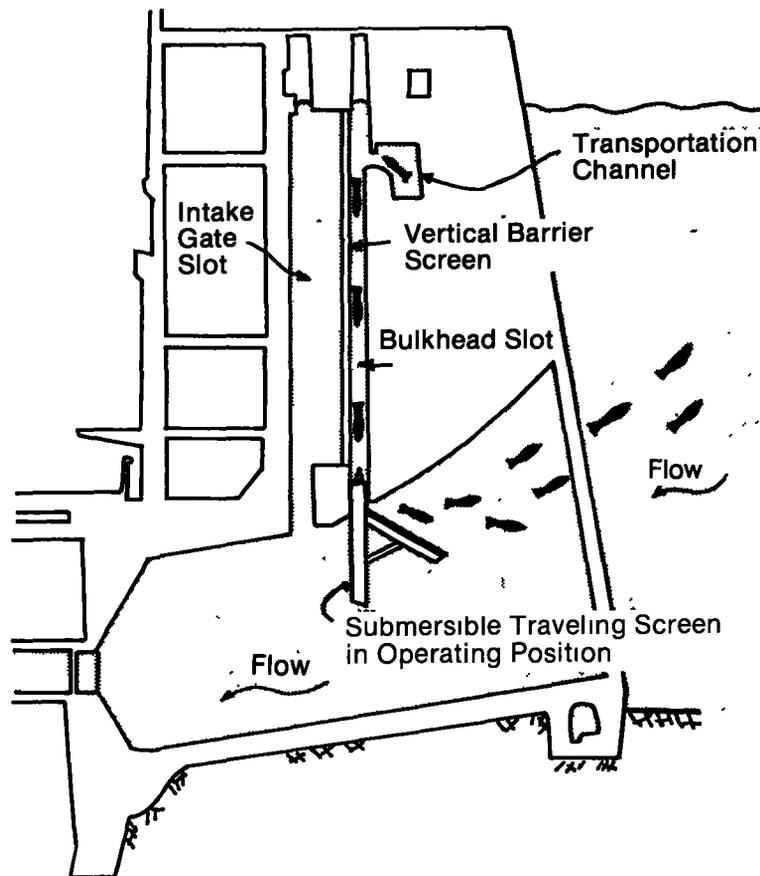
Juvenile By-pass Systems

The Dalles
Ice Harbor



Ice and Trash Sluiceway

