



Fish Passage Center

Weekly Report #00 - 2

March 17, 2000

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PLEASE NOTE:

The Fish Passage Center Weekly Report is available on Friday of each week by 4:00 p.m. on our internet homepage at www.fpc.org. If you can get the information from the website, you will get your information sooner and help us utilize our resources more efficiently by saving postage and paper costs. We can also send the report via email. Reduced use of paper also helps the environment. Please let us know if you want to be taken off the weekly report mailing list or if you would rather receive the report by email rather than snail mail. You can email us at fpctestaff@fpc.org. Thanks!

SUMMARY OF EVENTS:

Water Supply: The cumulative precipitation for the October through March period for the Columbia above Coulee is 110% of normal, for the Snake River above Ice Harbor is 95% of normal, and for the Columbia at The Dalles is 98% of normal. Precipitation for the period of March 1-14 is for the Columbia above Coulee, 109% of normal, for the Snake River above Ice Harbor, 77% of normal, and for the Columbia above The Dalles, 98% of normal. Subbasins with the highest precipitation were the Northeast Washington basin, with 208%, and the Central Washington basin, with 199% of normal for the period of March 1-14. The lowest precipitation for the same period was recorded in Clark Fork, with 46% of normal, and at Clearwater with 41% of normal. Snowpack continues to be average or below average for the most of the basin.

Reservoir Operations: Reservoirs continue to be operated for power generation and flood control during fall and winter. A summary of actual elevations and required flood control elevations at the end of March is shown in the following Table:

Reservoir	Actual Elev. as of March 16, 2000 [ft]	Required End of March Flood Control Elevation [ft]	Max. Reservoir Pool [ft]
<i>Libby</i>	2336.73	2331.3	2459.0
<i>Hungry Horse</i>	3506.86	3516.5	3560.0
<i>Grand Coulee</i>	1262.90	1272.0	1290.0
<i>Brownlee</i>	2054.60	2053.1	2077.0
<i>Dworshak</i>	1516.45	1512.2	1600.0

Libby reservoir began refill in order to meet the 95 BiOp and the sturgeon BiOp, which includes refill to full pool elevation by June 30 and sturgeon pulse flows in the May-June period. The reservoir is at minimum outflow of 4 kcfs as of March 14.

Hungry Horse reservoir continues to be drafted below required flood control elevation. Current outflows were in the range of 3.44 kcfs-4.72 kcfs for the period of March 10-16.

Grand Coulee reservoir was drafted for power generation purposes below the required flood control elevations during the winter. Current outflows were in the range of 70 kcfs-168.5 kcfs for the period of March 10-16.

Brownlee reservoir is currently 1.5 ft above the required end of March flood control elevation. Current outflows below Hells Canyon Dam were in the range of 15.93 kcfs to 23.12 kcfs for the period of March 10-16.

Dworshak reservoir continues to be operated for flood control through the end of March. There is currently a request for the Nez Pierce tribe, to maintain 9.5 kcfs at the Peck gauge to facilitate hatchery water intake. Current outflows are at full powerhouse capacity of 10.8 kcfs for the period of March 10-16.

Flows: Requested flow operations for this period include, maintenance of 65 kcfs instantaneous flow at Priest Rapids Dam, spill for fall chinook passage at Bonneville Dam, and flow at Bonneville Dam to protect chum redds at Ives Island. The Salmon Managers requested in SOR 200-03 flows of 265 kcfs for the Spring Creek Hatchery release of tule fall chinook and depth compensation for the protection of the chum redds below Bonneville from high levels of total dissolved gas in the tailrace of the dam. The Action Agencies provided lower than the requested flows, citing concern that providing higher flows in March might result in not meeting the Biological Opinion requested target elevations on April 10. Resulting flows at Bonneville during the period of March 9-16 were in the range of 198.9 kcfs-211.5 kcfs.

Spill: Some spill has occurred at the Mid-Columbia projects over the past week. The only spill that occurred in the Federal Columbia River Power System was at Bonneville Dam for the Spring Creek hatchery release. The hatchery released approximately 8-million tule fall chinook on the morning of March 9, 2000. The original request made by the fishery agencies and tribes was for flows of 265 Kcfs to assure the provision of the 120% TDGS spill level and the maintenance of sufficient water depth for gas compensation over the chum and fall chinook redds at Ives Island complex. The Action Agencies (Bonneville, US Army Corps of Engineers and the Bureau of Reclamation) responded by providing flows ranging from daily averages of 199 Kcfs to 211 Kcfs. At these flows spill levels were reduced because adequate depths for gas compensation could not be provided over the redds. In addition, the migration appears to have been delayed by the lower flows and peaked about a day later than historically observed. The numbers after seven days of spill were an order of magnitude greater than observed in past years prompting the fishery agencies and tribes to request spill on a day-by-day basis for the remainder of the requested ten day spill period. The Action Agencies, citing the cost of spill and the numbers of fish as justification, denied this request.

