



## Fish Passage Center

# Weekly Report #02 - 3

March 29, 2002

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### SUMMARY OF EVENTS:

**Water Supply:** Water Year 2002 continues to be average or better in terms of precipitation and runoff volumes within the Columbia and Snake River Basins. Precipitation was generally average to slightly above average, with respect to the years 1971 through 2000, throughout much of the Columbia region. Table 1 summarizes both early/mid March precipitation and cumulative October through March precipitation at select locations.

**Table 1.** Summary of early/mid March precipitation and cumulative October through March precipitation with respect to average (1971-2000), at select locations within the Columbia and Snake River Basins.

Location	March 1-26, 2002		Cumulative 10-1-01 to 3-26-02	
	Observed (inches)	% Avg	Observed (inches)	% Avg
Columbia Above Coulee	1.86	124	13.58	97
Snake R. Above Ice Harbor	1.47	106	9.31	93
Columbia Above The Dalles	1.86	115	13.70	98
Kootenai	1.45	97	12.03	84
Clark Fork	1.67	166	10.05	114
Flathead	2.15	157	13.05	109
Pend Oreille/Spokane	3.48	150	23.4	119
Central Washington	0.23	34	4.87	84
Snake R. Plain	0.72	76	4.39	74
Clearwater	3.69	157	21.11	116
SW Washington Cascades/Cowlitz	8.36	141	61.18	117
Willamette Valley	6.61	123	50.05	113

Up to March 26, 2002, the highest cumulative precipitation was recorded at the Pend Oreille/Spokane location at 119% of average, up 2% from the previous week. Precipitation at the SW Washington Cascades/Cowlitz location remained steady at 117% of average. Cumulative precipitation over WY 2002 increased 3% with respect to average since 3-19-02 at the Clearwater location. In general, locations that were recording above average precipitation displayed increasing cumulative precipitation with respect to average (% average) over the week from 3-19-02 to 3-26-02. In contrast, locations that were recording below average precipitation generally displayed either decreasing or non-changing cumulative precipitation with respect to average over the last week. From Table 1, six of twelve locations produced precipitation over the start of WY 2002 that were greater than average; only three locations contained precipitation that was less than 90% of average.

The first twenty-six days of March continue to be promising concerning precipitation and resulting water yields. The Clark Fork location recorded precipitation over the mid-point of March that was 166% of average. From Table 1, nine of twelve locations produced precipitation over the mid-point of March that were greater than average; only three locations contained precipitation that was less than average.

According to the March 28, 2002 snow-precipitation update issued by the NRCS, the Grand Ronde, Powder, Burnt, Imnaha and the Lower Columbia at Hood River locations are at 117 and 165 percent of their respective average snow water equivalents.

Average to slightly above average precipitation throughout the Columbia and Snake River Basins continues to result in increased runoff volume forecasts relative to WY 2001. On March 28, 2002, the NWRFC released the April Early-Bird water supply forecast. The Early-Bird water supply forecasts are intended to provide a "best estimate" of the upcoming months forecast. Table 2 displays the 2002 February and March final runoff volume forecasts and the April early-Bird forecast for multiple reservoirs. Overall, the April early-Bird forecasts appear to be increased relative to the March final values (Table 2). Of the ten locations displayed in Table 2, eight of the sites reported increasing forecasts, one site reported no change, and one site reported a decreasing forecast between the March Final and April Early-Bird forecasts.

It is important to point out that the March Final runoff volume forecasts (January to July) at The Dalles, Grand Coulee, and Dworshak were 91%, 95%, and 112% of average, respectively. Additionally, the April Early-Bird forecast for The Dalles, Grand Coulee, and Dworshak were 92%, 99%, and 116%. For comparison, the 2001 March final runoff forecast at the Dalles, Grand Coulee, and Dworshak were 55%, 59%, and 57% of average. The water supply outlook for the WY 2002 is much improved relative to WY 2001.

**Table 2.** February and March 2002 Final Runoff Volume Forecasts and the April Early-Bird forecast for various reservoirs within the Columbia and Snake River Basins. (next column)

Site	February Final		March Final		April Early-Bird	
	Runoff Volume (KAF)	%of Avg	Runoff Volume (KAF)	%of Avg	Runoff Volume (KAF)	%of Avg
Mica (April-Sept)	11500	92	11300	90	11500	92
Hungry Horse (April-Sept)	1910	90	1910	90	2110	99
Libby (April-Sept)	6470	97	6290	95	6590	99
Grand Coulee (Jan-July)	60800	97	60000	95	62000	99
The Dalles (Jan-July)	101000	94	97300	91	98200	92
Brownlee (April-July)	4570	72	4090	65	4110	65
Dworshak (April-July)	3000	113	2950	112	3070	116
Lower Granite (Jan-July)	28200	94	25700	86	25000	83
Heise (ID) (April-July)	2960	83	2710	76	2840	80
Weiser (ID) (April-July)	4090	71	3630	63	3630	63

Operations have varied at the major reservoirs within the Columbia and Snake River Basins. The Hungry Horse, Grand Coulee, and Brownlee reservoirs have been primarily operated for power generation and are currently (3-27-02) below the end of March flood control targets determined by USACE (Table 2). These reservoirs will require between nine and over twenty feet of fill water to reach the end of March flood targets and the April 10<sup>th</sup>, 2002 Biological Opinion Targets.

**Table 3.** USACE determined flood control targets issued in March of 2002 along with actual reservoir elevations for Libby, Hungry Horse, Grand Coulee, Brownlee, and Dworshak. (next page)

Reservoir	Actual Elevation 3/27/02 (ft. Above MSL)	USACE Determined 3/31/02 Flood Control Target (ft. Above MSL)	USACE Determined 4/15/02 Flood Control Target (ft. Above MSL)
Libby	2370.9	2375.0	na
Hungry Horse	3510.0	3531.6	3528.5
Grand Coulee	1260.0	1279.6	1263.2
Brownlee	2043.4	2052.8	2056.3
Dworshak	1517.4	1505.7	1489.7

The Libby reservoir is currently (3-27-02) within 4.1 feet of its end of March flood control target as determined by USACE (Table 3). The Hungry Horse, Grand Coulee, and Brownlee reservoirs are currently 21.6, 19.5, and 9.4 feet below their end of March flood control targets.

The April 10<sup>th</sup> Biological Opinion (BiOp) reservoir targets were estimated by interpolating between the March 31<sup>st</sup> and April 15<sup>th</sup> flood control targets at the Hungry Horse, Grand Coulee, Brownlee, and Dworshak reservoirs. The following April, 10<sup>th</sup> Targets were calculated in feet Above MSL:

- Hungry Horse = 3529.5
- Grand Coulee = 1268.7
- Brownlee = 2055.1
- Dworshak = 1495.0

Based on the estimated April 10<sup>th</sup> BiOp targets, the Hungry Horse, Grand Coulee, and Brownlee reservoirs would have to refill 19.5, 8.7, and 11.7 feet, respectively. The Dworshak reservoir would have to draft 22.4 feet of reservoir water to reach the April 10<sup>th</sup> BiOp Target.

It is important to note that a flood control shift between the Dworshak and Grand Coulee reservoirs is planned by USACE during WY 2002. Essentially, USACE may potentially shift an amount of water at Dworshak equivalent to the difference in local and system flood control. Table 4 displays the local and system flood control targets at Dworshak for March 31<sup>st</sup> and April 15<sup>th</sup> along with the difference in useable storage volumes between local and system flood control.

**Table 4.** Local and system flood control targets at Dworshak for March 31<sup>st</sup> and April 15<sup>th</sup> along with the difference in useable storage volumes at each elevation.

