

ANNUAL REPORT OF OPERATIONS

FISH FACILITIES: 2006

Public Utility District No. 1 of Douglas County
1151 Valley Mall Parkway
East Wenatchee, Washington
98802-4497

Wells Hydroelectric Project
F.E.R.C. Project No. 2149

April 2007

FISH FACILITIES OPERATIONS ANNUAL REPORT FOR 2006

WELLS HYDROELECTRIC PROJECT, NO. 2149

Located on the Columbia River at River Mile 515.6

I. FISH COUNT AND RIVER CONDITIONS

A. Enumeration of adult salmon and steelhead using fish ladders at Wells Dam began on May 1 and continued through November 15. Counting was accomplished by reviewing digital video records of fish passing ladder windows. The ladders were operational 24 hours a day. A summary of the counting season by month is shown in Table 1. Attachment 1 shows the 24-hour record (0000-2400 PST) by species by day from May 1 through November 15th. Attachment 2 shows the annual summary from 1967 through 2006 of salmon and steelhead counts at Wells Dam using the historic 16-hour count format, and for comparison, Attachment 3 shows the 24-hour count totals for the years 1998 through 2006 in addition to the 16-hour count data from 1967 through 1997.

B. Monthly and annual fish counts of each species by ladder for 24-hour and 16-hour count periods are included in Tables 1 and 2, respectively (note that Table 1 includes bull trout [*Salvelinus confluentus*] and lamprey [*Lampetra tridentata*], while Table 2 does not). Table 3 shows the nighttime percent of total adult passage of salmon and steelhead. Broodstock for spring, summer, and fall Chinook and steelhead removed from the ladders are not included in the fish passage summaries. Numbers of fish removed for broodstock are shown in Tables 4 and 5.

C. Bull trout passage records were first initiated at Wells Dam in 1999. In 2006, bull trout counts were recorded from May 1 through November 15 (see Table 1), and daily passage numbers for 2006 are found in Table 6. Additionally, the winter bull trout counts that were initiated during the winter of 2004-2005 were continued during the winter of 2006-2007. No bull trout have been observed using the fish ladders at Wells Dam during the winter counts.

D. Lamprey passage records were first initiated at Wells in 1995. Lamprey counts were recorded from May 1 through November 15, 2006 (see Table 1), and daily passage numbers for 2006 are shown in Table 7.

II. PROJECT OPERATIONS

A. Adult Fish Passage Facilities

The adult fish passage facilities were operated using the criteria documented in the Wells Habitat Conservation Plan (HCP), and in cooperation with the Fisheries Agencies and Tribes. Information from several years of radio-telemetry studies with both salmon and steelhead at Wells Dam showed that ladder passage time was reduced by closing the side entrance at both east and west ladders. Based upon approval of the Joint Fisheries Parties who serve on the Wells Coordinating Committee, a decision was made in 2001 to change the ladder operation criteria at Wells Dam closing the side entrance on each ladder and increasing the opening of

the end gates from a six-foot opening to an eight-foot opening.

Routine inspection and maintenance was performed on the east ladder from December 1, 2005 through January 13, 2006 (winter 2005/2006 annual inspection/maintenance) and December 14, 2006 through March 2, 2007 (winter 2006/2007 annual inspection/maintenance); and on the west ladder from January 17 through February 23, 2006.

On July 26, 2006, fish were discovered on the wrong side of the diffusion-grate panels that separate the ladder collection gallery from the attraction-flow supply chamber of the east ladder. The presence of fish on the wrong side of the grates indicated that a failure had occurred in at least one of the four wall-, or three floor-grate panels. Once the problem was discovered, attraction flow for the collection gallery was shut off, pending a visual inspection. On the morning of July 27, a diver located a two-foot-wide section of grating that had broken free from one of the floor-grate panels, and necessary repairs were made. Attraction flow to the collection gallery of the east ladder was restored by 2:15 PM, July 27, 2006. Other than the incident just described, both ladders operated at criteria throughout the entire fish passage assessment period.

B. Juvenile Bypass Facilities

The juvenile bypass facilities at Wells Dam are designed to attract downstream migrant salmonids before they enter the turbine intakes. The hydrocombine design of Wells Dam combines the spillways and powerhouse components of the dam into a single 1,130-foot-long section, where all flow through the dam must pass. Five spillways, located above paired turbine intakes, are equipped with bypass flow barriers. Because of the hydrocombine design, flow through the turbine intakes attracts juvenile salmonid migrants to the bypass facilities, where they are attracted by water velocities at slotted bypass barriers and pass the project with a small volume of bypass flow.

The spring 2006 operation of the juvenile bypass facilities began on April 12 and continued on a 24-hour schedule until the end of the spring migration on June 13. Over 63 days, 1.26 MAF (million acre feet) of water or 5.8% of the project inflow was used for spring bypass operations. During the spring bypass period, there was forced spill for 743 hours or 49.1% of the time. The highest hour of forced spill was on May 19 with 154.9 kcfs spilled. High springtime flows allowed the District to conduct a second year of a two-year study to develop relationships between spill, spillway operations, tailwater elevation and observed levels of total dissolved gas in the tailrace of the dam in 2006. The highest hourly discharge at the project occurred on May 30 at 0200 hours with 271.5 kcfs flowing through the project.

Summer bypass operations began on June 14 and ran through August 26, for a total of 74 days. The summer operation used 1.23 MAF of water, which was 6.3% of the project inflow. During the summer bypass operating period, there were 298 hours (16.8% of the time) of forced spill.

The operation of the bypass in 2006 was consistent with operational timing specified in the Wells HCP. In the past, hydroacoustics and fyke netting have provided real-time fish migration data. The fixed dates of bypass operation were established from 21 years of hydroacoustic and 14 years of species composition information collected on juvenile run patterns and timing at Wells Dam.

III. WATER QUALITY

Average daily turbidity, water temperature and total dissolved gas readings from April 1 through November 15 are shown in Attachment 4. Starting in 2003, water temperature was collected at the fish-ladder attraction flow pumps located in the tailrace of Wells Dam. Historically, water temperature data have been collected at the turbine cooling water intake at Unit 5. Turbidity values are Secchi disc readings in feet. Total Dissolved Gas (TDG) is reported for both the forebay and tailwater as the 12-hour high average (12h) in percent TDG. The high TDG values at the tailrace TDG monitoring station in late May and June (see Attachment 4) were the result of experimental spill during an investigation of the effects of various operational configurations (spill and generation) on tailrace TDG levels (see Section V(E) below). The investigation was conducted between May 14 and June 26.

IV. FISH PRODUCTION

The Washington Department of Fish and Wildlife (WDFW) is responsible for managing the commercial, sport, and non-game fish and wildlife resources of the state. The Wells and Methow hatcheries are owned and funded by Public Utility District No. 1 of Douglas County (District), and operated by WDFW. WDFW personnel provided the information on summer/fall Chinook and steelhead production at the Wells Hatchery (see Table 4) and spring Chinook production at the Methow Hatchery (see Table 5) in 2006.