Spill for fish passage was terminated at 2000 hours on March 16, 2000.

Total dissolved gas supersaturation levels are registering from 1-4% above 100, in spite of the fact that no spill is occurring in the system. It is unclear why the monitors are reading high. Dissolved gas levels below Bonneville Dam never approached the 120% tailrace limit contained in the water quality waivers as measured at the Warrendale monitor during the Spring Creek spill period.

Smolt Monitoring Program. Large numbers of yearling chinook have been collected at the Salmon River trap (WTB) this week. Over 96% of the collected chinook are apparently from the 463,000 smolt release of Clearwater River Hatchery reared Rapid River stock which were outplanted in Rapid River beginning March 6. Some of these smolts may be arriving at Lewiston since all but one yearling chinook collected in the Snake River trap (LEW) was of hatchery origin. All yearling chinook collected this week in the traps on the Imnaha (IMN) and Grande Ronde (GRN) rivers are of wild origin.

In the lower Columbia River, the March 9 release of Spring Creek Hatchery fall tule chinook peaked in passage at Bonneville Dam during the 24 hr sample period ending 0700 March 12. Initial movement of these fish appears slower than usual. Typically the peak is seen within the first 24 hours after release. A passage index of over one million subyearling chinook occurred on the peak day at Bonneville Dam

Adult Fish Passage: All adult fish passage facilities should be operating at full criteria levels at Columbia and Snake River dams. Grant PUD is completing work on a large valve that supplies water to the Right Bank Fishway; the work should be completed early next week. Fish counting will be initiated at most COE projects on April 1 with the Mid-Columbia projects beginning mid-April. Fish counting began March 1st at Lower Granite and March 15th at Bonneville Dam. Fish counts can be found on the FPC website: www.fpc.org. In our Weekly Report Table, the current (year 2000) count will be listed at each project, the previous

year's total (1999), and 10-year average through the same ending date, generally Wednesday or Thursday of the Report week.

At Lower Granite Dam, the spring migration of adult steelhead is proceeding with 646 counted through March 12. About 11% of the steelhead past the project were classed as "wild". So far, this total is less than the 1999 and 10-year average.

The first official count day (March 15) at Bonneville had 58 steelhead and 4 spring chinook passing the counting windows. The steelhead count included 31 "wild" fish in the total. Pre-season estimates of spring chinook made by the Technical Advisory Committee are for 134,000 to pass Bonneville Dam this year. Of these fish, the majority, greater than 90%, are projected to be 4-year old fish, i.e., from the 1998 migration year. The projected numbers, though far greater than in previous years, will still be comprised mainly of hatchery fish with minimal numbers of "wild" fish in the Run.

Hatchery Releases - Projected numbers of hatchery fish to be released above Bonneville Dam should again exceed 80 million for the year. Many Basin hatcheries are nearer production levels this year compared to previous years.

Snake River - A small portion of the Year 2000 migration of spring chinook were released from some acclimation ponds and streams in fall 1999. Those fish released during the 1999 fall should migrate during year 2000. Approximately 2.46 million yearling spring chinook will be volitionally migrating from the ponds at Rapid River Hatchery from March 16 through about mid-April. Approximately 48,000 of these fish are PIT tagged and will be exiting through the new PIT tag detection system installed at the exit from one large pond. These fish are part of the larger Comparative Survival Study that is on-going in the Snake River. A release of 463,000 into Rapid River, below the hatchery was completed the previous week. Most yearling releases of spring, summer, and fall chinook will be occurring during the next month. Most steelhead for the Snake Basin will be released in April and May. Coho will be released into

the Clearwater Basin this season at selected sites.

Mid-Columbia - (above McNary Dam)

Yakama Tribal Supplementation Facilities began volitional release of yearling chinook this week that will end on June 1. Yearling chinook from the Methow, Entiat, and Wenatchee River basins will mainly occur in mid-April. The yearling spring chinook from Ringold H. have been in the Columbia River since January. Juvenile steelhead and coho salmon will be released in April and May from Mid-Columbia hatcheries. Sockeye were released into Lake Wenatchee and the Okanogan R this past fall (1999). Yearling summer chinook releases will occur mainly in April with subyearling summer and fall chinook released from late May to late June.