	Local FCE (MSL)	System FCE (MSL)	Useable Storage for shift (KAF)
March 31, 2002	1522.6	1505.7	212.1
April 15, 2002	1530.7	1489.7	499.4

Currently, the Dworshak reservoir has been operated to meet local flood control requirements. Dworshak must be at or below 1522.6 feet above MSL on March 31<sup>st</sup>, 2002 to meet local flood control requirements; the reservoir is currently at 1517.4 feet above MSL, 5.2 feet below the local flood control requirement. Because to the system flood control elevation is below the local flood control requirement, it is allowable to draft Dworshak down to the system requirement of 1505.7 feet above MSL. From Table 4, the possible amount of shifted water, or the difference between the useable storage volumes at each respective March 31<sup>st</sup>, 2002 elevation, is 212.1 KAF. Dworshak is currently drafting water at or near the maximum powerhouse outflow of 10.5 Kcfs. However, according to USACE personnel, Dworshak will not likely draft down to the end of March System Flood Elevation, as this amount of draft would likely require the spilling of some reservoir water.

At the Technical Management Team (TMT) meeting held on 3-27-02, the USACE presented March 2002 QADJ modeling results that predicted the probability of several reservoirs refilling by June 30<sup>th</sup>, as suggested in the BiOp. The results showed Libby to have a 7% chance of refilling by June 30<sup>th</sup> of 2002, but an 88% chance of refill by the end of July. Furthermore, modeling indicated that the Hungry Horse, Grand Coulee, and Dworshak reservoirs would have a 70%, 100% and 58% chance of refill by June 30<sup>th</sup> of 2002.

Over the beginning of WY 2002, reservoirs on the Upper Snake River have been consistently

refilling. Currently, as of March 27, 2002, the entire Upper Snake River System is at 51% of capacity. Individually, American Falls is at 81% of capacity, Palisades is at 31% of capacity, Jackson Lake is at 19% of capacity, Island Park is at 79% of capacity, and Grassy Lake is at 64% of capacity.

**Spill:** No spill has occurred in the system over the past week.

**Smolt Monitoring:** This past week sampling began at Lower Granite Dam on March 25. Sampling was scheduled to begin at McNary Dam as also on the 25th but, due to modifications of the PIT-tag detection system at the project, fish are being diverted to primary bypass at the project until modifications are completed. Sampling will begin April 1 at Little Goose, Lower Monumental and Rock Island dams.

At the Snake River basin SMP traps the yearling chinook continued to be captured at the White Bird Trap in the past week with a weekly high of 2,164 on 3/26 and weekly total of 4,571 which is a 50% increase over the previous 7 days. Nearly all of the fish captured were clipped hatchery fish (97%). It is likely that a good portion of those fish came from continuing volitional releases from Rapid River hatchery, as well as releases into Hazard Creek for the Little Salmon River last week. At the Imnaha Trap a total of 652 yearling chinook were captured this week, nearly half (45%) being wild fish. Fifty yearling chinook were captured at the Grande Ronde Trap this past week. All traps are reporting small numbers of steelhead this week as well.

At Lower Granite Dam passage indices for yearling chinook, steelhead, coho, sockeye and subyearling chinook were all quite low this first week of sampling. Yearling chinook indices ranged from 310 to 380 over the 3-day period March 26th to 28th. Steelhead indices, ranged from 30 to 90 over the same period. At John Day Dam yearling chinook passage indices are low, ranging from 15 to 135 fish per day, but increased slightly over last week. Similarly steelhead indices were higher than last week but remained very low ranging from 5 to 30 fish per

day over the last 7 sampling days. At Bonneville Dam yearling chinook numbers are only 16% of last week with an average daily index of 120 this week compared to 740 last week. Subyearling chinook, probably dominated by fish from the Spring Creek release, continue to pass Bonneville this week, but at much lower numbers than last week. The average daily index this week was 500 compared to 27,000 last week. Small numbers steelhead, coho and sockeye were also sampled at the dam this past week.

**Adult Fish Passage:** Fish counts started at Bonneville Dam on March 15, and at Lower Granite Dam on March 1. Most other COE projects will begin counting adult fish on April 1st. The PUD projects on the Mid-Columbia River will begin on or near April 15 at Priest Rapids, Rock Island and Rocky Reach dams with Wells Dam initiating fish counting near May 1. The FPC Weekly Report will list in a Table; the adult fish counts for the week with the previous year (2001) and the 10-year average through the same ending date so the reader can compare passage throughout the year for the individual species.

At Bonneville Dam, adult spring chinook counted through March 27 total 1,206. This compares to 4,817 in 2001 and 729 for the 10-year average. As noted, this year's total is about 25% of the 2001 count and about 160% of the 10-year average at this early date in the chinook run. Based on a few PIT tagged fish from the Bonneville sites, some marked adult spring chinook are destined for the Snake River basin and the Yakama River basin. The downstream commercial tangle-net season was completed this week with about 14,800 Preliminary Catch reported for the spring fishing effort. One adult spring chinook has been counted at Lower Granite Dam this spring. Winter steelhead will continue to pass Bonneville Dam with a small number of summer steelhead still moving upstream to spawning sites. The total counted through March 27 was 596, and was less than the 2001 total but above the 10-year average. At Lower Granite Dam, steelhead passage ranged

between 56-108 fish per day with the season total through March 26 of 3,300. This compares to about 2,700 in 2001 and 1,800 for the 10-year average.

**Hatchery Releases:** For the past two weeks, approximately 10 million chinook and coho salmon were directly or volitionally released from State, Federal or Tribal facilities in the Columbia River basin. During the next two weeks, about 20.6 million chinook, coho, and steelhead are scheduled for release in the various fish basins. The 2nd release of subyearling fall chinook from Spring Creek NFH will be in the river on March 29. This was moved up from the mid-April schedule due to fish health concerns. The number released will be slightly less than 4 million.

Snake River - For the week, hatchery releases of yearling spring chinook began or are on-going from the Salmon and Imnaha river basins. Also, Dworshak NFH completed their spring chinook release of near 1 million this week. Summer chinook from McCall H have been released in the S. Fk Salmon R drainage. Additional spring chinook will be released in the next two weeks from the upper Grande Ronde R basin as well as the Tucannon R. The remainder of the Clearwater R releases from Clearwater H will be completed during the next few weeks as well. About 560,000 coho were released into Lapwai Creek and Potlatch River during the past week. In early April, on-site release of yearling fall chinook will be started from Lyons Ferry H (direct Snake R releases). The early steelhead releases are nearing completion at the Hells Canyon site in the Snake River. Another 9.5 million additional steelhead will be released in the Snake R basin during April/May.

Mid-Columbia [above McNary Dam] - Volitional releases of spring chinook from the Acclimation Ponds in the Yakama River began in mid March and will continue into June. The Colville Tribal releases of yearling spring chinook salmon are on-going volitional and a direct stream plant in the Okanogan R basin. Most hatcheries will be

releasing yearling spring chinook during mid- to late April, either volitionally or directly from the raceways to the streams. Sockeye in the Mid-Columbia are normally released into Lake Wenatchee (direct releases) during the fall prior to their migration in April through May. Also, steelhead releases in the Mid-Columbia Reach are normally released from mid- to late-April through mid-May from State and Federal hatcheries. Coho will again be released in the Yakama, Wenatchee, and Methow River basins in 2002, normally from Mid-April through late May.

Lower Columbia [Bonneville Dam to McNary Dam] - Yearling spring chinook have been released in the Umatilla, Klickitat and Hood rivers to-date with most other hatchery releases scheduled for mid- to late-April. Yearling "bright" fall chinook were released in the Umatilla River in March. Also coho have been released in the Umatilla River with other releases of coho scheduled for early April through mid-May for other river basins. Normally steelhead are released from mid-April through early May in this River Reach.