V. FISH STUDIES AND PROGRAMS

The District funded several fish-related studies and programs during 2006. A summary of each follows.

A. Sockeye Salmon Enhancement

At the end of 2001, the Wells Coordinating Committee agreed to shift focus on the District's sockeye responsibility from an experimental sockeye hatchery program to a water management planning tool for the Canadian Okanagan River. Untimely or excessive water released from Okanagan Lake was found to adversely affect the survival of both sockeye and kokanee during the winter and spring months when eggs are incubating in gravels. The new plan involved working with the Canadian fisheries parties to develop a model-based flow management program to be used as a decision-making tool by river managers for preventing or minimizing the occurrence of damaging flows. The Fish Water Management Tool (FWMT) is the model developed to allow both fish and water managers, collectively, to determine how releases of water would affect kokanee and sockeye resources, flood control, water-dependent recreation, and irrigators. During 2003, considerable time was spent on the FWMT model development and the estimation of physical and biological model parameters.

To determine if the FWMT model could improve water release practices, retrospective analyses were performed during 2004 using historical monthly records collected over the past twenty-five water years. The retrospective analyses indicated that the average improvement in salmon survival from water management was about 55 percent, equating to a savings of approximately 384,000 smolts per year. According to the model, estimated smolt savings from using the FWMT are better in a wet year (75%) rather than a dry year (38%) because of the avoidance of egg scour. The best results from the FWMT retrospective analyses demonstrated a 443-percent

improvement in salmon survival during one historic water year. On October 5, 2004, the fisheries parties to the Wells HCP Hatchery Committee approved the FWMT program as meeting the sockeye mitigation responsibility for unavoidable losses at Wells Dam.

2006 was the second year that the FWMT was used by Canadian fisheries and water managers to guide water-release decisions for the Canadian Okanagan River. As in 2005, the Operational Team comprising water managers and fisheries scientists, utilized the FWMT to make water-management decisions during an unusually chaotic water year, and by the end of the season, the team members reaffirmed their support for annual operational deployment of the FWMT and the team approach to decision making. Despite the atypical climatic and hydrologic conditions experienced during the first two years of FWMT implementation, the Operational Team was able to manage river flows and lake levels in a manner that effectively minimized property damage and fisheries losses. Thus, the performance of the FWMT was consistent with expectations based upon the retrospective analyses performed in 2004. Considering the positive results of using the FWMT as predicted by the retrospective analyses and the confirmation of those results with the first two years of implementation, the District will continue to support the FWMT program in 2007.

B. Adult Fishway PIT-Tag Detection System

The National Marine Fisheries Service's 2000 Biological Opinion required that the District install adult PIT-tag detectors in the two adult fishways at Wells Dam. A PIT-tag detection system was installed in the winter of 2001 – 2002 and began collecting data during the 2002 adult fish migration season. The PIT-tag detection equipment located in each ladder consists of four coils in Pools 67 and 68. These pools are control weirs with two hanging-orifice passageways, and each orifice on each of the four weirs was equipped with a PIT-tag detection coil connected to a series of computers. These computers transmit the PIT-tag interrogation information directly to the PITAGIS Database. This system was tested with 198 sockeye salmon that were captured in the ladder, tagged with PIT-tags and marked with a visual tag. The system was also evaluated by an analysis of 1,315 in-river PIT-tagged adults. The analysis from both of these tests showed the system had a detection efficiency of 99.9%.

The adult traps in each fishway are below Pools 67 and 68. Thus, PIT-tagged adult fish that were diverted from the fishway at each trap were not monitored by the PIT-tag detection system. To increase the coverage of the system, additional PIT-tag detectors were installed in 2004 on the exit of each trap to provide detection of PIT-tagged fish collected at the traps. The plastic reducer to which the PIT-tag detection antennas on the exit from the west ladder trap are mounted was damaged during 2005, and was removed for repair in October, near the end of the steelhead trapping season. Subsequent to the removal of the damaged assembly, Wells Hatchery staff used a hand-held wand detector to read PIT-tags from steelhead captured via the west ladder trap. The repaired detector assembly was installed prior to the adult spring Chinook migration in the spring of 2006.

Following the repair to the PIT-tag detector assembly on the exit from the west ladder in March of 2006, hatchery staff noticed that some PIT-tagged fish were still not being read by the antenna array. The District's PIT-tag system operation and maintenance (O&M) contractor determined that the apparent read failures were due to a malfunction of the wireless modem that transmits data from the PIT-tag reader at the trap exit to the computers in the dam. Following replacement of the modem, hatchery staff continued to observe PIT-tagged fish that had not been detected by the detection system. Upon further investigation, the O&M contractor

determined that electromagnetic interference and physical noise from the pumps adjacent to the detection array were interfering with tag detection, and they recommended relocating the detection array. The District is investigating options for relocating the detection array in 2007.

C. Northern Pikeminnow Removal in the Wells Tailrace and Reservoir

The District contracted for removal of and data collection on northern pikeminnow (*Ptychocheilus oregonensis*) from the Wells tailrace and reservoir. Northern pikeminnow have been identified as a major predator of juvenile salmonids. In 2006, the contractor used long-line gear to capture 21,863 northern pikeminnow. Of that total, 18,385 northern pikeminnow were at least 9" in fork length and 3,478 were less than 9" in fork length. These fish were captured during 5,772 hours of angling effort translating into an overall catch-per-unit-effort (CPUE) or fish-per-hour value of 3.8. Angling effort was determined by total hours spent to pull, check, and reset lines as well as travel and preparation time (tying hooks, assembling lines, etc.). A majority of the fish were captured within the Wells Tailrace (11,196 fish during 2,691 angling hours, CPUE = 4.2). The next most-productive area was the lower Wells Reservoir, from the mouth of the Methow River to the Wells Forebay, where 8,290 pikeminnow were captured during 2,340 hours (CPUE = 3.5). One thousand nine hundred forty-four northern pikeminnow were captured in the upper Wells Reservoir, from the mouth of the Methow River to Chief Joseph Dam, during 607 hours of angling effort translating into a CPUE of 3.2. The remaining fish were captured in the lower 1-mile section of the Methow River where 433 fish were captured during 134 hours of effort (CPUE = 3.2). The 21,863 pikeminnow were captured over 7,678,200 hook hours, translating into an overall hook catch per unit effort of 0.0028 fish per hook hour or 351 hook hours per fish.

D. Bull Trout Radio-Telemetry

From 2001 through 2004, the District participated in regionally coordinated bull trout telemetry studies. The study initiated in 2001 radio tagged 79 bull trout at mid-Columbia River dams in 2001 and 2002. The passage times and migration rates for these fish were monitored at Rock Island, Rocky Reach, and Wells dams. Reservoir passage and tributary monitoring was also conducted. Monitoring for bull trout tagged in 2002 with 24-month radio tags continued through December 2004, but no tags were detected during 2004. Based upon the results of these studies, Wells project operations do not appear to negatively influence bull trout survival, migration, and spawning success.