Lower Columbia - (from above Bonneville Dam to below McNary Dam). As noted in last week's Report, yearling spring chinook were released in the Umatilla and Klickitat rivers with yearling fall chinook also released in the Umatilla River. The large release of subyearling fall chinook (Tules) was completed with most of those fish already past Bonneville Dam. Juvenile steelhead and coho releases will mainly occur in April in this Zone. No summer chinook or sockeye are released in this Zone.

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
03/03/00	93.9	0.0	95.7	0.0	96.5	0.0	97.4	0.0	96.4	0.0	89.2	0.0	89.4	0.0
03/04/00	65.2	0.0	74.3	0.0	75.0	0.0	69.4	0.0	78.0	0.0	81.2	0.0	82.4	0.0
03/05/00	94.6	0.0	85.8	0.0	85.9	0.0	86.5	0.0	86.8	0.0	84.0	0.0	85.2	0.0
03/06/00	127.1	0.0	135.9	0.0	136.1	5.0	137.8	6.5	132.3	0.0	125.9	1.1	129.0	4.4
03/07/00	105.8	0.0	109.9	0.0	114.1	0.1	120.7	0.6	122.9	0.0	136.8	8.1	139.0	1.9
03/08/00	116.6	0.0	113.9	0.0	113.6	0.0	118.5	0.0	117.9	0.0	119.4	0.0	123.4	0.0
03/09/00	116.1	0.0	117.8	0.0	118.3	0.0	117.9	0.0	116.3	0.0	109.4	0.0	112.7	0.0
03/10/00	126.0	0.0	125.9	0.0	126.6	0.0	130.9	0.2	132.2	0.0	131.9	0.0	134.6	0.0
03/11/00	70.0	0.0	83.2	0.0	91.6	0.0	98.1	0.0	99.4	0.0	123.1	0.0	128.5	0.0
03/12/00	89.0	0.0	83.6	0.0	83.0	0.0	80.7	0.0	80.1	0.0	90.1	0.0	94.8	0.0
03/13/00	123.7	0.0	122.3	0.0	121.9	0.0	121.8	0.0	121.8	0.0	112.8	0.0	110.5	0.0
03/14/00	130.1	0.0	136.8	0.0	138.2	0.3	137.9	9.1	135.1	0.0	124.3	4.5	126.7	2.7
03/15/00	132.1	0.0	131.5	0.0	134.8	0.7	143.2	7.5	145.7	0.0	150.7	15.4	151.8	7.0
03/16/00	168.5	0.0	107.1	0.0	114.7	0.0	119.9	0.0	121.9	0.0	143.2	3.4	148.1	0.3

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

Date	Dworshak		Hells BrownleCanyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/03/00	5.9	0.0	22.8	29.8	58.4	0.0	57.6	0.0	58.9	0.0	61.4	0.0
03/04/00	5.9	0.0	20.6	29.9	54.6	0.0	57.5	0.0	64.0	0.0	63.1	0.0
03/05/00	6.0	0.0	20.6	25.4	62.0	0.0	60.9	0.0	61.9	0.0	58.9	0.0
03/06/00	9.5	0.0	23.0	26.0	57.1	0.0	58.3	4.9	62.1	0.0	65.3	0.0
03/07/00	10.7	0.0	21.8	20.2	59.0	0.0	64.1	0.0	67.8	0.0	66.8	0.0
03/08/00	10.8	0.0	21.2	19.5	57.9	0.0	62.8	0.0	70.3	0.0	73.0	0.0
03/09/00	10.8	0.0	21.3	20.4	55.2	0.0	52.7	0.0	53.0	0.0	49.6	0.0
03/10/00	10.8	0.0	20.6	16.0	52.9	0.0	49.1	0.0	52.0	0.0	50.4	0.0
03/11/00	10.8	0.0	18.7	20.0	52.8	0.0	55.9	0.0	58.4	0.0	58.0	0.0
03/12/00	10.8	0.0	19.6	22.8	51.0	0.0	49.9	0.0	54.9	0.0	56.7	0.0
03/13/00	10.8	0.0	20.6	18.5	51.7	0.0	56.1	0.0	59.8	0.0	61.6	0.0
03/14/00	10.8	0.0	20.5	18.0	51.9	0.0	51.2	0.0	53.1	0.0	50.7	0.0
03/15/00	10.9	0.0	19.8	23.2	49.8	0.0	49.2	0.0	53.9	0.0	55.5	0.0
03/16/00	10.8	0.0	---	---	53.4	0.0	52.9	0.0	53.1	0.0	53.5	0.0