**Daily Average Flow and Spill (in kcfs) at Mid-Columbia Projects**

Date	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/15/02	75.7	0.0	78.8	0.0	79.8	0.0	82.7	0.0	86.6	0.0	73.4	0.0	72.8	0.0
03/16/02	68.1	0.0	67.9	0.0	67.7	0.0	67.9	0.0	71.0	0.0	78.8	0.0	81.8	0.0
03/17/02	47.9	0.0	52.5	0.0	54.4	0.0	60.7	0.0	63.2	0.0	71.5	0.0	77.4	0.0
03/18/02	89.1	0.0	92.8	0.0	88.2	0.0	86.6	0.0	91.3	0.0	94.1	0.0	92.1	0.0
03/19/02	78.9	0.0	77.9	0.0	78.3	0.0	78.2	0.0	79.7	0.0	81.2	0.0	86.5	0.0
03/20/02	99.8	0.0	99.9	0.0	97.8	0.0	99.7	0.0	102.1	0.0	96.1	0.0	100.1	0.0
03/21/02	70.4	0.0	76.2	0.0	79.7	0.0	86.6	0.0	90.1	0.0	82.8	0.0	80.6	0.0
03/22/02	47.3	0.0	50.6	0.0	49.3	0.0	48.9	0.0	52.1	0.0	80.3	0.0	91.0	0.0
03/23/02	28.5	0.0	33.5	0.0	31.8	0.0	31.0	0.0	33.0	0.0	52.8	0.0	55.3	0.0
03/24/02	29.3	0.0	33.9	0.0	35.8	0.0	41.3	0.0	42.4	0.0	53.0	0.0	52.7	0.0
03/25/02	48.3	0.0	45.4	0.0	47.5	0.0	46.0	0.0	47.7	0.0	53.2	0.0	52.5	0.0
03/26/02	61.7	0.0	61.9	0.0	63.6	0.0	67.5	0.0	68.7	0.0	48.5	0.0	52.5	0.0
03/27/02	54.5	0.0	57.7	0.0	57.3	0.0	57.0	0.0	59.8	0.0	49.1	0.0	53.5	0.0
03/28/02	49.4	0.0	52.1	0.0	52.1	0.0	52.8	0.0	52.5	0.0	50.5	0.0	53.9	0.0

**Daily Average Flow and Spill (in kcfs) at Snake Basin Projects**

Date	Dworshak		Hells Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/15/02	1.5	0.0	14.5	14.9	31.6	0.0	34.1	0.0	36.5	0.0	34.6	0.0
03/16/02	1.4	0.0	14.6	13.0	31.6	0.0	32.6	0.0	36.6	0.0	37.0	0.0
03/17/02	1.4	0.0	13.4	9.5	21.5	0.0	20.2	0.0	21.7	0.0	21.7	0.0
03/18/02	1.4	0.0	14.0	19.8	28.9	0.0	30.8	0.0	33.6	0.0	34.9	0.0
03/19/02	1.4	0.0	12.9	17.3	32.4	0.0	32.7	0.0	34.1	0.0	33.4	0.0
03/20/02	1.5	0.0	12.9	14.3	29.9	0.0	29.5	0.0	30.9	0.0	29.5	0.0
03/21/02	1.5	0.0	13.6	11.6	27.0	0.0	28.1	0.0	34.1	0.0	35.5	0.0
03/22/02	1.5	0.0	15.0	15.0	24.8	0.0	25.5	0.0	27.2	0.0	27.5	0.0
03/23/02	1.5	0.0	16.2	13.0	32.9	0.0	32.2	0.0	36.5	0.0	33.9	0.0
03/24/02	1.5	0.0	20.8	17.9	35.0	0.0	33.2	0.0	36.2	0.0	34.8	0.0
03/25/02	6.7	0.0	22.5	20.5	46.4	0.0	48.1	0.0	53.4	0.0	53.4	0.0
03/26/02	8.3	0.0	21.2	24.4	54.9	0.0	55.6	0.0	63.4	0.0	62.0	0.0
03/27/02	10.3	0.0	20.9	25.0	57.2	0.0	58.7	0.0	63.4	0.0	66.2	0.0
03/28/02	10.8	0.0	---	---	62.5	0.0	63.6	0.0	67.9	0.0	65.8	0.0

**Daily Average Flow and Spill (in kcfs) at Lower Columbia Projects**

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
03/15/02	130.6	0.0	146.8	0.0	149.0	0.0	162.8	13.7	37.9	104.5
03/16/02	131.3	0.0	136.5	0.0	137.0	0.0	151.6	0.0	36.1	108.8
03/17/02	103.9	0.0	112.7	0.0	113.6	0.0	122.9	0.0	17.3	98.9
03/18/02	113.6	0.0	122.1	0.0	125.8	0.0	129.4	0.0	21.6	101.1
03/19/02	121.0	0.0	126.6	0.0	124.4	0.0	133.1	0.0	21.2	105.2
03/20/02	105.2	0.0	107.0	0.0	109.2	0.0	126.3	0.0	17.4	102.2
03/21/02	123.3	0.0	137.5	0.0	137.2	0.0	144.7	0.0	36.5	101.5
03/22/02	120.5	0.0	127.9	0.0	127.3	0.0	131.4	0.0	26.1	98.6
03/23/02	104.8	0.0	107.7	0.0	107.3	0.0	121.0	0.0	19.6	94.7
03/24/02	82.9	0.0	75.6	0.0	80.6	0.0	118.5	0.0	4.7	107.1
03/25/02	126.5	0.0	143.9	0.0	140.0	0.0	118.5	0.0	5.5	106.3
03/26/02	109.1	0.0	118.3	0.0	119.8	0.0	118.5	0.0	9.8	102.0
03/27/02	117.2	0.0	122.3	0.0	122.1	0.0	134.3	0.0	23.2	104.4
03/28/02	117.6	0.0	117.8	0.0	118.9	0.0	128.9	0.0	20.8	101.4

## Total Dissolved Gas Saturation (%) - Average of 12 Highest Hours, 24 h Average and 24 h High

### Total Dissolved Gas Saturation Data at Upper Columbia River Sites

Date	<u>Hungry H. Dnst</u>			#	<u>Boundary</u>			#	<u>Grand Coulee</u>			#	<u>Grand C. Tlwr</u>			#	<u>Chief Joseph</u>			#
	24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High	
3/15	96	96	97	19	100	100	101	24	102	102	102	24	100	101	101	23	---	---	---	0
3/16	96	96	97	22	101	101	102	24	102	102	102	24	101	102	103	24	---	---	---	0
3/17	95	96	96	17	100	100	102	24	101	102	102	24	101	101	102	24	---	---	---	0
3/18	95	95	96	18	100	101	106	24	101	101	102	24	100	100	101	23	---	---	---	0
3/19	95	95	96	10	101	101	101	24	102	102	102	24	101	101	102	23	---	---	---	0
3/20	95	95	95	1	100	100	101	24	101	101	102	24	99	100	101	23	---	---	---	0
3/21	---	---	---	0	100	101	101	24	100	101	101	24	99	100	101	23	---	---	---	0
3/22	96	96	97	19	101	102	103	24	102	103	103	24	101	102	102	23	---	---	---	0
3/23	96	96	97	16	100	101	101	24	103	103	103	24	104	105	105	23	---	---	---	0
3/24	96	96	97	10	101	101	102	24	103	103	103	24	104	105	107	23	---	---	---	0
3/25	95	95	95	11	101	102	102	24	102	102	103	21	102	102	103	23	---	---	---	0
3/26	96	96	97	17	102	102	102	24	103	103	103	24	102	103	104	23	---	---	---	0
3/27	96	96	97	24	101	102	102	24	103	103	103	24	102	102	104	23	---	---	---	0
3/28	96	96	96	23	101	101	102	24	102	102	103	24	102	103	104	23	---	---	---	0