In consultation with the FERC and the U.S. Fish and Wildlife Service (USFWS) per the 2004 Biological Opinion on bull trout, the District developed the *Wells Hydroelectric Project Bull Trout Monitoring and Management Plan, 2004-2008*. The primary goal of this plan is to identify potential project-related impacts on upstream and downstream passage of adult bull trout through the Wells Dam and reservoir and implement appropriate measures to monitor any incidental take of bull trout. In May 2006, the District tagged 10 adult bull trout at Wells Dam with radio transmitters, and monitored upstream and downstream passage through the dam and movements of tagged fish while in the Project area (dam and reservoir). Thirteen additional bull trout were tagged in 2006 by the USFWS in the Methow River and 29 bull trout were tagged in the Columbia River by Chelan County PUD. During 2006 at Wells Dam, there were 23 passage events recorded for 17 radio-tagged bull trout. No conclusive instances of mortality resulted from these passage events, as confirmed by detected movement of each fish following each passage event.

In addition to the radio tagging, the District agreed to PIT-tag sub-adult bull trout when

encountered at Wells Dam or during the operation of rotary screw traps in the tributaries. Sixteen sub-adult bull trout were tagged with PIT tags at tributary traps in 2005 and 20 in 2006. To date, none of the PIT-tagged fish have been detected passing the dam, and none have been detected subsequent to tagging in any of the tributary traps. There also have been no observations of sub-adult bull trout during either video surveillance of the fish ladders at Wells Dam, or during annual ladder maintenance activities.

Genetic samples have been taken from all radio- and PIT-tagged bull trout in an effort to determine the Core Areas and Local Populations of those fish that utilize the Wells Project area, but the analysis of these samples by the USFWS is pending. From mobile tracking of radio-tagged fish, it appears that bull trout tagged in the Project area are primarily using the Methow River Core Area (70%) and the Entiat River Core Area (30%). The study will continue with additional tagging in 2007 and tracking through July 2008.

E. Total Dissolved Gas Monitoring at Wells Dam

The volume of water in the Columbia passing Wells Dam in 2006 in April through September was 115 percent of the twenty year average. As noted above, the maximum hourly discharge recorded was 271,500 cfs on May 30. During 2006, TDG data were collected from the forebay and tailwater of Wells Dam. The forebay TDG monitor recorded 12-hour average levels from 102.5 – 116.1 percent. The tailwater monitor recorded 12-hour average levels from 103.2 – 131.3 percent. Operations of the juvenile bypass system at Wells Dam resulted in only slight increases in dissolved gasses in the Columbia River.

In 2006, Douglas PUD scheduled 30 spill events with the objective of better understanding the TDG production dynamics at Wells Dam. The information gathered from the assessment will help to inform the development of a 401 Water Quality Certificate, issued by the WDOE. The license to operate the Wells Project expires on May 31, 2012, and in order to relicense the Wells Project, 401 Water Quality Certification is required by the FERC.

Douglas PUD hired a team of hydraulic and TDG experts from the Pacific Northwest to help design a monitoring program for a study that would examine various operational scenarios and their respective TDG production dynamics. The tests conducted in 2006 utilized several “shaped” spill tests including:

- Spread Spill (spill as much as possible equally distributed across all gates)
- Full Gate (high volume of spill through as few gates as possible)
- Crowned Spill (high volume of spill in the center of the spillway)
- Dentated Spill (alternative spill gates with high and low volumes of spill)
- Right/Left Bank Spill (spilling all of the available water on either the right or left bank)

Thirteen monitoring locations were established along three transects in the tailrace; at 1,000, 2,500 and 15,000 feet below Wells Dam. There were also three sensors placed across the forebay, one being the fixed monitoring station midway across the face of the dam and two more a distance of 300 feet from the dam. The sensors were programmed to collect data in 15 minute increments for both TDG and water temperature. Each test required the operators of the dam to maintain static flows through the powerhouse and spillway for at least a three-hour period. While there were 30 scheduled spill events, there were an additional 50 events where the power house and spillway conditions were held constant for a minimum three-hour period. These “incidental” events provided an opportunity to collect additional TDG data on a variety of

Project operations that met study criteria and are included in the results of the 2006 TDG Production Dynamics Study. During the test period (May 14 through June 29, 2006), spill amounts ranged from 5.2% to 52% of project flow and volume of spill and total flows ranged from 5.0 to 168.0 kcfs for spill and 16.0 to 270.0 kcfs for total discharge. Four percent of the total discharges recorded during the test period exceeded the 7Q10 flow of 246 kcfs, during which time six tests were performed. Results of the study suggest that the implementation of specific spill configurations reduces the amount of TDG produced at Wells Dam. As a general method of passing larger flows, spilling evenly across spillways 2-10 (spread) resulted in the lowest TDG production, followed by full gate spill configurations. A final report detailing the results of the 2006 Wells TDG Production Dynamics Study was completed in March 2007.

VI. EXPENSES for the 2006 Calendar Year

A. Fish Passage and Production Facilities and Non-study Expenses

	Total Costs	Minus Credits ¹
1. Operation of District Wells Hatchery a/c 537.2, 545.34	\$1,517,575	\$1,179,780
2. Supervision of Fish & Game Facilities a/c 537.3	\$217,496	\$217,496
3. Operation of District Methow Hatchery a/c 537.7, 545.5	\$897,230	\$222,291
4. Fish Management a/c 537.9, 545.8	\$497,789	\$497,789
5. Maintenance of District Fish Facilities a/c 545.2	\$101,300	\$101,300
6. Maintenance Miscellaneous Fish Related a/c 545.6	\$6,141	\$6,141
7. Annual Debt Service on Fish and Game Plant	\$3,687,418	\$3,687,418
Totals	\$6,924,950	\$5,912,216

¹Actual District costs calculated according to the terms of existing hatchery sharing agreements

B. Licensee Fisheries Study Costs

1. Fish Studies a/c 537.5	\$463,226
2. Fish Studies – Methow Hatchery Evaluation a/c 537.6	\$639,216
Total	\$1,102,442

Table 1. Wells Dam fish counts; Monthly Summaries for 24 hour count period; 2006

Month	Chinook Salmon							Coho	Sockeye	Steelhead		Total Steelhead	Bull Trout	Lamprey
	Spring		Summer		Fall		Total Chinook			Hatchery	Wild			
May	1,856	23					1,879			7	21	28	41	6
June	2,303	194	501	21			3,019		316	4	12	16	47	0
July			17,837	742			18,579		20,164	56	82	138	11	3
August			7,333	762	304	55	8,454		1,526	583	339	922	0	2
September					1,943	960	2,903	45	47	2,590	1,427	4,017	0	10
October					879	641	1,520	336	22	702	546	1,248	1	
November					214	47	261	28		159	146	305		
Total	4,159	217	25,671	1,525	3,340	1,703	36,615	409	22,075	4,101	2,573	6,674	100	21

Wells fish counts were made using WDFW conversion dates

Spring Chinook May 1 - June 28

Summer Chinook June 29 - August 28

Fall Chinook August 29 - November 15.