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

Date	McNary		John Day		The Dalles		Bonneville			
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	PH1	PH2
03/03/00	159.8	0.0	189.8	0.0	192.7	0.0	199.0	0.0	78.4	111.4
03/04/00	148.4	0.0	166.4	0.0	171.1	0.0	178.2	0.0	72.1	96.9
03/05/00	130.1	0.0	137.9	0.0	144.8	0.0	164.4	0.0	69.6	85.6
03/06/00	180.7	0.0	180.1	0.0	179.1	0.0	194.3	0.0	75.1	110.0
03/07/00	202.4	0.0	207.2	0.0	206.3	0.0	211.7	0.0	81.7	120.8
03/08/00	196.2	0.0	207.0	0.0	209.0	0.0	214.5	0.0	82.0	123.3
03/09/00	179.1	0.0	191.7	0.0	193.1	0.0	206.6	16.5	69.3	111.6
03/10/00	175.3	0.0	189.5	0.0	192.0	0.0	211.3	104.0	17.4	80.6
03/11/00	186.1	0.0	207.8	0.0	207.7	0.0	210.0	113.8	16.6	70.4
03/12/00	172.6	0.0	188.5	0.0	188.4	0.0	211.5	119.5	17.1	65.6
03/13/00	170.4	0.0	192.9	0.0	196.6	0.0	210.1	117.2	17.2	66.3
03/14/00	181.4	0.0	191.4	0.0	189.1	0.0	199.8	104.9	17.2	68.4
03/15/00	172.6	0.0	189.3	0.0	189.7	0.0	198.9	106.8	16.6	66.2
03/16/00	208.1	0.0	211.3	0.0	206.8	0.0	205.0	94.4	28.5	72.8

