



Fish Passage Center

Weekly Report #01 - 2

March 23, 2001

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SUMMARY OF EVENTS:

Water Supply: Although precipitation increased in some subbasins last week, in most subbasins precipitation was scarce. The highest precipitation for the period of March 1-20, 106% of average, was recorded in Central Washington and the lowest precipitation, 36% of average, was recorded in the Upper Snake.

The Columbia above Grand Coulee received 72% of average precipitation, the Snake River above Ice Harbor received 60% of average precipitation and the Columbia above The Dalles received 70% of average precipitation for the March 1-20 period. The cumulative precipitation for October through March for the Columbia above Grand Coulee was 57% of average, for the Columbia above The Dalles was 59% of average, and for the Snake River above Ice Harbor was 71% of average.

Runoff Volumes have been significantly decreasing since January. Monthly decreases were in the range of 2% to 10%. The largest cumulative decreases were recorded at Brownlee, which went from 61% of average in January to 41% of average in March, and Libby which decreased from 73% of average in January to 53% of average in March. The latest March Midmonth Runoff Volume Forecast for the major sites in the basin is showing continued decreases for all major sites, except for Mica, which increased by 1%. The largest decreases from March mid month to March final are projected for Hungry

Horse, which decreased 5%, from 60% to 55% and Mid Snake and Upper Snake projects dropped 4%. The Summary of the Runoff Volume Forecasts is given in the following Table:

Site	February Final		March Final		March Midmonth	
	Runoff Volume [KAF]	% of avg	Runoff Volume [KAF]	% of avg	Runoff Volume [KAF]	% of avg
<i>Mica (April-Sept.)</i>	9990	78	9620	76	9780	77
<i>Hungry Horse (Apr-Sep)</i>	1320	60	1320	60	1200	55
<i>Libby (April-Sep.)</i>	4180	62	3570	53	3550	52
<i>Grand Coulee (Jan-July)</i>	41200	65	37600	59	37000	58
<i>The Dalles (January-July)</i>	66400	63	58600	55	57600	54
<i>Brownlee (April-July)</i>	2850	49	2390	41	2160	37
<i>Dworschak (April-July)</i>	1800	67	1550	57	1500	56
<i>Lower Granite (Jan-July)</i>	18800	63	16300	55	15700	53
<i>Heise (ID) (April-July)</i>	2230	65	2170	63	2050	59
<i>Weiser (ID) (April-July)</i>	2620	48	2230	41	2000	37

Reservoir Operations: Reservoirs are operated for power generation needs and far below required end of month flood control elevations. Under the current conditions of low water supply it is highly unlikely that reservoirs will be refilled by the end of June as required by Biological Opinion of 2000. A summary of the actual elevations and required flood control elevations at the end of March is shown in the following Table:

Reservoir	Actual Elev. as of March 22, 2001 [ft]	Required End of March Flood Control Elev. [ft]	Maximum Reservoir pool [ft]
<i>Libby</i>	2388.46	2448.0	2459
<i>Hungry Horse</i>	3493.1	3555.2	3560
<i>Grand Coulee</i>	1223.4	1283.3	1290
<i>Brownlee</i>	2073.84*	2077.0	2077
<i>Dworshak</i>	1506.22	1581.8	1600

* as of March 21

Libby reservoir is operating on a minimum outflow of 4 kcfs. Inflows are in the range of 1.9 kcfs-3.3 kcfs for the period of March 16-22.

Hungry Horse is operating on minimum outflow of 2.47-2.58 kcfs to meet the required minimum of 3.5 kcfs at Columbia Falls. Inflows were in the range of 0.31 to 1.73 kcfs for the period of March 16-22.

Grand Coulee is operating at outflow to maintain minimum tailwater elevation below Bonneville for protection of chum redds. The most current outflows were in the range of 44.2 kcfs-76.7 kcfs for the period of March 16-22. For the same period, inflows were in the range of 65.2 kcfs-80.4 kcfs.

Brownlee is operating up to required flood control elevations. The outflows at Hells Canyon Dam project are in the range of 8.85 kcfs to 16.66 kcfs for the period of March 16-22. The Brownlee inflows are in the range of 12.05 kcfs to 13.85 kcfs for the same period.

Dworshak is operating at a minimum outflow of 1.5 kcfs. Inflow has been increased during the previous week due to local snowmelt and it was fluctuating between 2.2 kcfs and 5.7 kcfs for the period of March 16-22.

Upper Snake projects continue with refill since fall. Currently, as of March 22, the system is at 74% of capacity; American Falls is at 95% of capacity, Palisades is at 45% of capacity and Jackson Lake is at 75 % of capacity.

Flows: Requested flow operations for this period include maintaining flows below Bonneville for protection of chum redds. Fishery Agencies re-

quested minimum flows of 142 kcfs since December 21, to maintain minimum tailwater elevation of 13 ft below Bonneville. The most recent decision of BPA is to maintain flows in the range of 120 kcfs-125 kcfs from mid March through the end of March. Flows were fluctuating between 116.3 kcfs and 140.1 kcfs for the period of March 16-22, depending of the power generation demands.