Table 2. Wells Dam fish counts; Monthly Summaries for 16 hour count period; 2006 (counting from 0400 - 2000 PST)

Month	Chinook Salmon						CA+CJ	Coho	Sockeye	Steelhead	
	Spring		Summer		Fall					Hatchery	Wild
	Adults	Jacks	Adults	Jacks	Adults	Jacks					
May	1,793	23								6	19
June	2,015	165	469	18			487		251	3	3
July			17,473	699			18,172		17,245	51	70
August			6,964	722	282	52	8,020		1,326	531	310
September					1,774	897	2,671	40	36	2,198	1,207
October					879	555	1,434	336	22	702	546
November					180	39	219	23		115	116
Total	3,808	188	24,906	1,439	3,115	1,543	31,003	399	18,880	3,606	2,271

Table 3. Wells Dam fish counts; Percentage of night passage, 2006 (Percent seen between the hours 000 - 0400 and 2000 - 2400)

Month	Chinook Salmon						CA+CJ	Coho	Sockeye	Steelhead	
	Spring		Summer		Fall					Hatchery	Wild
	Adults	Jacks	Adults	Jacks	Adults	Jacks					
May	3%	0%								14%	10%
June	13%	15%	6%	14%					21%	25%	75%
July			2%	6%					14%	9%	15%
August			5%	5%	7%	5%			13%	9%	9%
September					9%	7%			23%	15%	15%
October					0%	13%			0%	0%	0%
November					16%					28%	21%
Total	8%	13%	3%	6%	7%	9%			14%	12%	12%

Wells fish counts were made using WDFW conversion dates

Spring Chinook May 1 - June 28

Summer Chinook June 29 - August 28

Fall Chinook August 29 - November 15.

Table 4. Production from the Wells Hatchery in 2006

	Summer Chinook	Summer Steelhead ¹
Adult broodstock trapped, 2006	1,284	400
Jacks broodstock trapping, 2006	--	0
Females spawned in 2006	585	198
Eggs taken, 2006	2,467,500	1,238,431
Eggs transferred, 2006	1,461,700	375,404
Eggs for Lake Chelan release, 2006	131,600	
Juveniles released, 04 brood	312,980	0
Juveniles released, 05 brood	430,203	473,505
Released to Lake Chelan, 05 brood	18,497	0

¹ Adult steelhead collected at Wells Dam for broodstock are held until spawning during the following year. Thus, the steelhead spawned in 2006 (designated 2006 brood) were actually collected in 2005.

Table 5. Spring Chinook Production from the Methow Hatchery in 2006

	Twisp R.	Chewuch R.	Methow R.
Adults trapped, 2006 brood	15	4	352
Females spawned, 2006 brood	15		173 ¹
Eggs taken, 2006 brood	49,521		602,208
Juveniles released, 2004 brood	96,461	204,906	65,146

¹The hatchery distinguished only the Twisp River fish in their report of the number of females spawned from all collection locations, and did not otherwise provide numbers of females spawned categorized by collection location. All non-Twisp fish were categorized as Methow-composite (MetComp).

Note: In 2006, Spring Chinook adults were trapped at the Twisp tributary trap, Fulton Dam, the Methow Hatchery outfall channel, the Winthrop National Hatchery outfall, and the West Ladder trap at Wells Dam.

Table 6. Passage of Bull Trout at Wells Dam, 2006

Day	April	May	June	July	Aug	Sept	Oct	Nov
1		0	1	2	0	0	0	0
2		0	2	0	0	0	0	0
3		0	3	0	0	0	0	0
4		0	4	2	0	0	0	0
5		0	1	0	0	0	0	0
6		0	0	1	0	0	0	0
7		0	2	2	0	0	0	0
8		0	2	1	0	0	0	0
9		0	0	0	0	0	0	0
10		0	0	1	0	0	0	0
11		0	0	1	0	0	0	0
12		0	0	1	0	0	0	0
13		0	2	0	0	0	0	0
14		0	1	0	0	0	0	0
15		0	2	0	0	0	0	0
16		2	2	0	0	0	0	0
17		0	1	0	0	0	0	0
18		1	0	0	0	0	0	0
19		2	4	0	0	0	0	0
20		0	2	0	0	0	0	0
21		1	0	0	0	0	0	0
22		0	3	0	0	0	0	0
23		0	4	0	0	0	0	0
24		4	3	0	0	0	0	0
25		4	3	0	0	0	0	0
26		4	2	0	0	0	0	0
27		5	0	0	0	0	0	0
28		6	0	0	0	0	0	0
29		1	1	0	0	0	0	0
30		4	2	0	0	0	0	0
31		7		0	0	0	1	
Total	0	41	47	11	0	0	1	0
Season total								100

Table 7. Passage of Lamprey at Wells Dam, 2006

Day	April	May	June	July	Aug	Sept	Oct	Nov
1		0	0	0	1	0	0	0
2		0	0	0	0	1	0	0
3		0	0	0	0	0	0	0
4		1	0	0	0	0	0	0
5		0	0	0	0	0	0	0
6		0	0	0	0	0	0	0
7		0	0	0	0	0	0	0
8		0	0	0	0	0	0	0
9		0	0	0	0	0	0	0
10		0	0	1	0	0	0	0
11		0	0	0	0	0	0	0
12		0	0	0	0	0	0	0
13		0	0	0	0	0	0	0
14		0	0	0	0	1	0	0
15		0	0	0	1	0	0	0
16		0	0	0	0	0	0	
17		2	0	0	0	1	0	
18		1	0	0	0	0	0	
19		1	0	0	0	1	0	
20		1	0	0	0	1	0	
21		0	0	0	0	0	0	
22		0	0	0	0	1	0	
23		0	0	1	0	0	0	
24		0	0	0	0	1	0	
25		0	0	0	0	2	0	
26		0	0	0	0	0	0	
27		0	0	0	0	0	0	
28		0	0	0	0	0	0	
29		0	0	1	0	1	0	
30		0	0	0	0	0	0	
31		0		0	0		0	
Total	0	6	0	3	2	10	0	0
Season total								21

Attachment 1. Wells Dam Daily Fish Passage Report, 2006.
Passage for the hours 0000 to 2400 PST