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>			
	<u>24 h</u>		<u>12 h</u>		#	<u>24 h</u>		<u>12 h</u>		#	<u>24 h</u>		<u>12 h</u>		#	<u>24 h</u>		<u>12 h</u>		#
	Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr	
3/3	95	95	96	6	101	101	102	24	102	102	103	24	102	102	105	23	---	---	---	0
3/4	95	95	96	7	102	102	103	24	103	103	103	24	103	104	106	23	---	---	---	0
3/5	96	96	96	4	102	102	103	24	103	104	104	24	104	104	105	23	---	---	---	0
3/6	96	96	97	4	102	103	104	24	104	104	104	24	103	103	105	23	---	---	---	0
3/7	96	96	96	5	102	103	104	24	103	103	103	24	102	103	105	23	---	---	---	0
3/8	96	96	96	4	102	102	103	24	103	103	103	24	102	103	105	23	---	---	---	0
3/9	96	96	97	6	102	102	103	24	103	103	103	24	102	103	105	23	---	---	---	0
3/10	96	96	97	6	103	104	111	24	102	103	103	24	102	102	103	23	---	---	---	0
3/11	96	96	97	7	103	104	109	24	102	102	103	24	102	102	103	23	---	---	---	0
3/12	96	96	97	6	103	105	112	24	102	102	102	24	102	102	103	23	---	---	---	0
3/13	96	96	96	4	103	103	104	24	102	103	104	24	102	102	104	23	---	---	---	0
3/14	96	96	96	5	102	103	103	24	103	103	104	24	102	103	105	23	---	---	---	0
3/15	96	97	99	15	102	102	103	24	103	103	104	24	102	102	103	23	---	---	---	0
3/16	97	97	98	21	102	102	103	24	103	104	104	24	103	103	105	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>			
	<u>24 h</u>		<u>12 h</u>		#	<u>24 h</u>		<u>12 h</u>		#	<u>24 h</u>		<u>12 h</u>		#	<u>24 h</u>		<u>12 h</u>		#
	Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr	
3/3	---	---	---	0	---	---	---	0	---	---	---	0	100	101	101	24	---	---	---	0
3/4	---	---	---	0	---	---	---	0	---	---	---	0	102	102	102	23	---	---	---	0
3/5	---	---	---	0	---	---	---	0	---	---	---	0	102	103	103	24	---	---	---	0
3/6	---	---	---	0	---	---	---	0	---	---	---	0	102	102	103	23	---	---	---	0
3/7	---	---	---	0	---	---	---	0	---	---	---	0	100	101	101	19	---	---	---	0
3/8	---	---	---	0	---	---	---	0	---	---	---	0	102	103	103	23	---	---	---	0
3/9	---	---	---	0	---	---	---	0	---	---	---	0	100	100	101	23	---	---	---	0
3/10	---	---	---	0	---	---	---	0	---	---	---	0	100	100	101	24	---	---	---	0
3/11	---	---	---	0	---	---	---	0	---	---	---	0	99	100	101	24	---	---	---	0
3/12	---	---	---	0	---	---	---	0	---	---	---	0	98	99	100	24	---	---	---	0
3/13	---	---	---	0	---	---	---	0	---	---	---	0	100	101	102	24	---	---	---	0
3/14	---	---	---	0	---	---	---	0	---	---	---	0	100	101	101	24	---	---	---	0
3/15	---	---	---	0	---	---	---	0	---	---	---	0	101	101	102	24	---	---	---	0
3/16	---	---	---	0	---	---	---	0	---	---	---	0	102	102	102	24	---	---	---	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>				
	<u>24 h</u>		<u>12 h</u>		#	<u>24 h</u>		<u>12 h</u>		#	<u>24 h</u>		<u>12 h</u>		#	<u>24 h</u>		<u>12 h</u>		#	
	Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr
3/3	101	101	102	24	---	---	---	0	101	101	102	24	101	101	102	24	101	101	102	24	
3/4	102	102	102	23	---	---	---	0	102	102	103	24	102	102	102	24	102	102	102	103	24
3/5	102	102	103	24	---	---	---	0	102	102	103	24	102	102	103	24	102	102	102	102	24
3/6	102	103	103	24	---	---	---	0	103	103	103	24	103	103	103	24	103	103	102	102	24
3/7	103	103	103	19	---	---	---	0	102	102	102	24	103	103	106	24	103	102	104	104	24
3/8	102	103	103	24	---	---	---	0	102	102	103	24	102	102	103	24	102	103	104	104	24
3/9	102	103	103	24	---	---	---	0	103	103	104	24	103	103	103	24	103	102	103	103	24
3/10	101	102	102	24	---	---	---	0	102	102	103	24	102	102	103	24	102	102	103	103	24
3/11	101	101	102	24	---	---	---	0	102	102	103	24	102	102	103	24	102	102	103	103	24
3/12	101	101	101	24	---	---	---	0	102	102	103	24	102	102	102	24	102	103	104	104	24
3/13	101	102	102	24	---	---	---	0	103	103	104	24	102	102	103	24	102	103	103	104	24
3/14	102	102	102	24	---	---	---	0	103	103	104	24	103	103	109	24	103	103	104	104	24
3/15	103	105	105	24	---	---	---	0	102	102	103	24	104	104	113	24	104	103	107	107	24
3/16	104	104	105	24	---	---	---	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>Clearwater</u>			<u>Anatone</u>			#				
	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>					
	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>			<u>hr</u>	<u>Avg</u>	<u>Avg</u>	
3/3	102	102	103	24	---	---	---	0	97	97	98	24	---	---	---	0	103	104	105	24
3/4	103	103	104	24	---	---	---	0	98	99	99	24	---	---	---	0	103	104	104	24
3/5	103	103	104	24	---	---	---	0	98	98	99	17	---	---	---	0	102	102	102	17
3/6	103	103	104	24	---	---	---	0	99	100	107	24	---	---	---	0	102	102	102	24
3/7	104	104	108	24	---	---	---	0	98	98	98	22	---	---	---	0	102	102	103	22
3/8	104	104	105	24	---	---	---	0	98	98	98	24	---	---	---	0	102	103	103	24
3/9	103	103	103	24	---	---	---	0	97	98	98	24	---	---	---	0	102	102	102	24
3/10	103	103	104	24	---	---	---	0	97	97	97	24	---	---	---	0	102	103	104	24
3/11	103	103	104	24	---	---	---	0	97	97	97	24	---	---	---	0	102	102	103	14
3/12	103	103	104	24	---	---	---	0	97	97	98	24	---	---	---	0	102	103	103	24
3/13	104	104	105	24	---	---	---	0	97	98	98	24	---	---	---	0	103	103	104	24
3/14	104	104	106	24	---	---	---	0	98	98	98	24	---	---	---	0	102	103	103	24
3/15	106	106	110	24	---	---	---	0	97	97	97	21	---	---	---	0	102	103	104	24
3/16	---	---	---	0	---	---	---	0	98	98	98	24	---	---	---	0	102	102	102	24