The other flow request for fall/winter period includes a provision of flows below Priest Rapids for protection of redds at Vernita Bar. Redd counts on November 19, 2000 determined the minimum required protection flow of 65 kcfs for the season 2000-2001. The hydro-system has been operated for maintaining this minimum flow during the entire season.

Spill: There was no spill reported for Snake, Mid-Columbia or Lower Columbia projects over the past week.

Smolt Monitoring: This week saw large increases in the collection of yearling chinook at the traps on the lower Salmon (WTB) and Imnaha (IMN) rivers beginning March 20. In the first eight days of monitoring at Bonneville Dam Powerhouse 2, daily passage indices of yearling chinook have remained fairly steady (averaging 323 fish/day). Spring Creek Hatchery fall chinook (subyearling) passage at Bonneville Dam has been winding down. Much of this week saw Bonneville Dam subyearling chinook passage indices ranging between 2,500 and 5,000 fish. Monitoring at Bonneville Dam was curtailed the past two days of this reporting period to allow for repairs in the Powerhouse 2 sampling facility.

Adult Fish Passage: Fish counts will be starting April 1 at most COE projects with exception of Bonneville Dam (March 15) and Lower Granite Dam (March 1). 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 starting May 1. The FPC Weekly Report will list in a Table; the adult fish counts for the week with the previous year (2000) 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, approximately 1,100 adult spring chinook salmon were counted during the past 7 days (through 3/21) with one jack chinook counted on March 19. The high daily (8-hr) count was 416 on March 19. Numbers of adult spring chinook will continue to increase through April. The counts of steelhead have averaged nearly 50/day since March 8, with the total through March 20 about 950. At Lower Granite Dam, adult steelhead are migrating upstream to their spawning sites. Most steelhead passing the project are those that have over-wintered in the Snake or Columbia rivers.

Hatchery Releases:

Snake River – For the week, hatchery releases of yearling spring Chinook began or are on-going from the Salmon River (Rapid River Hatchery), Imnaha River and Clearwater River basins. As noted in the table, these fish are being released volitionally at Rapid River and Imnaha hatcheries. This year's projected release of 3,000,000 spring Chinook will be far below the normal production of 8-million from the Snake River basin. About 560,000 coho were released into Lapwai Creek and Potlatch River during the week. Initial steelhead releases will begin in the next 2-week period.

Mid-Columbia [above McNary Dam] – Spring chinook production in the Mid-Columbia is also projected to be lower than the previous two years. Volitional releases of spring chinook from the Acclimation Ponds in the Yakama River began in mid-March and will continue through May. Most

hatcheries will be releasing yearling spring chinook during the latter half of April either volitionally or directly from the raceways to the streams. Sockeye in the Mid-Columbia are normally released into Lake Wenatchee from net pens and into Lake Osoyoos (direct releases) during the fall prior to their migration in April through May.

Lower Columbia [McNary Dam to above Bonneville Dam]– Yearling spring chinook have been released in the Umatilla, Klickitat, and Hood Rivers to date with most other hatchery releases scheduled for April. The initial release of subyearling fall chinook (5.3 million) was completed from Spring Creek National Fish Hatchery on March 8th with the first yearling release of “bright” fall chinook made March 12 in the Umatilla River. Presently, coho salmon are being released in the Umatilla River basin.