### Total Dissolved Gas Saturation Data at Mid Columbia River Sites

Date	<u>Chief J. Dnst</u>			#	<u>Wells</u>			#	<u>Wells Dwnstrm</u>			#	<u>Rocky Reach</u>			#	<u>Rocky R. Tlwr</u>			#
	24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High	
3/15	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/16	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/18	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/19	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/20	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/21	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/22	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/23	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/25	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/26	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/27	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/28	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0

### Total Dissolved Gas Saturation at Mid Columbia River Sites

Date	<u>Rock Island</u>			#	<u>Rock I. Tlwr</u>			#	<u>Wanapum</u>			#	<u>Wanapum Tlwr</u>			#	<u>Priest Rapids</u>			#
	24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High		24 h Avg	12 h Avg	High	
3/15	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/16	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/18	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/19	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/20	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/21	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/22	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/23	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/25	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/26	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/27	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/28	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0

## Total Dissolved Gas Saturation (%) - Average of 12 Highest Hours, 24 h Average and 24 h High

### Total Dissolved Gas Saturation Data at Lower Columbia and Snake River Sites

Date	<u>Priest R. Dnst</u>			<u>Pasco</u>				<u>Dworshak</u>				<u>Clrwtr-Peck</u>				<u>Anatone</u>				#
	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	
3/15	---	---	---	0	102	104	104	24	106	107	108	24	---	---	---	0	---	---	---	0
3/16	---	---	---	0	103	103	104	24	107	107	108	24	---	---	---	0	---	---	---	0
3/17	---	---	---	0	101	102	102	24	107	107	108	24	---	---	---	0	---	---	---	0
3/18	---	---	---	0	101	101	102	24	106	106	107	24	---	---	---	0	---	---	---	0
3/19	---	---	---	0	101	102	102	24	105	105	106	24	---	---	---	0	---	---	---	0
3/20	---	---	---	0	100	101	101	24	105	105	107	24	---	---	---	0	---	---	---	0
3/21	---	---	---	0	100	101	101	24	105	106	108	24	---	---	---	0	---	---	---	0
3/22	---	---	---	0	102	103	103	24	106	107	108	24	---	---	---	0	---	---	---	0
3/23	---	---	---	0	103	103	103	24	105	105	106	24	---	---	---	0	---	---	---	0
3/24	---	---	---	0	102	103	103	24	105	105	106	24	---	---	---	0	---	---	---	0
3/25	---	---	---	0	104	104	105	16	102	102	107	10	---	---	---	0	---	---	---	0
3/26	---	---	---	0	104	105	105	24	96	96	96	17	---	---	---	0	---	---	---	0
3/27	---	---	---	0	102	103	104	24	95	95	96	7	98	98	99	12	102	102	103	10
3/28	---	---	---	0	103	104	104	24	95	95	96	8	98	98	99	24	102	102	103	24

### Total Dissolved Gas Saturation Data at Snake River Sites

Date	<u>Clrwtr-Lewiston</u>			<u>Lower Granite</u>				<u>L. Granite Tlwr</u>				<u>Little Goose</u>				<u>L. Goose Tlwr</u>				#
	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	
3/15	---	---	---	0	102	102	103	12	102	103	103	24	---	---	---	0	---	---	---	0
3/16	---	---	---	0	102	102	103	8	103	103	103	24	---	---	---	0	---	---	---	0
3/17	---	---	---	0	101	101	102	10	101	101	102	24	---	---	---	0	---	---	---	0
3/18	---	---	---	0	100	100	100	7	100	100	101	24	---	---	---	0	---	---	---	0
3/19	---	---	---	0	101	101	101	15	101	101	101	24	---	---	---	0	---	---	---	0
3/20	---	---	---	0	100	100	100	7	100	100	100	24	---	---	---	0	---	---	---	0
3/21	---	---	---	0	99	99	100	5	100	100	100	20	---	---	---	0	---	---	---	0
3/22	---	---	---	0	102	102	102	8	101	101	102	24	---	---	---	0	---	---	---	0
3/23	---	---	---	0	102	102	102	9	102	102	102	24	---	---	---	0	---	---	---	0
3/24	---	---	---	0	101	101	102	14	101	101	102	24	---	---	---	0	---	---	---	0
3/25	---	---	---	0	101	101	102	5	101	101	101	20	---	---	---	0	---	---	---	0
3/26	---	---	---	0	101	101	103	6	101	101	102	6	103	103	111	12	101	101	102	12
3/27	100	100	101	15	101	101	102	5	---	---	---	0	101	102	102	24	101	101	101	24
3/28	99	100	101	24	101	101	101	13	101	101	101	13	101	101	102	24	101	101	101	24

### Total Dissolved Gas Saturation Data at Snake and Lower Columbia River Sites

Date	<u>Lower Mon.</u>			<u>L. Mon. Tlwr</u>				<u>Ice Harbor</u>				<u>Ice Harbor Tlwr</u>				<u>McNary-Oregon</u>				#
	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	
3/15	---	---	---	0	---	---	---	0	103	103	103	24	102	102	103	24	102	103	104	24
3/16	---	---	---	0	---	---	---	0	103	103	103	24	102	103	103	24	102	102	102	24
3/17	---	---	---	0	---	---	---	0	102	102	103	24	101	102	102	24	101	102	102	24
3/18	---	---	---	0	---	---	---	0	101	102	102	24	101	101	102	24	101	101	101	24
3/19	---	---	---	0	---	---	---	0	101	102	102	24	102	102	105	24	101	101	102	24
3/20	---	---	---	0	---	---	---	0	100	101	101	24	100	101	101	24	100	101	101	24
3/21	---	---	---	0	---	---	---	0	100	100	100	24	100	100	100	24	100	100	100	24
3/22	---	---	---	0	---	---	---	0	101	102	103	24	101	101	102	24	101	102	102	24
3/23	---	---	---	0	---	---	---	0	102	102	102	24	101	102	103	24	102	102	103	24
3/24	---	---	---	0	---	---	---	0	101	102	102	24	101	102	102	24	102	102	103	24
3/25	---	---	---	0	---	---	---	0	102	102	102	16	101	101	102	15	102	103	105	18
3/26	103	103	103	15	102	102	103	16	102	103	103	24	102	102	103	24	102	103	104	24
3/27	102	102	102	24	102	102	103	24	103	103	103	24	102	102	103	24	101	102	102	24
3/28	101	101	102	24	101	102	102	24	103	103	103	24	102	102	103	24	101	101	102	24