Total Dissolved Gas Saturation Data at Snake River Sites

Date	<u>Snake-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>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>					
	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>			<u>hr</u>	<u>Avg</u>	<u>Avg</u>	
3/3	---	---	---	0	100	100	101	5	100	100	100	5	---	---	---	0	---	---	---	0
3/4	---	---	---	0	103	103	104	24	102	103	103	24	---	---	---	0	---	---	---	0
3/5	---	---	---	0	103	103	104	17	103	103	103	17	---	---	---	0	---	---	---	0
3/6	---	---	---	0	103	103	104	24	103	103	103	24	---	---	---	0	---	---	---	0
3/7	---	---	---	0	103	103	105	22	102	102	102	22	---	---	---	0	---	---	---	0
3/8	---	---	---	0	101	102	102	24	101	101	102	24	---	---	---	0	---	---	---	0
3/9	---	---	---	0	100	100	101	24	100	100	100	24	---	---	---	0	---	---	---	0
3/10	---	---	---	0	100	101	101	24	99	99	100	13	---	---	---	0	---	---	---	0
3/11	---	---	---	0	100	101	101	24	---	---	---	0	---	---	---	0	---	---	---	0
3/12	---	---	---	0	101	101	101	24	---	---	---	0	---	---	---	0	---	---	---	0
3/13	---	---	---	0	102	103	104	24	100	100	101	13	---	---	---	0	---	---	---	0
3/14	---	---	---	0	102	102	103	24	101	102	102	24	---	---	---	0	---	---	---	0
3/15	---	---	---	0	102	103	104	24	101	102	102	24	---	---	---	0	---	---	---	0
3/16	---	---	---	0	102	103	103	24	102	102	103	24	---	---	---	0	---	---	---	0

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>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>					
	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>			<u>hr</u>	<u>Avg</u>	<u>Avg</u>	
3/3	---	---	---	0	---	---	---	0	100	100	100	5	101	101	101	5	101	101	101	5
3/4	---	---	---	0	---	---	---	0	103	103	103	24	103	103	104	24	104	104	104	23
3/5	---	---	---	0	---	---	---	0	103	103	103	17	103	103	104	17	104	104	105	17
3/6	---	---	---	0	---	---	---	0	103	103	103	24	103	103	104	24	104	104	104	22
3/7	---	---	---	0	---	---	---	0	102	102	104	16	102	102	103	16	103	103	103	22
3/8	---	---	---	0	---	---	---	0	101	101	101	24	102	102	102	24	102	102	102	24
3/9	---	---	---	0	---	---	---	0	101	101	101	24	102	102	102	24	102	103	103	24
3/10	---	---	---	0	---	---	---	0	101	101	102	12	101	101	102	12	102	103	104	24
3/11	---	---	---	0	---	---	---	0	101	101	102	24	102	102	102	24	101	102	102	24
3/12	---	---	---	0	---	---	---	0	102	102	103	24	102	102	103	24	102	103	104	23
3/13	---	---	---	0	---	---	---	0	101	101	102	12	102	102	102	12	103	103	104	17
3/14	---	---	---	0	---	---	---	0	101	101	102	24	102	102	102	24	103	103	103	18
3/15	---	---	---	0	---	---	---	0	101	102	102	24	101	102	102	24	104	105	107	20
3/16	---	---	---	0	---	---	---	0	102	103	103	24	102	102	103	24	103	104	104	23

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	McNary-Wash			McNary Tlwr			John Day			John Day Tlwr			The Dalles							
	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr	24h Avg	12h Avg	High	# hr	24h Avg	12h Avg	High	# hr				
3/3	102	102	102	5	102	102	102	5	---	---	---	0	---	---	---	0	---	---	---	0
3/4	104	105	105	23	104	105	105	23	---	---	---	0	---	---	---	0	---	---	---	0
3/5	104	104	105	17	104	104	105	17	---	---	---	0	---	---	---	0	---	---	---	0
3/6	104	104	105	23	105	105	105	23	---	---	---	0	---	---	---	0	---	---	---	0
3/7	103	104	104	21	103	104	104	22	---	---	---	0	---	---	---	0	---	---	---	0
3/8	103	103	103	24	103	103	103	24	---	---	---	0	---	---	---	0	---	---	---	0
3/9	103	103	103	24	103	103	103	24	---	---	---	0	---	---	---	0	---	---	---	0
3/10	103	104	104	24	103	104	104	24	---	---	---	0	---	---	---	0	---	---	---	0
3/11	102	103	104	24	103	103	103	24	---	---	---	0	---	---	---	0	---	---	---	0
3/12	103	104	104	24	103	103	103	24	---	---	---	0	---	---	---	0	---	---	---	0
3/13	104	105	106	21	104	105	105	24	---	---	---	0	---	---	---	0	---	---	---	0
3/14	104	104	105	23	104	104	105	24	---	---	---	0	---	---	---	0	---	---	---	0
3/15	104	104	105	19	103	104	104	22	---	---	---	0	---	---	---	0	---	---	---	0
3/16	105	105	106	16	104	104	104	24	---	---	---	0	---	---	---	0	---	---	---	0