May-06								Jun-06							
Chinook								Chinook							
Date	Adults	Jacks	Coho	Sockeye	Steelhead Hat	Steelhead Wild	Lamprey	Date	Adults	Jacks	Coho	Sockeye	Steelhead Hat	Steelhead Wild	Lamprey
1	0	0	0	0	1	2	0	1	23	3	0	0	1	0	0
2	0	0	0	0	0	0	0	2	67	7	0	0	1	0	0
3	0	0	0	0	2	5	0	3	196	7	0	0	1	0	0
4	0	0	0	0	1	2	1	4	99	9	0	0	0	1	0
5	0	0	0	0	0	1	0	5	36	9	0	0	0	2	0
6	0	0	0	0	0	1	0	6	25	5	0	0	0	0	0
7	1	0	0	0	0	0	0	7	93	8	0	0	0	1	0
8	0	0	0	0	0	0	0	8	44	7	0	0	0	1	0
9	0	0	0	0	0	0	0	9	181	19	0	0	0	1	0
10	1	0	0	0	0	0	0	10	25	17	0	0	0	2	0
11	0	0	0	0	0	1	0	11	99	14	0	0	0	0	0
12	3	0	0	0	1	0	0	12	38	4	0	0	1	0	0
13	3	0	0	0	0	1	0	13	40	17	0	0	0	0	0
14	0	0	0	0	0	0	0	14	45	7	0	0	0	0	0
15	0	0	0	0	0	1	0	15	35	7	0	0	0	0	0
16	13	0	0	0	0	1	0	16	68	6	0	0	0	0	0
17	17	0	0	0	1	0	2	17	48	5	0	2	0	0	0
18	8	0	0	0	0	1	1	18	5	1	0	0	0	0	0
19	45	1	0	0	0	0	1	19	44	10	0	1	0	0	0
20	64	0	0	0	0	0	1	20	48	7	0	5	0	0	0
21	51	1	0	0	0	0	0	21	48	8	0	7	0	0	0
22	215	3	0	0	0	0	0	22	10	1	0	7	0	0	0
23	201	0	0	0	0	4	0	23	42	4	0	3	0	0	0
24	219	1	0	0	0	1	0	24	30	2	0	2	0	0	0
25	143	0	0	0	0	0	0	25	118	3	0	14	0	0	0
26	190	2	0	0	1	0	0	26	43	1	0	10	0	1	0
27	205	2	0	0	0	0	0	27	293	4	0	34	0	0	0
28	123	2	0	0	0	0	0	28	460	2	0	60	0	1	0
29	95	4	0	0	0	0	0	29	325	12	0	72	0	0	0
30	185	5	0	0	0	0	0	30	176	9	0	99	0	2	0
31	74	2	0	0	0	0	0								
Totals	1,856	23	0	0	7	21	6	Totals	2,804	215	0	316	4	12	0

Attachment 1. Wells Dam Daily Fish Passage Report, 2006 (Continued).
 Passage for the hours 0000 to 2400 PST

Jul-06								Aug-06								
Chinook								Chinook								
Date	Adults	Jacks	Coho	Sockeye	Steelhead Hat	Steelhead Wild	Lamprey	Date	Adults	Jacks	Coho	Sockeye	Steelhead Hat	Steelhead Wild	Lamprey	
1	105	11	0	145	0	0	0	1	221	14	0	213	9	4	1	
2	310	9	0	140	0	0	0	2	160	16	0	139	5	3	0	
3	795	26	0	292	1	0	0	3	164	25	0	99	7	3	0	
4	1,507	21	0	390	1	2	0	4	39	3	0	82	6	2	0	
5	682	9	0	442	0	0	0	5	539	41	0	144	7	6	0	
6	960	26	0	639	1	0	0	6	251	19	0	87	12	9	0	
7	1,024	14	0	648	0	0	0	7	560	36	0	95	5	8	0	
8	697	30	0	763	0	0	0	8	125	23	0	77	9	2	0	
9	1,107	57	0	1,307	0	4	0	9	110	22	0	45	9	5	0	
10	262	15	0	941	0	0	1	10	102	33	0	62	16	12	0	
11	1,384	38	0	1,277	1	2	0	11	144	28	0	38	9	8	0	
12	1,319	38	0	1,276	4	1	0	12	1,609	65	0	68	19	10	0	
13	886	35	0	1,387	4	1	0	13	741	43	0	58	13	10	0	
14	221	9	0	1,155	0	1	0	14	281	34	0	60	15	15	0	
15	803	36	0	741	0	3	0	15	212	27	0	42	16	7	1	
16	195	20	0	767	1	3	0	16	276	22	0	31	14	9	0	
17	458	21	0	1,032	0	5	0	17	84	30	0	22	15	12	0	
18	406	32	0	650	4	3	0	18	69	12	0	16	21	10	0	
19	414	41	0	770	4	2	0	19	79	37	0	25	28	15	0	
20	187	28	0	773	2	2	0	20	173	29	0	7	11	13	0	
21	932	34	0	899	3	2	0	21	266	28	0	18	21	9	0	
22	241	26	0	553	7	2	0	22	254	33	0	20	20	10	0	
23	440	16	0	820	2	5	1	23	118	26	0	13	19	7	0	
24	638	20	0	535	3	1	0	24	344	30	0	16	38	12	0	
25	340	9	0	430	2	5	0	25	132	35	0	13	35	25	0	
26	338	20	0	336	4	11	0	26	71	19	0	14	35	10	0	
27	233	18	0	241	0	6	0	27	34	17	0	7	39	23	0	
28	346	13	0	289	5	7	0	28	175	15	0	3	20	14	0	
29	233	23	0	217	3	7	1	29	218	11	0	6	32	29	0	
30	222	27	0	128	1	5	0	30	57	15	0	3	35	14	0	
31	152	20	0	181	3	2	0	31	29	29	0	3	43	23	0	
Totals	17,837	742	0	20,164	5	6	82	3	Totals	7,637	817	0	1,526	583	339	2

Attachment 1. Wells Dam Daily Fish Passage Report, 2006 (Continued).
 Passage for the hours 0000 to 2400 PST

Sep-06								Oct-06							
Date	Chinook							Date	Chinook						
	Adults	Jacks	Coho	Sockeye	Steelhead Hat	Steelhead Wild	Lamprey		Adults	Jacks	Coho	Sockeye	Steelhead Hat	Steelhead Wild	Lamprey
1	47	40	0	0	45	20	0	1	33	26	37	4	94	77	0
2	318	76	0	2	90	39	1	2	8	19	12	0	20	26	0
3	181	35	0	5	87	43	0	3	46	21	11	1	59	43	0
4	91	34	0	2	57	28	0	4	23	14	8	1	31	31	0
5	32	34	0	1	30	14	0	5	11	33	5	0	44	18	0
6	60	25	0	1	38	17	0	6	26	33	10	0	45	22	0
7	80	37	0	1	86	36	0	7	50	45	26	0	104	38	0
8	49	28	0	1	92	28	0	8	43	43	21	0	47	19	0
9	81	42	0	5	73	36	0	9	14	25	4	0	13	21	0
10	192	57	0	1	103	48	0	10	18	21	4	0	17	21	0
11	101	50	0	2	61	28	0	11	20	32	3	1	12	23	0
12	88	45	0	1	78	39	0	12	9	24	10	2	31	17	0
13	41	20	0	0	101	42	0	13	19	18	10	2	22	17	0
14	27	25	0	1	91	50	1	14	21	13	7	1	17	18	0
15	50	36	0	0	65	22	0	15	52	21	9	0	14	17	0
16	49	38	0	3	110	36	0	16	10	20	12	0	10	5	0
17	53	32	0	2	122	84	1	17	16	45	18	1	12	12	0
18	12	16	0	0	69	37	0	18	65	26	6	1	10	7	0
19	15	15	0	0	86	35	1	19	52	45	23	1	19	22	0
20	13	15	1	1	145	89	1	20	54	26	15	1	14	9	0
21	55	34	0	4	159	114	0	21	79	14	8	1	5	4	0
22	8	14	2	3	73	46	1	22	52	18	8	2	9	11	0
23	85	47	1	1	84	74	0	23	22	8	8	0	5	7	0
24	39	30	7	2	118	64	1	24	24	5	4	1	4	7	0
25	17	30	3	1	56	33	2	25	24	9	4	1	11	6	0
26	65	34	0	0	118	66	0	26	16	10	5	0	3	9	0
27	17	13	1	0	61	30	0	27	17	6	2	1	3	10	0
28	7	12	4	3	75	41	0	28	10	8	10	0	7	9	0
29	54	28	11	0	121	120	1	29	19	3	9	0	6	5	0
30	16	18	15	4	96	68	0	30	19	4	11	0	7	9	0
								31	7	6	16	0	7	6	0
Totals	1,943	960	45	47	2,590	1,427	10	Totals	879	641	336	22	702	546	0