## Total Dissolved Gas Saturation (%) - Average of 12 Highest Hours, 24 h Average and 24 h High

**Total Dissolved Gas Saturation Data at Lower Columbia River Sites**

Date	<u>McNary-Wash</u>			<u>McNary Tlwr</u>			<u>John Day</u>			<u>John Day Tlwr</u>			<u>The Dalles</u>							
	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr
3/15	102	103	103	24	101	102	102	24	---	---	---	0	---	---	---	0	---	---	---	0
3/16	103	103	103	24	102	102	102	24	---	---	---	0	---	---	---	0	---	---	---	0
3/17	102	102	102	24	101	101	101	24	---	---	---	0	---	---	---	0	---	---	---	0
3/18	101	101	101	24	101	101	102	24	---	---	---	0	---	---	---	0	---	---	---	0
3/19	102	102	102	24	102	102	102	24	---	---	---	0	---	---	---	0	---	---	---	0
3/20	100	101	101	24	101	101	102	24	---	---	---	0	---	---	---	0	---	---	---	0
3/21	100	100	100	19	100	100	101	15	---	---	---	0	---	---	---	0	---	---	---	0
3/22	102	102	103	12	102	102	103	10	---	---	---	0	---	---	---	0	---	---	---	0
3/23	102	103	103	24	102	103	103	24	---	---	---	0	---	---	---	0	---	---	---	0
3/24	102	103	103	24	103	103	103	24	---	---	---	0	---	---	---	0	---	---	---	0
3/25	102	102	103	17	102	102	103	17	---	---	---	0	---	---	---	0	---	---	---	0
3/26	103	103	104	24	103	103	103	24	---	---	---	0	---	---	---	0	102	102	103	10
3/27	102	102	103	24	102	102	103	24	101	101	101	14	101	101	102	9	101	101	102	24
3/28	102	102	102	24	102	102	102	24	101	101	101	24	101	102	103	24	101	102	102	24

**Total Dissolved Gas Saturation Data at Lower Columbia River Sites**

Date	<u>The Dalles Dnst</u>				<u>Bonneville</u>				<u>Warrendale</u>				<u>Skamania</u>				<u>CamasWashugal</u>				
	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr	
3/15	---	---	---	0	102	102	103	10	105	106	106	18	103	103	104	24	107	108	109	23	
3/16	---	---	---	0	---	---	---	0	103	103	103	4	102	103	104	24	103	103	104	24	
3/17	---	---	---	0	---	---	---	0	103	103	103	22	102	103	104	24	102	102	103	24	
3/18	---	---	---	0	102	102	103	18	103	103	103	23	102	102	102	24	102	102	102	23	
3/19	---	---	---	0	102	102	102	24	102	102	103	24	102	102	102	24	102	102	102	23	
3/20	---	---	---	0	102	102	102	24	102	103	103	24	101	102	103	24	102	103	103	23	
3/21	---	---	---	0	101	101	101	24	101	102	102	24	98	99	100	24	101	101	101	23	
3/22	---	---	---	0	102	102	102	24	102	103	103	24	100	102	102	24	101	101	102	23	
3/23	---	---	---	0	102	103	103	24	103	104	104	24	102	103	104	24	102	103	104	23	
3/24	---	---	---	0	102	102	103	24	103	103	103	24	102	102	103	24	103	103	103	23	
3/25	---	---	---	0	103	103	103	24	103	103	104	24	103	103	105	24	103	104	105	23	
3/26	103	103	103	11	103	103	103	24	103	104	104	24	103	103	104	24	103	104	104	23	
3/27	102	102	102	23	102	102	103	24	103	103	103	24	102	103	103	24	103	103	103	23	
3/28	102	102	102	23	101	101	102	24	102	102	102	24	101	102	102	24	102	102	103	22	

## HATCHERY RELEASE SUMMARY LAST TWO WEEKS

### Hatchery Release Summary

From: 3/15/02 to 3/28/02

Agency	Hatchery	Species	Race	MigY	NumRel	RelStart	RelEnd	RelSite	RelRiver
Colville Tribe	Winthrop	CH1	SP	2002	265,000	03-18-02	04-15-02	Okanogan R	Okanogan River
<b>Colville Tribe Total</b>					265,000				
IDFG	Clearwater	CH1	SP	2002	350,100	03-25-02	03-25-02	Powell Acclim Pd	Lochsa River
IDFG	Clearwater	CH1	SP	2002	350,500	03-28-02	03-28-02	Red River Acclim Pd	S Fk Clearwater River
IDFG	McCall	CH1	SU	2002	41,700	03-25-02	03-28-02	Knox Bridge	Salmon River
IDFG	McCall	CH1	SU	2002	1,023,000	03-25-02	03-28-02	Knox Bridge	Salmon River
IDFG	Niagara Springs	ST	SU	2002	525,000	03-25-02	04-05-02	Hells Canyon Dam	Snake River
IDFG	Pahsimeroi	CH1	SU	2002	89,944	03-15-02	03-22-02	Pahsimeroi H	Pahsimeroi River
IDFG	Pahsimeroi	CH1	SU	2002	418,500	03-15-02	03-22-02	Pahsimeroi H	Pahsimeroi River
IDFG	Rapid River	CH1	SP	2002	300,000	03-14-02	03-15-02	Hazard Cr/Little Salmon R	Little Salmon River
IDFG	Rapid River	CH1	SP	2002	2,600,000	03-11-02	04-22-02	Rapid River H	Little Salmon River
<b>IDFG Total</b>					5,698,744				
Nez Perce Tribe	McCall	CH1	SU	2002	57,000	03-18-02	03-22-02	Johnson Cr Idaho	South Fork Salmon River
Nez Perce Tribe	Willard	CO	UN	2002	280,000	03-15-02	03-29-02	Lapwai Cr	Clearwater Rvr M F
Nez Perce Tribe	Willard	CO	UN	2002	280,000	03-15-02	03-29-02	Potlatch R	Clearwater Rvr M F
<b>Nez Perce Tribe Total</b>					617,000				
ODFW	Lookingglass	CH1	SP	2002	303,800	03-21-02	04-17-02	Imnaha Acclim Pd	Imnaha River
<b>ODFW Total</b>					303,800				
Umatilla Tribe	Bonneville	CH1	FA	2002	40,000	03-12-02	03-19-02	Umatilla R	Umatilla River
<b>Umatilla Tribe Total</b>					40,000				
USFWS	Dworshak	CH1	SP	2002	500,000	03-25-02	04-05-02	Kooskia H	Clearwater Rvr M F
USFWS	Dworshak	CH1	SP	2002	1,000,000	03-27-02	03-28-02	Dworshak H	Clearwater Rvr M F
USFWS	Kooskia	CH1	SP	2002	50,000	03-25-02	04-05-02	Clear Cr	Clearwater Rvr M F
USFWS	Warm Springs	CH1	SP	2002	582,800	03-26-02	04-18-02	Warm Springs H	Deschutes River
<b>USFWS Total</b>					2,132,800				
Yakima Tribe	Cle Elum	CH1	SP	2002	265,500	03-18-02	06-07-02	Easton Pd	Yakama River
Yakima Tribe	Cle Elum	CH1	SP	2002	288,000	03-18-02	06-07-02	Clark Flat Acclim Pd	Yakama River
Yakima Tribe	Cle Elum	CH1	SP	2002	288,000	03-18-02	06-07-02	Jack Creek Acclim Pd	Yakama River
<b>Yakima Tribe Total</b>					841,500				
<b>Grand Total</b>					9,898,844				

CH = Chinook, ST = Steelhead, CO = Coho, SO = Sockeye, CT = Cutthroat Trout, CM = Chum