Bonneville
John Day
McNary
Little Goose
Lower Granite

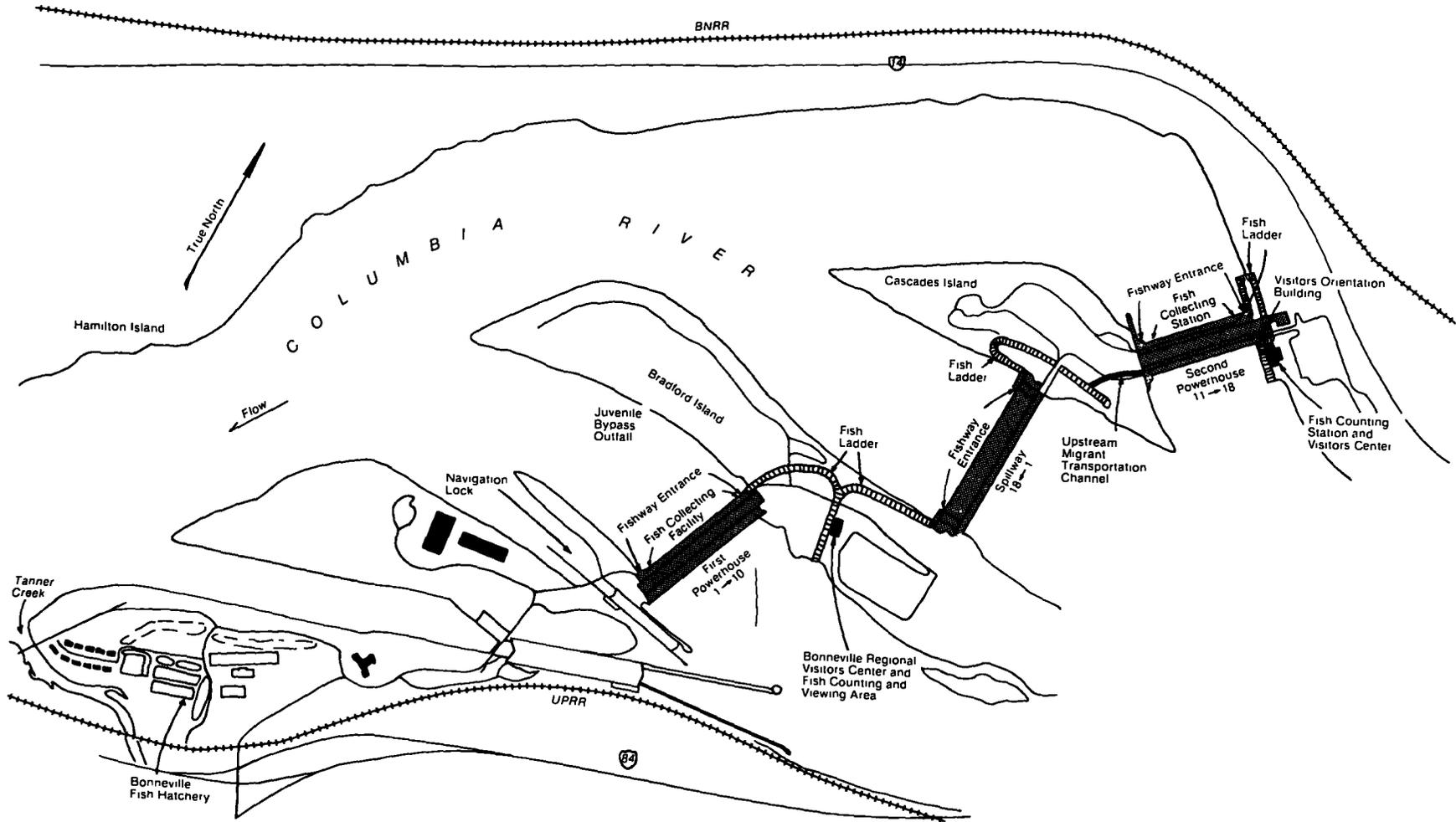