Attachment 1. Wells Dam Daily Fish Passage Report, 2006 (Continued).
 Passage for the hours 0000 to 2400 PST

Nov-06							
Chinook							
Date	Adults	Jacks	Coho	Socketeye	Steelhead Hat	Steelhead Wld	Lamprey
1	11	5	4	0	1	3	0
2	37	1	3	0	5	7	0
3	18	2	3	0	5	8	0
4	16	9	2	0	7	3	0
5	7	4	5	0	2	6	0
6	22	2	1	0	2	5	0
7	15	3	3	0	8	7	0
8	7	10	4	0	25	9	0
9	14	1	1	0	16	14	0
10	4	1	0	0	15	14	0
11	19	2	1	0	32	22	0
12	13	1	0	0	19	19	0
13	4	2	0	0	10	12	0
14	4	2	1	0	4	5	0
15	23	2	0	0	8	12	0
16		0	0	0	0	0	
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
Totals	214	47	28	0	159	146	0

Attachment 2. Wells Dam Annual Ladder Counts of Salmon and Steelhead for a 16-hour Daily Count Period (1967-2006)

Year	Chinook Spring	Chinook Summer	Chinook Fall	Chinook Trapped	Chinook Total	Coho	Sockeye	Steelhead	Steelhead Trapped	Steelhead Total	Total Salmonids	Count Dates Include:
1967	1,157	12,504	2,732	2,004	18,397	255	113,232	1,474	171	1,645	133,529	5/21-11/19
1968	4,931	8,922	2,623	2,277	18,753	221	81,530	2,112	413	2,525	103,029	5/01-11/15
1969	3,599	6,846	2,929	2,873	16,247	29	17,352	1,391	530	1,921	35,549	5/01-11/15
1970	2,670	8,003	4,388	1,745	16,806	62	50,667	1,597	399	1,996	69,531	5/01-11/15
1971	3,168	5,988	2,030	1,793	12,979	161	48,172	3,782	358	4,140	65,452	4/30-11/15
1972	3,616	4,141	2,419	1,694	11,870	665	33,398	1,894	354	2,248	48,181	4/30-11/15
1973	2,937	5,052	2,650	2,088	12,727	331	37,178	1,820	627	2,447	52,683	4/30-11/15
1974	3,420	4,567	1,114	2,893	11,994	112	16,716	580	260	840	29,662	5/01-10/31
1975	2,225	8,522	3,806	3,253	17,806	25	22,286	517	227	744	40,861	5/01-10/31
1976	2,759	7,901	3,843	2,518	17,021	99	27,619	4,664	337	5,001	49,740	5/01-11/15
1977	4,211	7,527	3,260	2,628	17,626	68	21,973	5,282	355	5,637	45,304	5/01-11/15
1978	3,615	6,419	1,336	2,259	13,629	77	7,458	1,621	356	1,977	23,141	5/01-10/31
1979	1,103	10,080	1,108	2,352	14,643	63	22,655	3,695	367	4,062	41,423	5/01-11/16
1980	1,182	4,892	709	1,827	8,610	82	26,573	3,443	372	3,815	39,080	5/01-11/22
1981	1,935	4,276	686	1,533	8,430	26	28,234	4,096	650	4,746	41,436	5/01-11/22
1982	2,401	3,349	2,064	700	8,514	357	19,005	7,984	590	8,574	36,450	5/01-11/22
1983	2,869	2,821	1,150	942	7,782	82	27,925	19,525	670	20,195	55,984	5/01-11/30
1984	3,280	5,941	1,812	1,094	12,127	104	81,054	16,632	690	17,322	110,607	5/01-11/25
1985	5,257	4,456	2,097	1,689	13,499	72	53,170	19,867	750	20,617	87,358	5/01-11/22
1986	3,150	4,178	1,143	1,118	9,589	87	34,876	13,303	650	13,953	58,505	5/01-11/14
1987	2,344	3,142	3,253	1,275	10,014	42	39,948	5,493	603	6,096	56,100	5/01-11/13
1988	3,036	2,775	1,935	1,364	9,110	75	33,980	4,401	651	5,052	48,217	5/01-10/31
1989	1,740	3,333	1,435	2,147	8,655	14	15,895	4,600	716	5,316	29,880	5/01-10/31
1990	981	3,354	749	1,109	6,193	32	7,597	3,815	735	4,550	18,372	5/01-11/07
1991	779	2,028	827	1,525	5,159	21	27,492	7,751	726	8,477	41,149	5/01-11/15
1992	1,623	1,967	1,503	895	7,980	28	41,844	7,027	658	7,685	57,537	5/01-11/15
1993	2,444	3,603	1,228	1,780	9,055	19	28,038	2,494	633	3,127	40,239	5/01-11/16
1994	257	4,891	3,017	2,287	10,452	3	1,662	2,163	620	2,783	14,900	5/01-11/15
1995	103	3,076	1,229	2,164	6,572	6	4,801	942	619	1,561	12,940	5/01-11/15
1996	*	2,389	917	1,665	4,971	4	17,703	4,128	509	4,637	27,315	5/01-11/15
1997	971	2,721	766	1,655	6,113	8	25,754	4,107	630	4,737	36,612	5/01-11/15
1998	*	3,799	1,067	1,559	6,425	0	4,135	2,520	460	2,980	13,540	5/01-11/15
1999	345	7,787	2,548	938	11,618	224	12,388	3,504	416	3,920	28,150	5/01-11/15
2000	2,435	9,673	3,049	1,327	16,484	0	53,351	5,575	369	5,944	75,779	5/01-11/15
2001	10,414	35,990	8,634	556	55,594	473	64,819	16,251	392	16,643	137,529	5/01-11/15
2002	7,098	59,540	5,573	556	72,767	104	9,594	8,253	373	8,626	91,091	5/01-11/15
2003	4,480	43,480	7,397	556	55,913	137	24,684	8,721	374	9,095	89,829	5/01-11/15
2004	2,493	31,172	5,265	558	39,488	234	64,959	7,825	452	8,277	112,958	5/01-11/15
2005	4,831	30,842	3,110	563	39,346	273	46,891	6,331	417	6,748	93,258	5/01-11/15
2006	3,996	26,345	4,658	575	35,574	399	18,880	5,877	368	6,245	61,098	5/01-11/15
Mean	2,806	9,240	2,481	1,663	16,095	134	32,887	5,654	496	6,156	55,254	
Gmean	2,096	5,959	1,983	1,498	12,645	62	24,465	3,919	474	4,532	46,723	

Chinook counts include jacks. WDFW counting dates: spring Chinook, May1-June 28; summer Chinook, June 29-August 28; Fall Chinook, August 29-November 15.