## HATCHERY RELEASE SUMMARY NEXT TWO WEEKS

### Hatchery Release Summary

From: **3/29/02** to **4/11/02**

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Colville Tribe	Leavenworth	CH1	SP	2002	50,000	04-02-02	04-02-02	Omak Cr	Okanogan River
Colville Tribe	Winthrop	CH1	SP	2002	265,000	03-18-02	04-15-02	Okanogan R	Okanogan River
<b>Colville Tribe Total</b>					315,000				
IDFG	Clearwater	CH1	SP	2002	206,000	04-10-02	04-10-02	N Fk Clearwater R	Clearwater Rvr M F
IDFG	Clearwater	CH1	SP	2002	732,800	04-01-02	04-01-02	Crooked R Acclim Pd	S Fk Clearwater River
IDFG	Magic Valley	ST	SU	2002	85,000	04-09-02	04-09-02	Little Salmon R	Salmon River
IDFG	Magic Valley	ST	SU	2002	100,000	04-08-02	04-09-02	Squaw Cr Acclim Pd	Salmon River
IDFG	Magic Valley	ST	SU	2002	180,000	04-09-02	04-11-02	Hammer Cr	Salmon River
IDFG	Niagara Springs	ST	SU	2002	445,000	04-06-02	05-05-02	Little Salmon R	Salmon River
IDFG	Niagara Springs	ST	SU	2002	525,000	03-25-02	04-05-02	Hells Canyon Dam	Snake River
IDFG	Rapid River	CH1	SP	2002	2,600,000	03-11-02	04-22-02	Rapid River H	Little Salmon River
IDFG	Sawtooth	CH1	SP	2002	390,000	04-08-02	04-22-02	Sawtooth H	Salmon River
<b>IDFG Total</b>					5,263,800				
Nez Perce Tribe	Clearwater	CH1	SP	2002	20,200	04-01-02	04-19-02	Lochsa R	Clearwater Rvr M F
Nez Perce Tribe	Clearwater	CH1	SP	2002	57,400	04-10-02	04-10-02	Papoose Cr	Lochsa River
Nez Perce Tribe	Clearwater	CH1	SP	2002	81,500	04-01-02	04-19-02	Lochsa R	Clearwater Rvr M F
Nez Perce Tribe	Clearwater	CH1	SP	2002	115,000	04-01-02	04-19-02	Newsome Cr	S Fk Clearwater River
Nez Perce Tribe	Clearwater	CH1	SP	2002	149,300	04-01-02	04-19-02	Lolo Cr	Clearwater Rvr M F
Nez Perce Tribe	Clearwater	CH1	SP	2002	297,500	04-01-02	04-19-02	Meadow Cr	Selway River
Nez Perce Tribe	Clearwater	ST	SU	2002	29,700	04-02-02	04-30-02	Lolo Cr	Clearwater Rvr M F
Nez Perce Tribe	Clearwater	ST	SU	2002	50,000	04-02-02	04-30-02	Meadow Cr	S Fk Clearwater River
Nez Perce Tribe	Hagerman	ST	SU	2002	50,000	04-01-02	05-07-02	Hazard Cr/Little Salmon R	Little Salmon River
Nez Perce Tribe	Hagerman	ST	SU	2002	100,000	04-01-02	05-07-02	American R	S Fk Clearwater River
Nez Perce Tribe	Hagerman	ST	SU	2002	100,000	04-01-02	05-07-02	Newsome Cr	S Fk Clearwater River
Nez Perce Tribe	Hagerman	ST	SU	2002	140,000	04-01-02	05-07-02	Yankee Fk (Salmon R)	Salmon River
Nez Perce Tribe	Hagerman	ST	SU	2002	150,000	04-01-02	05-07-02	Little Salmon R	Salmon River
Nez Perce Tribe	Lookingglass	CH1	SP	2002	31,000	04-01-02	04-15-02	Lostine Accim Pd	Wallowa River
Nez Perce Tribe	Lookingglass	CH1	SP	2002	77,500	04-01-02	04-15-02	Lostine Accim Pd	Wallowa River
Nez Perce Tribe	Lyons Ferry	CH1	FA	2002	150,000	04-09-02	04-17-02	Big Canyon (Clearwater R)	Clearwater Rvr M F
Nez Perce Tribe	Lyons Ferry	CH1	FA	2002	150,000	04-09-02	04-17-02	Cpt John Acclim Pd	Snake River
Nez Perce Tribe	Lyons Ferry	CH1	FA	2002	150,000	04-09-02	04-17-02	Pittsburg Landing	Snake River
Nez Perce Tribe	Willard	CO	UN	2002	280,000	03-15-02	03-29-02	Lapwai Cr	Clearwater Rvr M F
Nez Perce Tribe	Willard	CO	UN	2002	280,000	03-15-02	03-29-02	Potlatch R	Clearwater Rvr M F
<b>Nez Perce Tribe Total</b>					2,459,100				
ODFW	Irrigon	ST	SU	2002	128,500	04-11-02	04-12-02	L Sheep Acclim Pd	Imnaha River
ODFW	Irrigon	ST	SU	2002	174,000	04-10-02	04-12-02	Big Canyon Acclim.Pd	Grande Ronde River
ODFW	Lookingglass	CH1	SP	2002	303,800	03-21-02	04-17-02	Imnaha Acclim Pd	Imnaha River
ODFW	Round Butte	ST	SU	2002	162,000	04-01-02	04-05-02	Bel. Pelton Dam	Deschutes River
ODFW	Wallowa	ST	SU	2002	348,000	04-04-02	04-06-02	Wallowa Acclim Pd	Wallowa River
<b>ODFW Total</b>					1,116,300				
Umatilla Tribe	Bonneville	CH1	FA	2002	260,000	04-10-02	04-19-02	Thornhollow Acclim Pd	Umatilla River
Umatilla Tribe	Cascade	CO	UN	2002	750,000	04-08-02	04-19-02	Pendelton Acclim Pd	Umatilla River
Umatilla Tribe	Lookingglass	CH1	SP	2002	151,388	04-01-02	04-15-02	Grande Ronde Acclim Pd	Grande Ronde River
Umatilla Tribe	Lookingglass	CH1	SP	2002	180,500	04-01-02	04-15-02	Catherine Cr Acclim Pd	Grande Ronde River
Umatilla Tribe	Umatilla	ST	SU	2002	54,000	04-01-02	04-05-02	Bonifer Acclim Pd	Umatilla River