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
03/09/01	80.1	0.0	83.4	0.0	84.6	0.0	90.3	0.0	87.4	0.0	92.0	0.0	95.9	0.0
03/10/01	61.8	0.0	62.7	0.0	61.5	0.0	59.7	0.0	61.1	0.0	67.4	0.0	77.4	0.0
03/11/01	52.9	0.0	55.2	0.0	53.1	0.0	51.5	0.0	53.5	0.0	75.1	0.0	70.6	0.0
03/12/01	87.8	0.0	86.1	0.0	85.9	0.0	87.1	0.0	87.3	0.0	75.0	0.0	85.1	0.0
03/13/01	88.9	0.0	94.3	0.0	92.0	0.0	91.7	0.0	96.6	0.0	85.3	0.0	84.7	0.0
03/14/01	81.3	0.0	86.0	0.0	86.8	0.0	87.6	0.0	87.9	0.0	90.3	0.0	94.6	0.0
03/15/01	87.9	0.0	87.8	0.0	85.5	0.0	84.7	0.0	88.3	0.0	93.3	0.0	99.6	0.0
03/16/01	73.8	0.0	74.8	0.0	75.9	0.0	76.2	0.0	77.8	0.0	78.7	0.0	82.7	0.0
03/17/01	49.8	0.0	54.2	0.0	50.7	0.0	47.1	0.0	51.0	0.0	68.1	0.0	72.5	0.0
03/18/01	44.2	0.0	43.1	0.0	43.7	0.0	41.9	0.0	41.0	0.0	57.5	0.0	70.1	0.0
03/19/01	71.7	0.0	74.5	0.0	79.3	0.0	83.5	0.0	86.5	0.0	79.3	0.0	70.7	0.0
03/20/01	77.9	0.0	79.9	0.0	77.7	0.0	77.2	0.0	77.0	0.0	73.8	0.0	75.4	0.0
03/21/01	76.7	0.0	81.5	0.0	82.8	0.0	85.8	0.0	91.0	0.0	80.1	0.0	82.6	0.0
03/22/01	61.5	0.0	61.6	0.0	60.8	0.0	---	---	---	---	79.1	0.0	82.7	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
03/09/01	1.5	0.0	15.3	8.8	28.3	0.0	28.5	0.0	29.8	0.0	28.8	0.0
03/10/01	1.5	0.0	15.6	8.8	26.1	0.0	26.9	0.0	28.7	0.0	29.3	0.0
03/11/01	1.5	0.0	14.5	11.4	20.9	0.0	21.3	0.0	21.9	0.0	21.9	0.0
03/12/01	1.5	0.0	15.4	14.6	23.0	0.0	23.3	0.0	24.6	0.0	25.5	0.0
03/13/01	1.5	0.0	13.6	14.1	25.9	0.0	27.2	0.0	28.1	0.0	27.4	0.0
03/14/01	1.5	0.0	13.7	16.3	31.5	0.0	31.2	0.0	33.0	0.0	34.3	0.0
03/15/01	1.5	0.0	13.3	14.4	26.6	0.0	27.2	0.0	27.7	0.0	25.9	0.0
03/16/01	1.5	0.0	13.2	12.2	32.3	0.0	33.2	0.0	34.7	0.0	34.9	0.0
03/17/01	1.5	0.0	12.1	8.9	26.3	0.0	27.3	0.0	29.3	0.0	29.8	0.0
03/18/01	1.5	0.0	12.9	12.9	23.1	0.0	24.3	0.0	24.2	0.0	23.3	0.0
03/19/01	1.4	0.0	12.5	16.7	24.7	0.0	26.8	0.0	30.7	0.0	32.9	0.0
03/20/01	1.5	0.0	13.9	15.8	34.9	0.0	38.2	0.0	37.3	0.0	36.2	0.0
03/21/01	1.5	0.0	---	---	36.1	0.0	34.0	0.0	35.0	0.0	33.3	0.0
03/22/01	1.5	0.0	---	---	35.5	0.0	37.6	0.0	40.0	0.0	41.1	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		
03/09/01	127.6	0.0	119.8	0.0	120.8	0.0	117.8	0.0	38.6	70.4
03/10/01	117.5	0.0	111.1	0.0	110.4	0.0	116.8	12.0	0.6	95.4
03/11/01	103.0	0.0	109.3	0.0	109.0	0.0	117.7	23.6	0.5	84.7
03/12/01	99.0	0.0	109.2	0.0	112.0	0.0	120.0	23.6	1.2	86.3
03/13/01	106.6	0.0	102.7	0.0	108.3	0.0	118.2	11.7	1.7	95.8
03/14/01	123.4	0.0	127.8	0.0	119.6	0.0	118.8	0.0	6.9	103.0
03/15/01	118.2	0.0	119.8	0.0	119.3	0.0	120.4	0.0	10.9	100.6
03/16/01	120.5	0.0	133.1	0.0	134.8	0.0	135.7	0.0	21.0	105.7
03/17/01	117.9	0.0	113.8	0.0	110.9	0.0	123.5	0.0	12.3	101.9
03/18/01	92.4	0.0	98.0	0.0	103.3	0.0	116.3	0.0	6.5	100.5
03/19/01	102.6	0.0	106.9	0.0	105.8	0.0	134.8	0.0	22.3	103.2
03/20/01	113.0	0.0	117.9	0.0	118.1	0.0	133.1	0.0	17.2	106.7
03/21/01	108.8	0.0	123.4	0.0	125.9	0.0	124.6	0.0	10.7	104.7
03/22/01	136.0	0.0	137.8	0.0	138.6	0.0	140.1	0.0	23.3	107.6

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	Hungry H. Dnst			Boundary			Grand Coulee			Grand C. Tlwr			Chief Joseph			#				
	24 h		12 h	24 h		12 h	24 h		12 h	24 h		12 h	24 h		12 h					
	Avg	Avg	High	#	Avg	Avg	High	#	Avg	Avg	High	#	Avg	Avg	High		#			
3/9	---	---	---	0	102	103	103	24	102	102	102	23	102	102	103	23	---	---	---	0
3/10	---	---	---	0	102	103	103	24	102	102	102	23	102	103	103	19	---	---	---	0
3/11	---	---	---	0	102	103	104	24	102	102	102	23	103	104	105	23	103	103	112	14
3/12	---	---	---	0	103	103	104	24	102	102	103	23	102	102	103	23	103	103	103	24
3/13	---	---	---	0	103	104	105	24	103	103	103	23	103	103	105	23	103	104	104	24
3/14	---	---	---	0	102	103	103	24	102	102	102	23	102	102	104	23	103	103	103	24
3/15	---	---	---	0	103	104	104	24	102	103	103	23	102	103	104	23	103	103	104	24
3/16	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/17	---	---	---	0	102	103	103	24	102	102	103	24	103	103	105	24	103	103	103	24
3/18	---	---	---	0	102	103	103	24	102	103	103	24	103	104	105	24	103	103	104	24
3/19	---	---	---	0	103	103	103	24	102	103	103	23	103	103	104	23	103	103	104	24
3/20	---	---	---	0	103	104	104	24	102	102	103	23	102	103	104	23	103	103	104	23
3/21	---	---	---	0	103	104	104	24	102	103	103	23	103	103	104	23	103	104	104	24
3/22	---	---	---	0	103	104	105	24	103	103	104	23	103	104	106	23	104	105	105	24