Submersible Traveling Screen

Not to Scale

Bonneville Lock and Dam

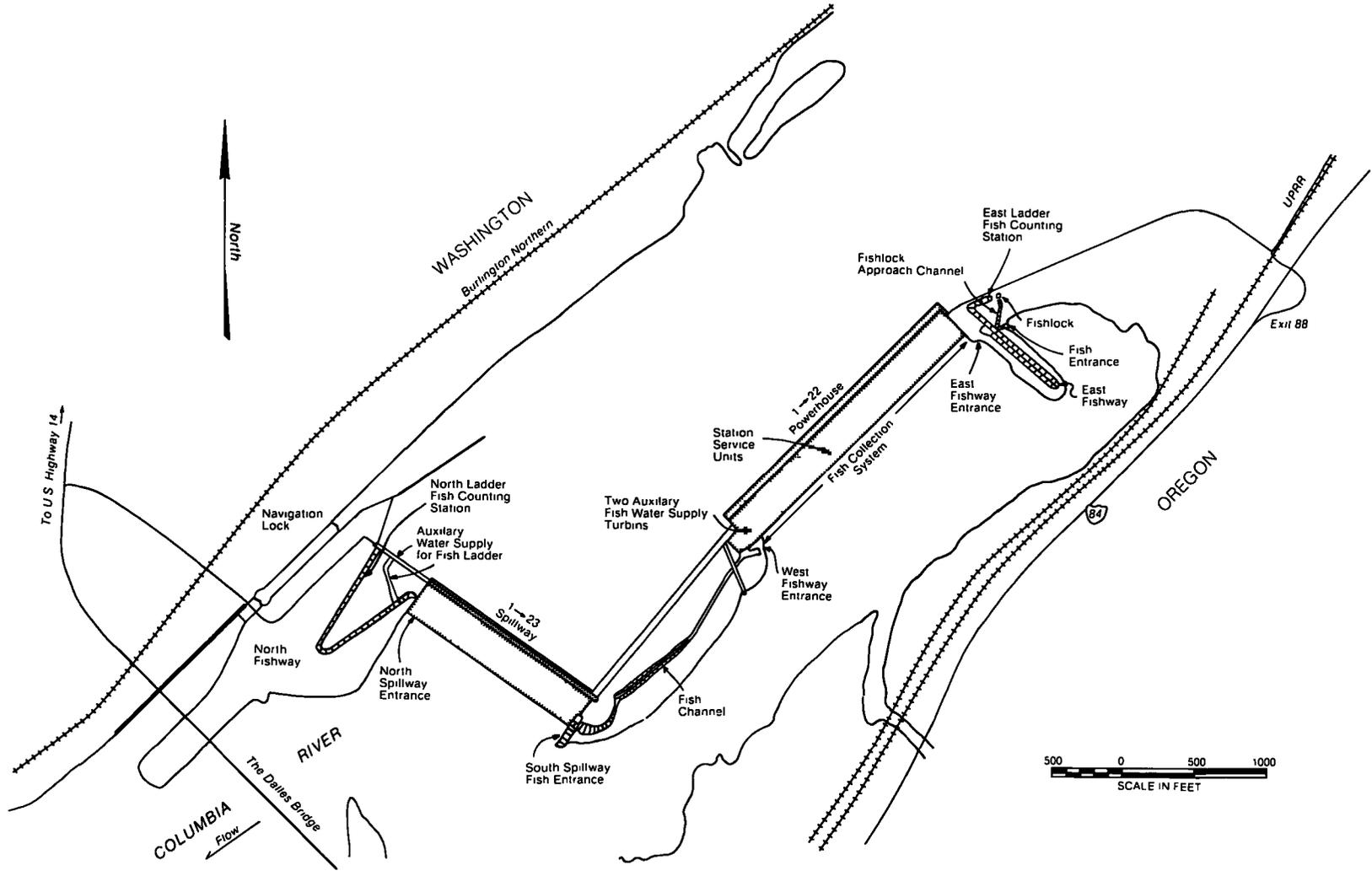
WASHINGTON