## HATCHERY RELEASE SUMMARY NEXT TWO WEEKS

### Hatchery Release Summary

From: 3/29/02 to 4/11/02

Agency	Hatchery	Species	Race	MiqYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
<b>Umatilla Tribe Total</b>					1,395,888				
USFWS	Dworshak	CH1	SP	2002	500,000	03-25-02	04-05-02	Kooskia H	Clearwater Rvr M F
USFWS	Entiat	CH1	SP	2002	550,000	04-01-02	04-02-02	Entiat H	Entiat River
USFWS	Hagerman	ST	SU	2002	750,000	04-01-02	05-07-02	Sawtooth H	Salmon River
USFWS	Kooskia	CH1	SP	2002	50,000	03-25-02	04-05-02	Clear Cr	Clearwater Rvr M F
USFWS	Warm Springs	CH1	SP	2002	582,800	03-26-02	04-18-02	Warm Springs H	Deschutes River
USFWS	Winthrop	CO	SO	2002	200,000	04-02-02	04-02-02	Winthrop H	Methow River
<b>USFWS Total</b>					2,632,800				
Warm Spgs Tribe	Blackberry Pond	CH1	SP	2002	47,000	04-01-02	04-26-02	Blackberry Acclim Pd	Hood River
Warm Spgs Tribe	Jones Cr Pond	CH1	SP	2002	33,000	04-01-02	04-26-02	Jones Creek Acclim Pd	Hood River
Warm Spgs Tribe	Parkdale Pond	CH1	SP	2002	7,000	04-10-02	04-22-02	Parkdale Acclim Pd	Hood River
Warm Spgs Tribe	Round Butte	CH1	SP	2002	31,000	04-01-02	04-15-02	Parkdale Acclim Pd	Hood River
<b>Warm Spgs Tribe Total</b>					118,000				
WDFW	Lyons Ferry	CH1	FA	2002	600,000	04-01-02	04-15-02	Lyons Ferry H	Snake River
WDFW	Lyons Ferry	ST	SU	2002	45,000	04-01-02	04-30-02	Dayton Acclim Pd	Touchet River
WDFW	Lyons Ferry	ST	SU	2002	60,000	04-10-02	04-30-02	Tucannon H	Tucannon River
WDFW	Lyons Ferry	ST	SU	2002	100,000	04-01-02	04-30-02	Dayton Acclim Pd	Touchet River
WDFW	Lyons Ferry	ST	SU	2002	100,000	04-10-02	04-30-02	Tucannon R	Tucannon River
WDFW	Lyons Ferry	ST	SU	2002	200,000	04-01-02	04-30-02	Cottonwood Acclim Pd	Grande Ronde River
WDFW	Ringold Springs	ST	SU	2002	160,000	04-01-02	04-15-02	Ringold Springs H	Mid-Columbia River
WDFW	Tucannon	CH1	SP	2002	3,000	04-01-02	04-30-02	Curl Lake	Tucannon River
WDFW	Tucannon	CH1	SP	2002	105,000	04-01-02	04-30-02	Curl Lake	Tucannon River
WDFW	Washougal	CO	NO	2002	2,500,000	04-02-02	04-10-02	Klickitat R	Klickitat River
WDFW	Wells	CH1	SU	2002	551,000	04-11-02	04-25-02	Similkameen Acclim Pd	Okanogan River
<b>WDFW Total</b>					4,424,000				
Yakima Tribe	Cle Elum	CH1	SP	2002	265,500	03-18-02	06-07-02	Easton Pd	Yakama River
Yakima Tribe	Cle Elum	CH1	SP	2002	288,000	03-18-02	06-07-02	Clark Flat Acclim Pd	Yakama River
Yakima Tribe	Cle Elum	CH1	SP	2002	288,000	03-18-02	06-07-02	Jack Creek Acclim Pd	Yakama River
<b>Yakima Tribe Total</b>					841,500				
<b>Grand Total</b>					18,566,388				

## Two-Week Summary of Passage Indices

### COMBINED YEARLING CHINOOK

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
03/15/2002 *	78	0	0	1	---	---	---	---	---	---	0
03/16/2002 *	579	0	---	---	---	---	---	---	---	---	2,804
03/17/2002	---	0	---	---	---	---	---	---	---	---	1,354
03/18/2002 *	730	0	0	0	---	---	---	---	---	---	481
03/19/2002 *	545	0	0	0	---	---	---	---	---	40	315
03/20/2002 *	158	0	0	0	---	---	---	---	---	20	104
03/21/2002 *	384	0	12	---	---	---	---	---	---	55	131
03/22/2002 *	565	0	7	---	---	---	---	---	---	135	0
03/23/2002 *	---	0	---	---	---	---	---	---	---	50	76
03/24/2002	---	0	---	---	---	---	---	---	---	65	153
03/25/2002	912	406	11	2	---	---	---	---	---	25	101
03/26/2002	2,164	246	5	9	310	---	---	---	---	125	172
03/27/2002	483	0	5	4	380	---	---	---	---	15	168
03/28/2002	447	0	22	0	330	---	---	---	---	80	171
03/29/2002	---	---	---	---	---	---	---	---	---	115	158
<b>Total:</b>	<b>7,045</b>	<b>652</b>	<b>62</b>	<b>16</b>	<b>1,020</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>725</b>	<b>6,188</b>
<b># Days:</b>	<b>11</b>	<b>14</b>	<b>10</b>	<b>8</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>15</b>
<b>Average:</b>	<b>640</b>	<b>47</b>	<b>6</b>	<b>2</b>	<b>340</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>66</b>	<b>413</b>
<b>YTD</b>	<b>7,198</b>	<b>652</b>	<b>62</b>	<b>16</b>	<b>1,020</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>725</b>	<b>7,270</b>

### COMBINED SUBYEARLING CHINOOK

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
03/15/2002 *	0	0	0	0	---	---	---	---	---	---	197,382
03/16/2002 *	0	0	---	---	---	---	---	---	---	---	166,540
03/17/2002	---	0	---	---	---	---	---	---	---	---	12,186
03/18/2002 *	0	0	0	1	---	---	---	---	---	---	5,927
03/19/2002 *	0	0	0	1	---	---	---	---	---	0	3,718
03/20/2002 *	0	0	0	0	---	---	---	---	---	0	1,672
03/21/2002 *	0	0	1	---	---	---	---	---	---	0	2,624
03/22/2002 *	0	0	2	---	---	---	---	---	---	5	0
03/23/2002 *	---	0	---	---	---	---	---	---	---	0	756
03/24/2002	---	0	---	---	---	---	---	---	---	0	766
03/25/2002	0	0	0	0	---	---	---	---	---	10	605
03/26/2002	0	0	0	1	0	---	---	---	---	0	473
03/27/2002	0	0	0	0	0	---	---	---	---	0	461
03/28/2002	0	0	0	0	10	---	---	---	---	0	494
03/29/2002	---	---	---	---	---	---	---	---	---	0	515
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>15</b>	<b>394,119</b>
<b># Days:</b>	<b>11</b>	<b>14</b>	<b>10</b>	<b>8</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>15</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>26,275</b>
<b>YTD</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>4</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>15</b>	<b>799,143</b>

\*The total, #days and average do not include the current day's data. \*See sampling comments. [http://www.fpc.org/current daily/smpcomments.htm](http://www.fpc.org/current%20daily/smpcomments.htm). This means that one or more of the sites on this date had an incomplete or biased sample.

These data are preliminary and have been derived from various sources. For verification and/or origin of these data, contact the operators of the Fish Passage Data System at (503) 230-4099.

Smolt indices, clipped & unclipped or combined, are presented in the following order: yearling chinook (chinook 1's), subyearling chinook (chinook 0's), steelhead, coho, and sockeye. Two classes of fish counts are shown in these tables: collection counts, which account for sample rates but are not adjusted for flow; and passage indices, which are collection counts divided by the proportion of water passing through the sampled powerhouse. Passage indices are not population estimates, but are used to adjust collection counts for daily fluctuations in the site's or project's operations. The classes of counts presented in the report are defined below for each site. Most samples occur over a 24-hr period that spans two calendar days. In this report, the date shown corresponds with the sample end date.

## Two-Week Summary of Passage Indices

### COMBINED COHO

Date	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/15/2002 *	0	0	0	0	---	---	---	---	---	---	0
03/16/2002 *	0	0	---	---	---	---	---	---	---	---	0
03/17/2002	---	0	---	---	---	---	---	---	---	---	0
03/18/2002 *	0	0	0	0	---	---	---	---	---	---	0
03/19/2002 *	0	0	0	0	---	---	---	---	---	0	0
03/20/2002 *	0	0	0	0	---	---	---	---	---	0	23
03/21/2002 *	0	0	0	---	---	---	---	---	---	5	12
03/22/2002 *	0	0	0	---	---	---	---	---	---	0	0
03/23/2002 *	---	0	---	---	---	---	---	---	---	5	50
03/24/2002	---	0	---	---	---	---	---	---	---	5	12
03/25/2002	0	0	0	0	---	---	---	---	---	0	0
03/26/2002	0	0	0	0	0	---	---	---	---	0	0
03/27/2002	0	0	0	0	0	---	---	---	---	0	11
03/28/2002	0	0	0	0	0	---	---	---	---	0	5
03/29/2002	---	---	---	---	---	---	---	---	---	5	6
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>119</b>
<b># Days:</b>	<b>11</b>	<b>14</b>	<b>10</b>	<b>8</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>15</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>8</b>
<b>YTD</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>119</b>