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

Date	Chief J. Dnst			Wells			Wells Dwnstrm			Rocky Reach			Rocky R. Tlwr			#				
	24 h		12 h	24 h		12 h	24 h		12 h	24 h		12 h	24 h		12 h					
	Avg	Avg	High	#	Avg	Avg	High	#	Avg	Avg	High	#	Avg	Avg	High		#			
3/9	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/10	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/11	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/12	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/13	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/14	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/15	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/16	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/18	104	105	105	18	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/19	105	105	106	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/20	104	105	106	23	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/21	105	106	107	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/22	106	107	108	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0

Total Dissolved Gas Saturation at Mid Columbia River Sites

Date	Rock Island			Rock I. Tlwr			Wanapum			Wanapum Tlwr			Priest Rapids			#				
	24 h		12 h	24 h		12 h	24 h		12 h	24 h		12 h	24 h		12 h					
	Avg	Avg	High	#	Avg	Avg	High	#	Avg	Avg	High	#	Avg	Avg	High		#			
3/9	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/10	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/11	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/12	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/13	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/14	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
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

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	Priest R. Dnst			Pasco			Dworshak			Clwtr-Peck			Anatone			#				
	24 h 12 h			# 24 h 12 h			# 24 h 12 h			# 24 h 12 h			# 24 h 12 h							
	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High		hr	Avg	Avg	High
3/9	---	---	---	0	103	103	104	24	107	108	111	24	---	---	---	0	---	---	---	0
3/10	---	---	---	0	103	104	105	24	107	107	108	24	---	---	---	0	---	---	---	0
3/11	---	---	---	0	103	104	104	24	107	108	109	24	---	---	---	0	---	---	---	0
3/12	---	---	---	0	103	104	105	24	107	108	109	24	---	---	---	0	---	---	---	0
3/13	---	---	---	0	103	103	104	24	107	108	110	24	---	---	---	0	---	---	---	0
3/14	---	---	---	0	102	103	104	24	105	106	107	24	---	---	---	0	---	---	---	0
3/15	---	---	---	0	103	103	104	24	106	106	108	24	---	---	---	0	---	---	---	0
3/16	---	---	---	0	103	103	104	24	106	106	107	24	---	---	---	0	---	---	---	0
3/17	---	---	---	0	103	104	104	24	---	---	---	0	---	---	---	0	---	---	---	0
3/18	---	---	---	0	104	104	105	24	108	108	110	24	---	---	---	0	---	---	---	0
3/19	---	---	---	0	104	104	104	4	108	109	111	20	---	---	---	0	---	---	---	0
3/20	---	---	---	0	---	---	---	0	107	108	110	18	---	---	---	0	---	---	---	0
3/21	---	---	---	0	---	---	---	0	104	105	107	24	102	102	104	12	103	103	104	6
3/22	---	---	---	0	---	---	---	0	105	107	108	24	102	103	104	24	103	104	106	22

Total Dissolved Gas Saturation Data at Snake River Sites

Date	Clwtr-Lewiston			Lower Granite			L. Granite Tlwr			Little Goose			L. Goose Tlwr			#				
	24 h 12 h			# 24 h 12 h			# 24 h 12 h			# 24 h 12 h			# 24 h 12 h							
	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High		hr	Avg	Avg	High
3/9	---	---	---	0	103	103	103	24	103	103	103	24	---	---	---	0	---	---	---	0
3/10	---	---	---	0	104	104	104	24	103	104	104	24	---	---	---	0	---	---	---	0
3/11	---	---	---	0	103	104	104	24	103	104	104	24	---	---	---	0	---	---	---	0
3/12	---	---	---	0	104	104	111	23	104	104	104	23	---	---	---	0	---	---	---	0
3/13	---	---	---	0	104	105	105	22	104	105	105	24	---	---	---	0	---	---	---	0
3/14	---	---	---	0	103	103	104	24	103	103	104	24	---	---	---	0	---	---	---	0
3/15	---	---	---	0	104	104	104	24	104	104	105	24	---	---	---	0	---	---	---	0
3/16	---	---	---	0	102	103	103	24	103	103	104	24	---	---	---	0	---	---	---	0
3/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/18	---	---	---	0	102	103	103	24	102	103	103	24	---	---	---	0	---	---	---	0
3/19	---	---	---	0	102	102	103	24	102	102	103	24	---	---	---	0	---	---	---	0
3/20	---	---	---	0	103	103	104	18	102	102	102	18	106	106	107	7	104	104	104	6
3/21	102	102	104	8	103	103	105	24	102	102	103	23	106	106	107	24	104	105	105	24
3/22	102	104	106	24	104	104	106	23	103	103	103	24	106	107	108	24	105	105	106	24