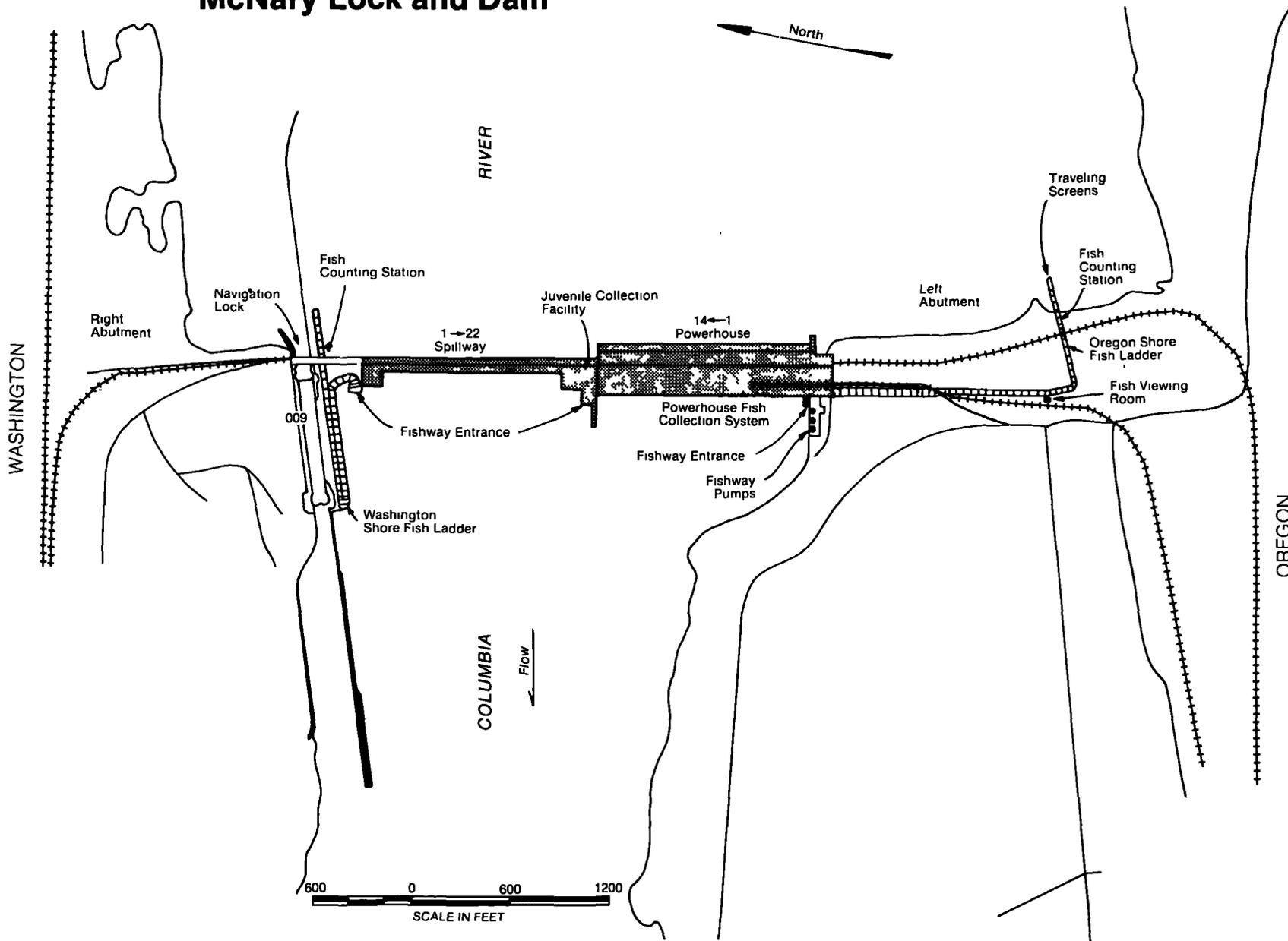
OREGON



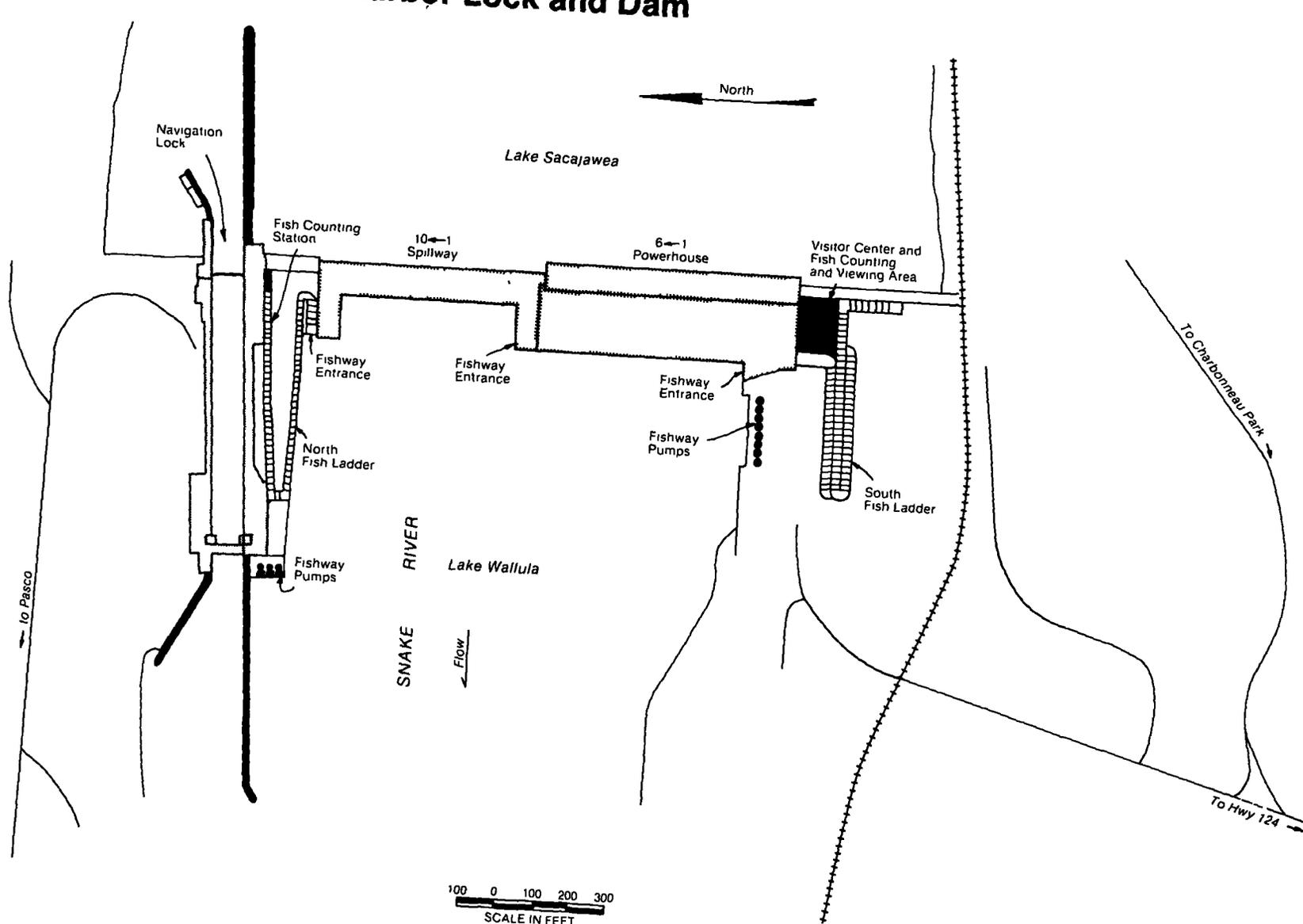
The Dalles Lock and Dam