### COMBINED STEELHEAD

Date	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/15/2002 *	0	0	0	0	---	---	---	---	---	---	0
03/16/2002 *	0	0	---	---	---	---	---	---	---	---	0
03/17/2002	---	0	---	---	---	---	---	---	---	---	0
03/18/2002 *	0	0	0	2	---	---	---	---	---	---	0
03/19/2002 *	0	0	0	0	---	---	---	---	---	0	0
03/20/2002 *	0	0	0	0	---	---	---	---	---	10	0
03/21/2002 *	0	0	0	---	---	---	---	---	---	5	0
03/22/2002 *	0	0	0	---	---	---	---	---	---	10	0
03/23/2002 *	---	0	---	---	---	---	---	---	---	15	0
03/24/2002	---	0	---	---	---	---	---	---	---	25	0
03/25/2002	0	6	0	1	---	---	---	---	---	5	10
03/26/2002	0	9	1	5	30	---	---	---	---	30	11
03/27/2002	0	0	2	0	80	---	---	---	---	20	11
03/28/2002	0	0	0	1	90	---	---	---	---	15	11
03/29/2002	---	---	---	---	---	---	---	---	---	15	19
<b>Total:</b>	<b>0</b>	<b>15</b>	<b>3</b>	<b>9</b>	<b>200</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>150</b>	<b>62</b>
<b># Days:</b>	<b>11</b>	<b>14</b>	<b>10</b>	<b>8</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>15</b>
<b>Average:</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>67</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>4</b>
<b>YTD</b>	<b>0</b>	<b>15</b>	<b>3</b>	<b>10</b>	<b>200</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>150</b>	<b>62</b>

## Two-Week Summary of Passage Indices

### COMBINED SOCKEYE

Date	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/15/2002 *	0	0	0	0	---	---	---	---	---	---	0
03/16/2002 *	0	0	---	---	---	---	---	---	---	---	0
03/17/2002	---	0	---	---	---	---	---	---	---	---	0
03/18/2002 *	0	0	0	0	---	---	---	---	---	---	0
03/19/2002 *	0	0	0	0	---	---	---	---	---	0	0
03/20/2002 *	0	0	0	1	---	---	---	---	---	0	0
03/21/2002 *	0	0	0	---	---	---	---	---	---	0	0
03/22/2002 *	0	0	0	---	---	---	---	---	---	0	0
03/23/2002 *	---	0	---	---	---	---	---	---	---	0	13
03/24/2002	---	0	---	---	---	---	---	---	---	0	0
03/25/2002	0	0	0	1	---	---	---	---	---	0	10
03/26/2002	0	0	0	0	20	---	---	---	---	0	11
03/27/2002	0	0	0	0	30	---	---	---	---	0	0
03/28/2002	0	0	0	0	20	---	---	---	---	0	5
03/29/2002	---	---	---	---	---	---	---	---	---	5	5
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>70</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>44</b>
<b># Days:</b>	<b>11</b>	<b>14</b>	<b>10</b>	<b>8</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>15</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>23</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>
<b>YTD</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>70</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>44</b>

#### Definitions for Smolt Index Counts

WTB (Collection) = Salmon River Trap at Whitebird : Collection Counts

IMN (Collection) = Imnaha River Trap : Collection Counts

GRN (Collection) = Grande Ronde River Trap : Collection Counts

LEW (Collection) = Snake River Trap at Lewiston : Collection Counts

LGR (Index) = Lower Granite Dam Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

LGS (Index) = Little Goose Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

LMN (Index) = Lower Monumental Dam Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

RIS (Index) = Rock Island Dam Second Powerhouse Bypass Trap : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill)}

MCN (Index) = McNary Dam Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

JDA (Index) = John Day Dam Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

BO2 (Index) = Bonneville Dam Second Powerhouse Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill)}

BO1 (Index) = Bonneville Dam First Powerhouse Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse 1 Flow / (Powerhouse 1 & 2 Flow + Spill)}

JDA and BO2 data collected for the FPC by Pacific States Marine Fisheries Commission.

RIS data collected for the FPC by Chelan Co. PUD/Washington Dept. of Fish and Wildlife.

LGR, LMN, and MCN data collected for the FPC by Washington Dept. of Fish and Wildlife.

LGS and GRN data collected for the FPC by Oregon Dept. of Fish and Wildlife.

IMN data collected for the FPC by the Nez Perce Tribe.

**Cumulative Adult Passage at Mainstem Dams Through: 03/27**

DAM	Spring Chinook						Summer Chinook						Fall Chinook					
	2002		2001		10-Yr Avg.		2002		2001		10-Yr Avg.		2002		2001		10-Yr Avg.	
	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	1,206	0	4,817	4	729	1	0	0					0	0				
TDA	---	---					---	---					---	---				
JDA	---	---					---	---					---	---				
MCN	---	---					---	---					---	---				
IHR	---	---					---	---					---	---				
LMN	---	---					---	---					---	---				
LGS	---	---					---	---					---	---				
LWG	1	0					0	0					0	0				
PRD	---	---					---	---					---	---				
RIS	---	---					---	---					---	---				
RRH	---	---					---	---					---	---				
WEL	---	---					---	---					---	---				

DAM	Coho						Sockeye			Steelhead			
	2002		2001		10-Yr Avg.		2002		2001	10-Yr Avg.	10-Yr		Wild
	Adult	Jack	Adult	Jack	Adult	Jack	2002	2001	Avg.	2002	2001	Avg.	2002
BON	0	0					0			596	747	506	27
TDA	---	---					---			---			---
JDA	---	---					---			---			---
MCN	---	---					---			---			---
IHR	---	---					---			---			---
LMN	---	---					---			---			---
LGS	---	---					---			---			---
LWG	0	0					0			3,300	2,739	1,804	169
PRD	---	---					---			---			**
RIS	---	---					---			---			---
RRH	---	---					---			---			---
WEL	---	---					---			---			---

BO2 through March 27, LGR through March 26.

\*\*PRD is not reporting Wild Steelhead numbers.

These numbers were collected from the COE's Running Sums text files.

Wild steelhead numbers are included in the total.

Historic counts (pre-1996) were obtained from CRITFC and compiled by the FPC.

Historic counts 1997 to present were obtained from the Corps of Engineers.



### Two Week Transportation Summary

		03/16/02		TO		03/29/02	
		Species					
Site	Data	CH1	SO	ST	Grand Total		
<b>LGR</b>	Sum of NumberCollected	1,020	70	200	1,290		
	Sum of NumberBarged	0	0	0	0		
	Sum of NumberBypassed	0	0	0	0		
	Sum of NumberTrucked	680	47	108	835		
	Sum of TotalProjectMortalities	12	3	2	17		
Total Sum of NumberCollected		1,020	70	200	1,290		
Total Sum of NumberBarged		0	0	0	0		
Total Sum of NumberBypassed		0	0	0	0		
Total Sum of NumberTrucked		680	47	108	835		
Total Sum of TotalProjectMortalities		12	3	2	17		

### YTD Transportation Summary

		TO: 03/29/02					
		Species					
Site	Data	CH1	SO	ST	Grand Total		
<b>LGR</b>	Sum of NumberCollected	1,020	70	200	1,290		
	Sum of NumberBarged	0	0	0	0		
	Sum of NumberBypassed	0	0	0	0		
	Sum of NumberTrucked	680	47	108	835		
	Sum of TotalProjectMortalities	12	3	2	17		
Total Sum of NumberCollected		1,020	70	200	1,290		
Total Sum of NumberBarged		0	0	0	0		
Total Sum of NumberBypassed		0	0	0	0		
Total Sum of NumberTrucked		680	47	108	835		
Total Sum of TotalProjectMortalities		12	3	2	17		