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

Date	Lower Mon.			L. Mon. Tlwr			Ice Harbor			Ice Harbor Tlwr			McNary-Oregon			#				
	24 h 12 h			# 24 h 12 h			# 24 h 12 h			# 24 h 12 h			# 24 h 12 h							
	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High		hr	Avg	Avg	High
3/9	---	---	---	0	---	---	---	0	103	103	104	24	102	102	103	24	104	104	105	24
3/10	---	---	---	0	---	---	---	0	103	103	104	24	103	103	104	24	105	106	107	24
3/11	---	---	---	0	---	---	---	0	103	103	103	24	103	103	104	24	105	105	105	24
3/12	---	---	---	0	---	---	---	0	103	103	104	24	103	103	104	24	104	105	105	24
3/13	---	---	---	0	---	---	---	0	104	104	105	24	103	104	105	24	104	105	105	24
3/14	---	---	---	0	---	---	---	0	103	103	103	23	102	103	103	23	104	104	105	24
3/15	---	---	---	0	---	---	---	0	103	104	104	20	103	103	103	24	104	105	106	24
3/16	---	---	---	0	---	---	---	0	103	104	104	24	103	103	104	24	104	104	104	24
3/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	104	104	106	24
3/18	---	---	---	0	---	---	---	0	104	104	105	24	103	104	104	24	104	105	107	24
3/19	---	---	---	0	---	---	---	0	104	104	104	21	104	104	105	24	104	104	105	11
3/20	---	---	---	0	103	103	105	9	104	105	105	16	104	104	105	18	106	107	109	14
3/21	104	105	106	18	103	104	105	24	105	106	108	24	104	105	106	24	105	106	108	24
3/22	105	105	106	24	104	104	105	24	106	107	109	24	105	105	106	24	106	107	109	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		12 h	#	24 h		12 h	#	24h		12h	#	24h		12h	#	24h		12h	#
	Avg	Avg	High		hr	Avg	Avg		High	hr	Avg		Avg	High	hr		Avg	Avg	High	
3/9	103	103	104	24	103	103	103	24	---	---	---	0	---	---	---	0	---	---	---	0
3/10	104	105	105	24	104	104	105	24	---	---	---	0	---	---	---	0	---	---	---	0
3/11	104	104	105	24	104	104	104	24	---	---	---	0	---	---	---	0	---	---	---	0
3/12	104	104	104	24	103	104	104	24	---	---	---	0	---	---	---	0	---	---	---	0
3/13	104	104	105	24	104	104	105	24	---	---	---	0	---	---	---	0	---	---	---	0
3/14	103	103	103	24	103	103	104	24	---	---	---	0	---	---	---	0	---	---	---	0
3/15	104	104	104	24	104	104	104	24	---	---	---	0	---	---	---	0	---	---	---	0
3/16	103	103	104	24	103	103	103	24	---	---	---	0	---	---	---	0	---	---	---	0
3/17	103	103	104	24	103	103	103	24	---	---	---	0	---	---	---	0	---	---	---	0
3/18	104	104	105	24	103	104	104	24	---	---	---	0	---	---	---	0	---	---	---	0
3/19	103	104	104	23	103	103	104	12	---	---	---	0	---	---	---	0	---	---	---	0
3/20	104	104	106	17	104	104	105	14	---	---	---	0	---	---	---	0	---	---	---	0
3/21	106	107	109	24	105	105	106	24	---	---	---	0	---	---	---	0	---	---	---	0
3/22	107	107	108	24	106	106	107	24	---	---	---	0	---	---	---	0	---	---	---	0

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>Camas\Washugal</u>			
	24 h		12 h	#	24 h		12 h	#	24h		12h	#	24h		12h	#	24h		12h	#
	Avg	Avg	High		hr	Avg	Avg		High	hr	Avg		Avg	High	hr		Avg	Avg	High	
3/9	---	---	---	0	105	106	106	24	105	106	106	24	106	106	107	24	106	107	107	23
3/10	---	---	---	0	105	105	106	24	106	106	111	24	106	106	110	24	106	106	107	23
3/11	---	---	---	0	104	104	104	24	109	113	114	24	107	109	110	24	107	108	111	23
3/12	---	---	---	0	103	103	104	24	109	112	114	22	106	108	109	24	108	110	111	23
3/13	---	---	---	0	103	103	104	23	108	111	114	23	106	108	109	23	106	108	110	23
3/14	---	---	---	0	102	103	103	22	103	103	103	24	103	103	103	24	104	105	107	23
3/15	---	---	---	0	104	104	104	24	103	104	104	24	104	104	106	24	103	103	104	23
3/16	---	---	---	0	103	104	104	24	103	103	103	23	104	104	104	24	103	104	104	24
3/17	---	---	---	0	104	104	104	24	103	103	104	24	104	104	104	24	103	103	104	24
3/18	---	---	---	0	104	104	104	24	104	104	104	24	104	104	104	24	103	104	104	24
3/19	---	---	---	0	103	104	104	18	103	104	105	24	104	104	104	24	104	105	106	23
3/20	---	---	---	0	104	104	105	17	104	104	105	17	104	105	105	17	104	105	106	17
3/21	---	---	---	0	105	105	106	23	104	104	105	24	105	105	105	24	104	106	106	23
3/22	---	---	---	0	105	106	106	22	104	105	106	22	105	106	106	24	105	107	107	23