*All spring Chinook were trapped for broodstock at Wells Dam; 387 in 1996, and 363 in 1998.

Attachment 3. Wells Dam Annual Ladder Counts of Salmon and Steelhead for a 16-hour Daily Count Period (1967-1997) and 24-hour Daily Count Period from 1998-2006

Year	Chinook Spring	Chinook Summer	Chinook Fall	Chinook Trapped	Chinook Total	Coho	Sockeye	Steelhead	Steelhead Trapped	Steelhead Total	Total Salmonids	Count Dates Include
1967	1,157	12,504	2,732	2,004	18,397	255	113,232	1,474	171	1,645	133,529	5/21-11/19
1968	4,931	8,922	2,623	2,277	18,753	221	81,530	2,112	413	2,525	103,029	5/01-11/15
1969	3,599	6,846	2,929	2,873	16,247	29	17,352	1,391	530	1,921	35,549	5/01-11/15
1970	2,670	8,003	4,388	1,745	16,806	62	50,667	1,597	399	1,996	69,531	5/01-11/15
1971	3,168	5,988	2,030	1,793	12,979	161	48,172	3,782	358	4,140	65,452	4/30-11/15
1972	3,616	4,141	2,419	1,694	11,870	665	33,398	1,894	354	2,248	48,181	4/30-11/15
1973	2,937	5,052	2,650	2,088	12,727	331	37,178	1,820	627	2,447	52,683	4/30-11/15
1974	3,420	4,567	1,114	2,893	11,994	112	16,716	580	260	840	29,662	5/01-10/31
1975	2,225	8,522	3,806	3,253	17,806	25	22,286	517	227	744	40,861	5/01-10/31
1976	2,759	7,901	3,843	2,518	17,021	99	27,619	4,664	337	5,001	49,740	5/01-11/15
1977	4,211	7,527	3,260	2,628	17,626	68	21,973	5,282	355	5,637	45,304	5/01-11/15
1978	3,615	6,419	1,336	2,259	13,629	77	7,458	1,621	356	1,977	23,141	5/01-10/31
1979	1,103	10,080	1,108	2,352	14,643	63	22,655	3,695	367	4,062	41,423	5/01-11/16
1980	1,182	4,892	709	1,827	8,610	82	26,573	3,443	372	3,815	39,080	5/01-11/22
1981	1,935	4,276	686	1,533	8,430	26	28,234	4,096	650	4,746	41,436	5/01-11/22
1982	2,401	3,349	2,064	700	8,514	357	19,005	7,984	590	8,574	36,450	5/01-11/22
1983	2,869	2,821	1,150	942	7,782	82	27,925	19,525	670	20,195	55,984	5/01-11/30
1984	3,280	5,941	1,812	1,094	12,127	104	81,054	16,632	690	17,322	110,607	5/01-11/25
1985	5,257	4,456	2,097	1,689	13,499	72	53,170	19,867	750	20,617	87,358	5/01-11/22
1986	3,150	4,178	1,143	1,118	9,589	87	34,876	13,303	650	13,953	58,505	5/01-11/14
1987	2,344	3,142	3,253	1,275	10,014	42	39,948	5,493	603	6,096	56,100	5/01-11/13
1988	3,036	2,775	1,935	1,364	9,110	75	33,980	4,401	651	5,052	48,217	5/01-10/31
1989	1,740	3,333	1,435	2,147	8,655	14	15,895	4,600	716	5,316	29,880	5/01-10/31
1990	981	3,354	749	1,109	6,193	32	7,597	3,815	735	4,550	18,372	5/01-11/07
1991	779	2,028	827	1,525	5,159	21	27,492	7,751	726	8,477	41,149	5/01-11/15
1992	1,623	1,967	1,503	895	7,980	28	41,844	7,027	658	7,685	57,537	5/01-11/15
1993	2,444	3,603	1,228	1,780	9,055	19	28,038	2,494	633	3,127	40,239	5/01-11/16
1994	257	4,891	3,017	2,287	10,452	3	1,662	2,163	620	2,783	14,900	5/01-11/15
1995	103	3,076	1,229	2,164	6,572	6	4,801	942	619	1,561	12,940	5/01-11/15
1996	*	2,389	917	1,665	4,971	4	17,703	4,128	509	4,637	27,315	5/01-11/15
1997	971	2,721	766	1,655	6,113	8	25,754	4,107	630	4,737	36,612	5/01-11/15
1998	*	4,108	1,200	1,582	6,890	0	4,669	2,984	460	3,444	15,003	5/01-11/15
1999	345	7,787	2,548	938	11,618	224	12,388	3,504	416	3,920	28,150	5/01-11/15
2000	2,587	10,156	3,418	1,327	17,488	0	59,944	6,280	369	6,649	84,081	5/01-11/15
2001	10,871	38,126	9,591	556	59,144	612	74,490	18,528	392	18,920	153,166	5/01-11/15
2002	7,626	62,623	6,472	556	77,277	132	10,768	9,478	373	9,851	98,028	5/01-11/15
2003	4,702	46,391	8,253	556	59,902	168	28,977	9,963	374	10,337	99,384	5/01-11/15
2004	4,793	32,847	5,777	558	43,975	291	78,053	9,317	452	9,769	132,088	5/01-11/15
2005	4,996	31,763	3,461	563	40,783	348	55,559	7,203	417	7,620	104,310	5/01-11/15
2006	4,376	27,196	5,043	575	37,190	409	22,075	6,674	368	7,042	66,716	5/01-11/15

Chinook counts include jacks. WDFW counting dates: spring Chinook, May1-June 28; summer Chinook, June 29-August 28; Fall Chinook, August 29-November 15.

*All spring Chinook were trapped for broodstock at Wells Dam; 387 in 1996, and 363 in 1998.