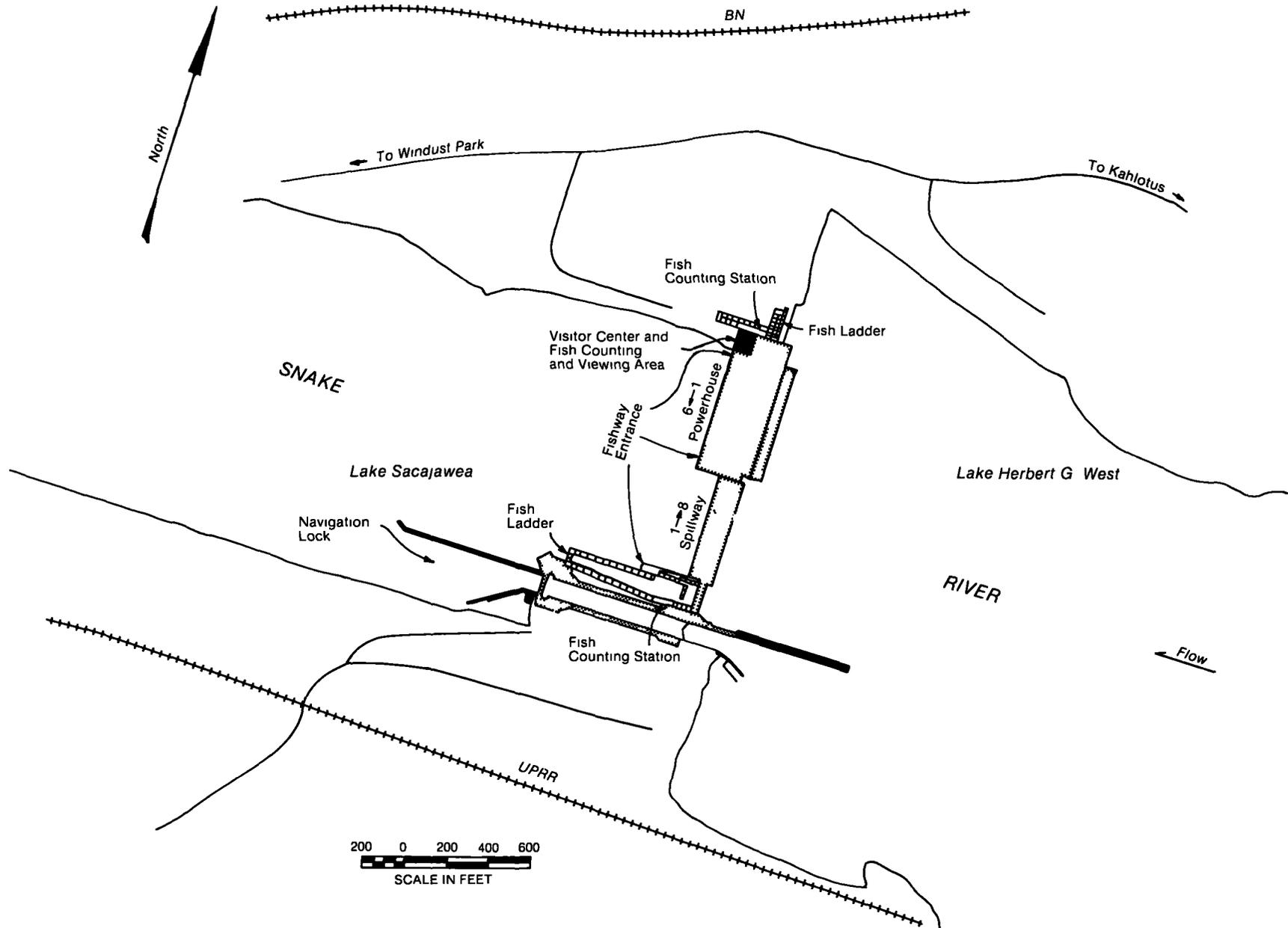
McNary Lock and Dam



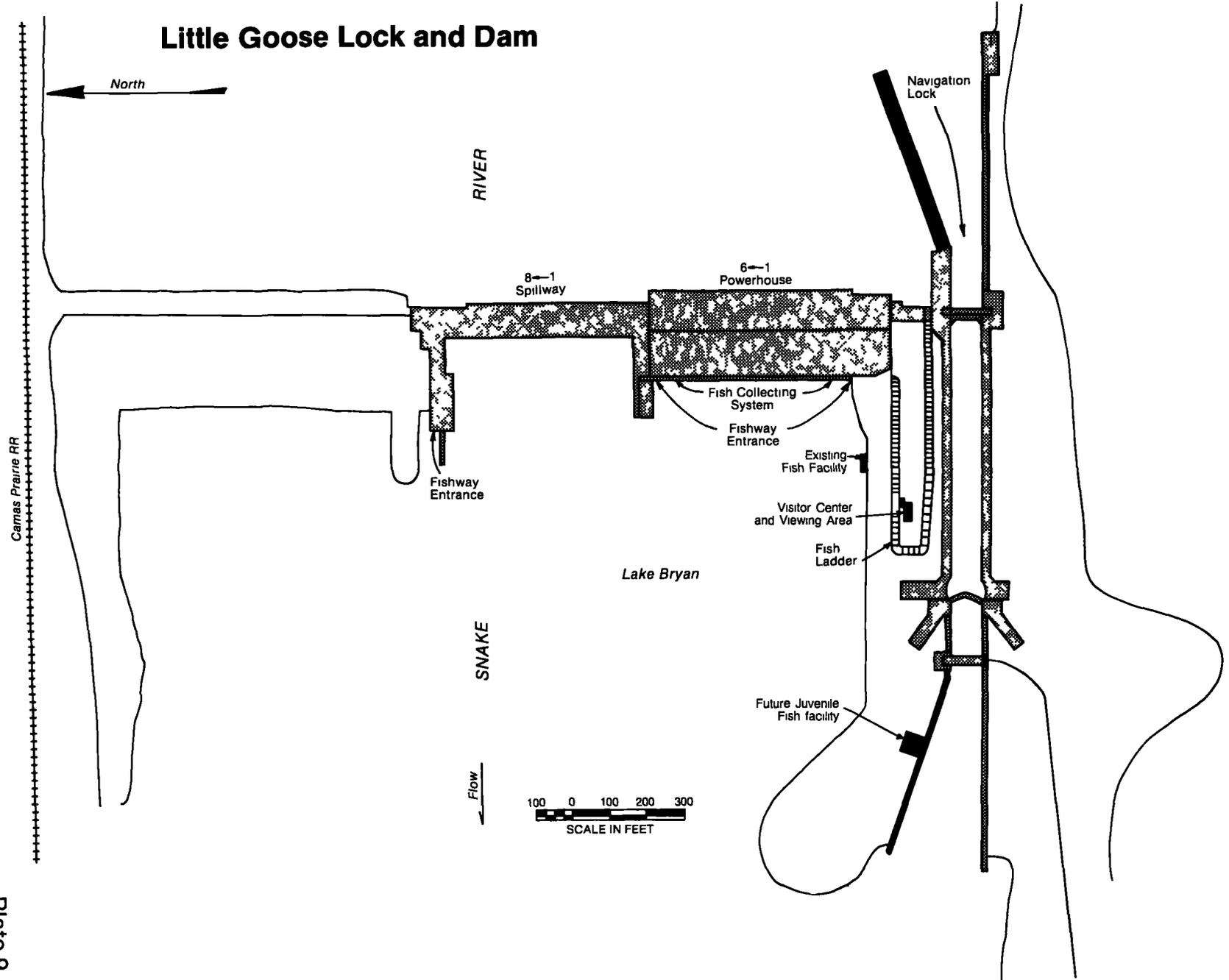
Ice Harbor Lock and Dam



Lower Monumental Lock and Dam



Little Goose Lock and Dam



Lower Granite Lock and Dam