Hatchery Release Summary

From: 3/9/01 to 3/22/01

IDFG								
Hatchery	Species	Race	MigYr	NumRel	RelStart	RelFinish	RelSite	RelRiver
Rapid River	Chinook Yearling	SP	2001	736,000	03/15/2001	04/25/2001	Rapid River H	Little Salmon River
IDFG Total				736,000				
Nez Perce Tribe								
Hatchery	Species	Race	MigYr	NumRel	RelStart	RelFinish	RelSite	RelRiver
Clearwater	Chinook Yearling	SP	2001	155,000	03/19/2001	03/30/2001	Lolo Cr	Clearwater Rvr M F
Clearwater	Chinook Yearling	SP	2001	155,000	03/19/2001	03/30/2001	Newsome Cr	S Fk Clearwater River
Willard	Coho	UN	2001	286,504	03/14/2001	03/14/2001	Lapwai Cr	Clearwater Rvr M F
Willard	Coho	UN	2001	275,688	03/16/2001	03/16/2001	Potlatch R	Clearwater Rvr M F
Nez Perce Tribe Total				872,192				
ODFW								
Hatchery	Species	Race	MigYr	NumRel	RelStart	RelFinish	RelSite	RelRiver
Imnaha	Chinook Yearling	SP	2001	123,000	03/21/2001	04/19/2001	Imnaha Acclim Pd	Imnaha River
ODFW Total				123,000				
Umatilla Tribe								
Hatchery	Species	Race	MigYr	NumRel	RelStart	RelFinish	RelSite	RelRiver
Umatilla	Chinook Yearling	SP	2001	340,000	03/09/2001	03/09/2001	Imeques Acclim Pd	Umatilla River
L White Salmon	Chinook Yearling	SP	2001	175,000	03/10/2001	03/20/2001	Imeques Acclim Pd	Umatilla River
Bonneville	Chinook Yearling	FA	2001	240,000	03/16/2001	03/16/2001	Thornhollow Acclim Pd	Umatilla River
Lower Herman C	Coho	UN	2001	750,000	03/10/2001	03/20/2001	Pendelton Acclim Pd	Umatilla River
Umatilla Tribe Total				1,505,000				
WDFW								
Hatchery	Species	Race	MigYr	NumRel	RelStart	RelFinish	RelSite	RelRiver
Klickitat	Chinook Yearling	SP	2001	610,000	03/07/2001	03/11/2001	Klickitat H	Klickitat River
WDFW Total				610,000				
Warm Spgs Tribe								
Hatchery	Species	Race	MigYr	NumRel	RelStart	RelFinish	RelSite	RelRiver
Parkdale Pond	Chinook Yearling	SP	2001	7,000	03/19/2001	03/19/2001	Parkdale Acclim Pd	Hood River
Warm Spgs Tribe Total				7,000				
Yakima Tribe								
Hatchery	Species	Race	MigYr	NumRel	RelStart	RelFinish	RelSite	RelRiver
Cle Elum	Chinook Yearling	SP	2001	266,600	03/15/2001	05/31/2001	Easton Pd	Yakama River
Cle Elum	Chinook Yearling	SP	2001	257,700	03/15/2001	05/31/2001	Jack Creek Acclim Pd	Yakama River
Cle Elum	Chinook Yearling	SP	2001	232,700	03/15/2001	05/31/2001	Clark Flat Acclim Pd	Yakama River
Yakima Tribe Total				757,000				
GRAND TOTAL				4,610,192				

Hatchery Release Summary

From: 3/23/01 to 4/5/01

IDFG

Hatchery	Species	Race	MigYr	NumRel	RelStart	RelFinish	RelSite	RelRiver
Niagara Springs	Steelhead	SU	2001	550,000	03/26/2001	04/07/2001	Hells Canyon Dam	Snake River
McCall	Chinook Yearling	SU	2001	88,500	03/26/2001	03/31/2001	S Fk Salmon R	Salmon River
McCall	Chinook Yearling	SU	2001	1,077,900	03/26/2001	03/31/2001	S Fk Salmon R	Salmon River
IDFG Total				1,716,400				