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	The Dalles Dnst			Bonneville			Warrendale			Skamania			Camas\Washugal							
	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr	24h Avg	12h Avg	High	# hr	24h Avg	12h Avg	High	# hr	24h Avg	12h Avg	High	# hr
3/3	---	---	---	0	102	103	103	24	103	103	104	24	102	103	103	24	102	103	103	23
3/4	---	---	---	0	103	103	104	24	104	104	104	24	103	103	103	24	103	103	103	23
3/5	---	---	---	0	103	103	103	24	104	104	104	24	102	103	103	24	103	103	104	23
3/6	---	---	---	0	102	102	103	24	103	103	103	24	102	103	104	24	103	103	104	23
3/7	---	---	---	0	102	102	102	24	103	103	103	24	102	102	103	24	102	102	103	23
3/8	---	---	---	0	102	102	103	24	103	103	104	24	102	102	103	24	102	103	103	23
3/9	---	---	---	0	102	102	102	24	103	104	111	24	103	103	108	24	102	103	103	23
3/10	---	---	---	0	102	102	102	24	115	116	117	24	109	110	110	24	105	108	109	23
3/11	---	---	---	0	101	101	102	24	116	116	116	24	110	111	113	24	110	111	111	23
3/12	---	---	---	0	102	102	102	24	116	117	117	24	111	112	112	24	112	112	113	23
3/13	---	---	---	0	102	103	103	24	116	117	117	24	112	112	113	24	111	112	112	23
3/14	---	---	---	0	102	102	102	24	115	116	116	24	109	110	111	24	111	111	112	23
3/15	---	---	---	0	102	102	103	22	116	117	118	22	111	112	112	22	111	111	111	22
3/16	---	---	---	0	102	102	103	24	115	116	117	24	109	111	111	24	110	111	111	23

Hatchery Release Summary

From 3/3/00 to 3/16/00

Number ...Release Dates...

Hatchery	Species...	Migration Year	Released	Begin...	...End	Release Site	River Name	
IDFG								
Clearwater								
	SP	Chinook	2000	463,000	03/06/00	03/10/00	Rapid R	Little Salmon River
Rapid River								
	SP	Chinook	2000	2,463,000	03/16/00	04/15/00	Rapid River H	Little Salmon River
Agency Totals:				2,926,000	.....		
Nez Perce Tribe								
Willard								
		Coho	2000	265,000	03/13/00	03/17/00	Potlatch R	Clearwater Rvr M F
		Coho	2000	265,000	03/13/00	03/17/00	Lapwai Cr	Clearwater Rvr M F
Agency Totals:				530,000	.....		
Umatilla Tribe								
Cascade								
		Coho	2000	250,000	03/15/00	03/15/00	Umatilla R	Umatilla River
Lower Herman C								
		Coho	2000	500,000	03/15/00	03/15/00	Umatilla R	Umatilla River
Imeques								
	SP	Chinook	2000	535,000	03/06/00	03/09/00	Imeques Acclim Pd	Umatilla River
Thornhollow								
	FA	Chinook	2000	235,000	03/06/00	03/09/00	Thornhollow Acclim Pd	Umatilla River
Agency Totals:				1,520,000	.....		
USFWS								
Spring Creek								
	FA	Chinook	2000	8,177,725	03/09/00	03/09/00	Spring Creek H	Columbia River
Agency Totals:				8,177,725	.....		
WDFW								
Klickitat								
	SP	Chinook	2000	563,000	03/01/00	03/30/00	Klickitat H	Klickitat River
Tucannon								
	SP	Chinook	2000	128,000	03/10/00	04/20/00	Curl Lake	Tucannon River
Agency Totals:				691,000	.....		
Yakama Tribe								
Clark Flat								
	SP	Chinook	2000	229,000	03/15/00	06/01/00	Clark FlatAcclim Pd	Yakama River
Easton Pond								
	SP	Chinook	2000	236,800	03/15/00	06/01/00	Easton Pd	Yakama River
Agency Totals:				465,800	.....		
Total Release..				14,310,525				