Attachment 4. Wells Dam Daily Water Quality Report, 2006

Apr-06					May-06					Jun-06					Jul-06				
Date	Turbidity	Water Temp (F)	Forebay TDG	Tailwater TDG	Date	Turbidity	Water Temp (F)	Forebay TDG	Tailwater TDG	Date	Turbidity	Water Temp (F)	Forebay TDG	Tailwater TDG	Date	Turbidity	Water Temp (F)	Forebay TDG	Tailwater TDG
1	0	41	105%	105%	1	9	48	105%	109%	1	5	55	112%	125%	1	10	60	115%	118%
2	0	40	103%	104%	2	7	48	105%	109%	2	7	55	112%	123%	2	10	61	116%	117%
3		40	104%	104%	3	7	48	106%	109%	3	7	55	112%	123%	3	10	62	116%	117%
4	0	40	104%	105%	4	8	48	107%	108%	4	7	55	113%	124%	4	10	62	116%	117%
5	0	40	105%	105%	5	7	48	108%	114%	5	7	55	113%	126%	5	10	62	116%	117%
6	0	40	104%	104%	6	7	49	109%	117%	6	7	56	114%	124%	6	10	61	115%	116%
7		41	104%	104%	7	7	49	109%	110%	7	7	56	116%	124%	7	12	61	113%	115%
8	0	41	104%	107%	8	7	49	108%	114%	8	7	56	115%	122%	8	13	62	114%	115%
9	0	41	104%	107%	9	7	49	108%	114%	9	5	56	115%	123%	9	13	62	116%	117%
10	0	41	105%	105%	10	7	49	108%	111%	10	7	56	114%	127%	10	13	62	116%	117%
11	0	41	104%	112%	11	12	49	110%	112%	11	5	56	116%	126%	11	12	63	116%	116%
12	0	42	104%	109%	12	9	50	109%	111%	12	7	56	116%	127%	12	12	62	115%	116%
13	0	42	104%	111%	13	8	50	109%	110%	13	7	56	115%	125%	13	13	62	113%	114%
14		42	104%	115%	14	8	51	109%	115%	14	7	56	116%	125%	14	13	62	114%	115%
15	0	42	104%	113%	15	7	52	110%	112%	15	7	57	116%	126%	15	13	63	114%	118%
16	0	43	103%	121%	16	5	52	110%	115%	16	7	57	116%	127%	16	12	63	115%	115%
17		43	103%	115%	17	4	52	111%	116%	17	7	56	114%	124%	17	12	63	115%	116%
18	0	43	102%	116%	18	3	53	111%	126%	18	7	57	114%	120%	18	14	63	114%	115%
19	0	44	104%	111%	19	2	53	111%	125%	19	5	57	115%	122%	19	14	63	115%	117%
20		44	105%	113%	20	4	53	110%	113%	20	7	57	115%	123%	20	12	63	115%	116%
21		45	105%	117%	21	4	53	110%	112%	21	7	58	114%	121%	21	12	63	115%	116%
22		45	103%	115%	22	4	52	110%	113%	22	9	57	115%	128%	22	12	64	115%	116%
23	0	45	103%	110%	23	4	52	110%	112%	23	9	58	114%	118%	23	12	65	116%	117%
24	0	46	104%	112%	24	5	53	110%	114%	24	9	59	114%	121%	24	12	65	116%	117%
25	0	46	105%	113%	25	4	53	111%	115%	25	10	59	114%	120%	25	12	65	115%	116%
26	0	46	105%	108%	26	5	53	112%	126%	26	10	59	115%	117%	26	12	65	114%	116%
27		47	104%	107%	27	6	53	113%	128%	27	10	60	116%	118%	27	12	66	114%	115%
28		47	105%	108%	28	6	53	114%	130%	28	10	60	115%	119%	28	12	66	113%	116%
29		48	106%	110%	29	6	54	114%	130%	29	10	60	115%	116%	29	12	66	112%	113%
30	0	48	105%	107%	30	6	54	114%	131%	30	12	60	114%	116%	30	12	66	109%	112%
					31	5	55	114%	120%						31	12	66	109%	111%
Avg	0	43	104%	110%	Avg	6	51	110%	116%	Avg	8	57	114%	123%	Avg	12	63	114%	116%

Attachment 4. Wells Dam Daily Water Quality Report, 2006 (continued)

Aug-06					Sep-06					Oct-06					Nov-06				
Date	Turbidity	Water Temp (F)	Forebay TDG	Tailwater TDG	Date	Turbidity	Water Temp (F)	Forebay TDG	Tailwater TDG	Date	Turbidity	Water Temp (F)	Forebay TDG	Tailwater TDG	Date	Turbidity	Water Temp (F)	Forebay TDG	Tailwater TDG
1	12	66	110%	112%	1	14	68	104%	104%	1	13	66			1	13	59		
2	12	66	110%	112%	2	14	68	105%	105%	2	14	66			2	7	58		
3	12	65	112%	115%	3	13	68	106%	106%	3	14	65			3	13	58		
4	12	65	111%	113%	4	13	68	106%	106%	4	12	65			4	13	58		
5	11	66	110%	112%	5	14	68	106%	106%	5	12	65			5	13	58		
6	11	66	111%	113%	6	14	68	106%	106%	6	13	65			6	13	58		
7	11	66	111%	113%	7	14	68	107%	107%	7	12	65			7	6	58		
8	11	66	111%	113%	8	14	68	107%	107%	8	13	64			8	4	58		
9	11	66	110%	112%	9	12	68	106%	106%	9	13	64			9	4	57		
10	15	66	110%	112%	10	12	68	106%	106%	10	13	64			10	3	55		
11	15	67	109%	110%	11	11	68	106%	106%	11	14	64			11	3	56		
12	14	67	108%	109%	12	10	68	105%	106%	12	11	64			12	3	56		
13	15	67	109%	110%	13	10	68	105%	105%	13	13	64			13	3	56		
14	16	67	109%	111%	14	10	67	103%	104%	14	13	63			14	13	56		
15	15	67	109%	111%	15	12	67	103%	103%	15	13	63			15	13	55		
16	16	67	109%	111%	16	12	66			16	12	63			16		56		
17	16	67	109%	110%	17	12	66			17	13	63			17		55		
18	15	67	108%	110%	18	12	66			18	12	63			18		55		
19	15	67	109%	110%	19	12	66			19	12	63			19		55		
20	15	68	109%	109%	20	12	66			20	13	62			20		54		
21	15	68	109%	110%	21	15	66			21	13	62			21		54		
22	14	68	108%	110%	22	15	66			22	13	62			22		54		
23	14	68	107%	109%	23	15	66			23	13	61			23		53		
24	14	68	107%	110%	24	15	66			24	13	61			24		53		
25	15	68	107%	109%	25	15	66			25	14	61			25		52		
26	14	68	107%	109%	26	15	66			26	13	61			26		52		
27	15	68	107%	107%	27	15	66			27	12	60			27		52		
28	15	68	107%	107%	28	13	66			28	12	60			28		51		
29	14	68	107%	107%	29	13	66			29	13	60			29		50		
30	14	68	105%	105%	30	13	66			30	13	59			30		50		
31	14	67	103%	104%						31	13	59							
Avg	14	67	109%	110%	Avg	13	67	105%	106%	Avg	13	63			Avg	8	55		