Nez Perce Tribe

Hatchery	Species	Race	MigYr	NumRel	RelStart	RelFinish	RelSite	RelRiver
Hagerman	Steelhead	SU	2001	164,000	04/02/2001	04/10/2001	Little Salmon R	Salmon River
Lookingglass	Chinook Yearling	SP	2001	134,800	04/01/2001	04/15/2001	Lostine Accim Pd	Grande Ronde River
Lookingglass	Chinook Yearling	SP	2001	142,400	04/01/2001	04/15/2001	Catherine Cr Acclim Pd	Grande Ronde River
Clearwater	Chinook Yearling	SP	2001	155,000	03/19/2001	03/30/2001	Lolo Cr	Clearwater Rvr M F
Hagerman	Steelhead	SU	2001	50,000	04/02/2001	04/02/2001	Hazard Cr/Little Salmon R	Little Salmon River
Clearwater	Chinook Yearling	SP	2001	155,000	03/19/2001	03/30/2001	Newsome Cr	S Fk Clearwater River
Nez Perce Tribe Total				801,200				

ODFW

Hatchery	Species	Race	MigYr	NumRel	RelStart	RelFinish	RelSite	RelRiver
Big Canyon	Steelhead	SU	2001	87,000	04/06/2001	04/07/2001	Big Canyon Acclim	Grande Ronde River
Wallowa	Steelhead	SU	2001	174,000	04/01/2001	04/15/2001	Wallowa Acclim Pd	Grande Ronde River
Lookingglass	Chinook Yearling	SP	2001	2,500	04/01/2001	04/15/2001	Grande Ronde Acclim Pd	Grande Ronde River
Round Butte	Steelhead	SU	2001	169,000	04/02/2001	04/09/2001	Bel. Pelton Dam	Deschutes River
Round Butte	Chinook Yearling	SP	2001	302,000	04/02/2001	04/19/2001	Bel. Pelton Dam	Deschutes River
Wallowa	Steelhead	SU	2001	174,000	03/30/2001	03/31/2001	Wallowa Acclim Pd	Grande Ronde River
ODFW Total				908,500				

Hatchery Release Summary

From: 3/23/01 to 4/5/01

Umatilla Tribe

Hatchery	Species	Race	MigYr	NumRel	RelStart	RelFinish	RelSite	RelRiver
Umatilla	Steelhead	SU	2001	53,000	04/02/2001	04/06/2001	Minthorn Acclim Pd	Umatilla River

Umatilla Tribe Total **53,000**

USFWS

Hatchery	Species	Race	MigYr	NumRel	RelStart	RelFinish	RelSite	RelRiver
Dworshak	Chinook Yearling	SP	2001	333,000	04/02/2001	04/09/2001	Dworshak H	Clearwater Rvr M F
Warm Springs	Chinook Yearling	SP	2001	785,000	03/25/2001	04/18/2001	Warm Springs H	Warm Springs River
Entiat	Chinook Yearling	SP	2001	400,000	04/02/2001	04/06/2001	Entiat H	Entiat River
Kooskia	Chinook Yearling	SP	2001	81,600	04/01/2001	04/01/2001	Kooskia H	Clearwater Rvr M F

USFWS Total **1,599,600**

WDFW

Hatchery	Species	Race	MigYr	NumRel	RelStart	RelFinish	RelSite	RelRiver
Tucannon	Chinook Yearling	SP	2001	100,000	04/02/2001	04/13/2001	Curl Lake	Tucannon River
Lyons Ferry	Chinook Yearling	FA	2001	450,000	04/02/2001	04/13/2001	Lyons Ferry H	Snake River
Lyons Ferry	Steelhead	SU	2001	100,000	03/26/2001	04/30/2001	Dayton Acclim Pd	Touchet River
Lyons Ferry	Steelhead	SU	2001	40,000	04/02/2001	04/30/2001	Dayton Acclim Pd	Touchet River
Lyons Ferry	Steelhead	SU	2001	200,000	03/26/2001	04/30/2001	Cottonwood Acclim Pd	Grande Ronde River
Wells	Chinook Yearling	SU	2001	633,600	04/02/2001	04/27/2001	Similkameen Acclim Pd	Similkameen River
Washougal	Coho	SO	2001	2,800,000	04/02/2001	04/14/2001	Klickitat R	Klickitat River
Ringold Springs	Steelhead	SU	2001	225,000	04/02/2001	04/15/2001	Ringold Springs H	Mid-Columbia River

WDFW Total **4,548,600**

GRAND TOTAL **9,627,300**

Two-Week Summary of Passage Indices

COMBINED YEARLING CHINOOK

Date	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/09/2001	---	3	---	---	---	---	---	---	---	---	---
03/10/2001	---	2	---	---	---	---	---	---	---	---	---
03/11/2001	---	2	---	---	---	---	---	---	---	---	---
03/12/2001	0	9	0	0	---	---	---	---	---	---	---
03/13/2001 *	0	3	0	0	---	---	---	---	---	---	463
03/14/2001	3	15	1	0	---	---	---	---	---	---	249
03/15/2001	0	30	5	0	---	---	---	---	---	---	256
03/16/2001	9	---	0	0	---	---	---	---	---	---	401
03/17/2001	---	102	---	---	---	---	---	---	---	---	372
03/18/2001	---	106	---	---	---	---	---	---	---	---	150
03/19/2001	77	94	0	0	---	---	---	---	---	---	377
03/20/2001	115	465	0	0	---	---	---	---	---	---	315
03/21/2001 *	201	982	1	0	---	---	---	---	---	---	0
03/22/2001 *	147	790	19	0	---	---	---	---	---	---	0
03/23/2001 *	---	---	---	---	---	---	---	---	---	---	337
Total:	552	2,603	26	0	0	0	0	0	0	0	2,920
# Days:	9	13	9	9	0	0	0	0	0	0	11
Average:	61	200	3	0	0	0	0	0	0	0	265