Hatchery Release Summary

From 3/17/00 to 3/30/00

Hatchery	Species...	Migration Year Released	Number	...Release Dates...	Begin...	...End	Release Site	River Name
IDFG								
Niagara Springs								
	SU	Steelhead	2000	600,000	03/27/00	04/08/00	Hells Canyon Dam	Snake River
	Agency Totals:		600,000	.....			
Nez Perce Tribe								
McCall								
	SU	Chinook	2000	79,000	03/27/00	03/29/00	Johnson Cr	South Fork Salmon River
	Agency Totals:		79,000	.....			
ODFW								
Imnaha								
	SP	Chinook	2000	180,000	03/22/00	04/18/00	Imnaha Acclim Pd	Imnaha River
	Agency Totals:		180,000	.....			
USFWS								
Kooskia								
	SP	Chinook	2000	50,000	03/30/00	04/07/00	Clear Cr	Clearwater Rvr M F
Warm Springs								
	SP	Chinook	2000	680,000	03/25/00	04/19/00	Warm Springs R	Deschutes River
	Agency Totals:		730,000	.....			
WDFW								
Lyons Ferry								
	SU	Steelhead	2000	125,000	03/25/00	04/30/00	Dayton Acclim Pd	Touchet River
	SU	Steelhead	2000	250,000	03/25/00	04/30/00	Cottonwood Acclim Pd	Grande Ronde River
Washougal								
		Coho	2000	3,500,000	03/27/00	04/05/00	Klickitat R	Klickitat River
	Agency Totals:		3,875,000	.....			
Warm Spgs Tribe								
Round Butte								
	SP	Chinook	2000	4,200	03/20/00	03/20/00	Parkdale Acclim Pd	Hood River
	Agency Totals:		4,200	.....			
	Total Release..		5,468,200					

Two-Week Summary of Passage Indices

Date	COMBINED SOCKEYE										
	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
03/04/00	---	0	---	---	---	---	---	---	---	---	---
03/05/00	---	0	---	---	---	---	---	---	---	---	---
03/06/00	---	0	---	---	---	---	---	---	---	---	---
03/07/00	---	0	---	---	---	---	---	---	---	---	---
03/08/00	---	0	---	---	---	---	---	---	---	---	0
03/09/00	---	0	---	---	---	---	---	---	---	---	7
03/10/00	---	0	---	---	---	---	---	---	---	---	7
03/11/00	---	0	---	---	---	---	---	---	---	---	0
03/12/00	---	0	---	---	---	---	---	---	---	---	0
03/13/00	0	0	0	0	---	---	---	---	---	---	463
03/14/00	0	0	0	0	---	---	---	---	---	---	0
03/15/00	0	0	0	0	---	---	---	---	---	---	0
03/16/00	1	0	0	0	---	---	---	---	---	---	0
03/17/00					---	---	---	---	---	---	
Total:	1	0	0	0	0	0	0	0	0	0	477
# Days:	4	13	4	4	0	0	0	0	0	0	9
Average:	0	0	0	0	0	0	0	0	0	0	53

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.

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)}

LEW and WTB data collected for the FPC by Idaho Dept. of Fish and Game.

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 03/15

DAM	Spring Chinook						Summer Chinook						Fall Chinook					
	2000		1999		10-Yr Avg.		2000		1999		10-Yr Avg.		2000		1999		10-Yr Avg.	
	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	4	0	0	0	4	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			
	2000		1999		10-Yr Avg.		2000		10-Yr Avg.	10-Yr		Wild	
	Adult	Jack	Adult	Jack	Adult	Jack	2000	1999	Avg.	2000	1999	Avg.	2000
BON	0	0	0	0	0	0	0	0	0	58	37	32	31
TDA													
JDA													
MCN													
IHR													
LMN													
LGS					**	**			**			**	
LWG	0	0	0	0	0	0	0	0	0	646	725	715	69
PRD													***
RIS													
RRH													
WEL													

Note: LGR is through 03/12

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

Wild steelhead numbers are included in the total.

**Adult count records at Little Goose Dam have been maintained since 1991, visual counts were not conducted at Little Goose Dam between 1982 and 1990.

***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.