COMBINED SUBYEARLING CHINOOK

Date	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/09/2001	---	0	---	---	---	---	---	---	---	---	---
03/10/2001	---	0	---	---	---	---	---	---	---	---	---
03/11/2001	---	0	---	---	---	---	---	---	---	---	---
03/12/2001	0	0	0	0	---	---	---	---	---	---	---
03/13/2001 *	0	0	0	0	---	---	---	---	---	---	59,454
03/14/2001	0	0	0	0	---	---	---	---	---	---	31,679
03/15/2001	0	0	0	0	---	---	---	---	---	---	18,041
03/16/2001	0	---	0	0	---	---	---	---	---	---	5,075
03/17/2001	---	0	---	---	---	---	---	---	---	---	4,760
03/18/2001	---	0	---	---	---	---	---	---	---	---	3,024
03/19/2001	0	0	0	0	---	---	---	---	---	---	2,531
03/20/2001	0	0	0	0	---	---	---	---	---	---	4,782
03/21/2001 *	0	0	0	1	---	---	---	---	---	---	225
03/22/2001 *	0	0	0	0	---	---	---	---	---	---	0
03/23/2001 *	---	---	---	---	---	---	---	---	---	---	2,132
Total:	0	0	0	1	0	0	0	0	0	0	131,703
# Days:	9	13	9	9	0	0	0	0	0	0	11
Average:	0	0	0	0	0	0	0	0	0	0	11,973

*The total, #days and average do not include the current day's data. *See sampling comments. <http://www.fpc.org/current/daily/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 SOCKEYE

Date	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/09/2001	---	0	---	---	---	---	---	---	---	---	---
03/10/2001	---	0	---	---	---	---	---	---	---	---	---
03/11/2001	---	0	---	---	---	---	---	---	---	---	---
03/12/2001	0	0	0	0	---	---	---	---	---	---	---
03/13/2001 *	0	0	0	0	---	---	---	---	---	---	0
03/14/2001	0	0	0	0	---	---	---	---	---	---	0
03/15/2001	0	0	0	0	---	---	---	---	---	---	0
03/16/2001	0	---	0	0	---	---	---	---	---	---	0
03/17/2001	---	0	---	---	---	---	---	---	---	---	0
03/18/2001	---	0	---	---	---	---	---	---	---	---	0
03/19/2001	0	0	0	0	---	---	---	---	---	---	0
03/20/2001	0	0	0	0	---	---	---	---	---	---	0
03/21/2001 *	0	0	0	0	---	---	---	---	---	---	0
03/22/2001 *	0	0	0	0	---	---	---	---	---	---	0
03/23/2001 *	---	---	---	---	---	---	---	---	---	---	0
Total:	0	0	0	0	0	0	0	0	0	0	0
# Days:	9	13	9	9	0	0	0	0	0	0	11
Average:	0	0	0	0	0	0	0	0	0	0	0

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 03/21

DAM	Spring Chinook						Summer Chinook						Fall Chinook					
	2001		2000		10-Yr Avg.		2001		2000		10-Yr Avg.		2001		2000		10-Yr Avg.	
	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	1,135	1	50	2	73	0	0	0	0	0	0	0	0	0	0	0	0	0
TDA	---	---					---	---					---	---				
JDA	---	---					---	---					---	---				
MCN	---	---					---	---					---	---				
IHR	---	---					---	---					---	---				
LMN	---	---					---	---					---	---				
LGS	---	---					---	---					---	---				
LWG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PRD	---	---					---	---					---	---				
RIS	---	---					---	---					---	---				
RRH	---	---					---	---					---	---				
WEL	---	---					---	---					---	---				

DAM	Coho						Sockeye			Steelhead			
	2001		2000		10-Yr Avg.		10-Yr Avg.			10-Yr			Wild
	Adult	Jack	Adult	Jack	Adult	Jack	2001	2000	Avg.	2001	2000	Avg.	2001
BON	0	0	0	0	0	0	0	0	0	382	285	236	105
TDA	---	---					---			---			---
JDA	---	---					---			---			---
MCN	---	---					---			---			---
IHR	---	---					---			---			---
LMN	---	---					---			---			---
LGS	---	---					---			---			---
LWG	0	0	0	0	0	0	0	0	0	1,990	1,031	1,256	247
PRD	---	---					---			---			---
RIS	---	---					---			---			---
RRH	---	---					---			---			---
WEL	---	---					---			---			---

LGR is through 03/20

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

Wild steelhead numbers are included in the total.

***PRD is not reporting Wild Steelhead numbers.

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.