



# Fish Passage Center

## Weekly Report #11 - 03

April 1, 2011

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### Summary of Events:

**Water Supply:** Precipitation throughout the Columbia Basin has varied between 133% and 209% of average at individual sub-basins over March. Precipitation above The Dalles has been 178% of average over March. Over the 2011 water year, precipitation has ranged between 100% and 131% of average.

**Table 1. Summary of 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	Water Year 2011 March 1-27, 2011		Water Year 2011 October 1, 2010 to March 27, 2011	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	2.47	158	16.07	115
SNAKE RIVER ABOVE ICE HARBOR	2.71	188	12.44	123
Columbia Above The Dalles	2.98	178	16.33	116
Kootenai	2.74	176	16.00	111
Clark Fork	1.39	133	10.73	121
Flathead	2.36	166	15.63	131
Pend Oreille/ Spokane	3.94	163	22.55	114
Central Washington	1.28	177	5.82	100
SNAKE RIVER PLAIN	1.86	189	7.75	130
Salmon/Boise/ Payette	3.54	209	14.47	116
Clearwater	3.26	134	21.30	117
SW Washington Cascades/Cowlitz	8.95	145	53.02	101
Willamette Valley	8.53	153	45.02	101

Snowpack within the Columbia Basin has

seen increases with recent storms that have resulted in better than average snowpack in most basins. Average snowpack in the Columbia River for basins above the Snake River confluence is 112% of average, for Snake River Basins the average snowpack is 111% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 113% of average.

Table 2 displays the March Final and April Early-Bird runoff volume forecasts for multiple reservoirs. The April Early-Bird forecast at The Dalles between January and July is 115000 Kaf (107% of average).

**Table 2. March Final and April Early-Bird Runoff Volume Forecasts for various reservoirs within the Columbia and Snake River Basins.**

Location	March Final		April Early-Bird	
	% Average (1971 -2000)	Probable Runoff Volume (Kaf)	% Average (1971 -2000)	Probable Runoff Volume (Kaf)
The Dalles (Jan-July)	102	109000	107	115000
Grand Coulee (Jan-July)	104	65600	109	68500
Libby Res. Inflow, MT (Apr-Aug)	105	6550 7105*	112	7020
Hungry Horse Res. Inflow, MT (Jan-July)	123	2730	129	2870
Lower Granite Res. Inflow (Apr- July)	100	21600	114	24500
Brownlee Res. Inflow (Apr-July)	90	5690	111	7030
Dworshak Res. Inflow (Apr-July)	110	2900 3329*	112	2960

\* Denotes COE Forecast

Flows have been increasing throughout the Columbia and Snake Rivers over the last week. On March 31<sup>st</sup>, 2011 day average flows were 108.7 Kcfs at Lower Granite Dam, 245.6 Kcfs at McNary Dam, and 149.3 Kcfs at Priest Rapids Dam. Based on the April Early-Bird Water Supply Forecast, it is anticipated that Spring Biological Opinion Flow Objectives will be 100 Kcfs at Lower Granite Dam (begins April 3<sup>rd</sup>), 260 Kcfs at McNary Dam (begins April 10<sup>th</sup>), and 135 Kcfs at Priest Rapids Dam (begins April 10<sup>th</sup>).

Grand Coulee Reservoir is at 1250.1 feet (3-31-11) and drafted 2.5 feet over the last week. Drum gate maintenance is currently being performed at Grand Coulee which requires a maximum reservoir elevation of 1255 feet. The end of March FC Elevation at Grand Coulee is 1270.2 feet. Outflows at Grand Coulee have ranged between 94.2 and 142.7 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2364.5 feet (3-31-11) and has drafted 3.3 feet last week. The end of March FC Elevation at Libby is 2364.3 feet. Outflows at Libby Dam have been 4.9-18.0 Kcfs last week.

Hungry Horse is currently at an elevation of 3498.9 feet (3-31-11) and has drafted 4.6 feet last week. The end of March FC Elevation at Hungry Horse is 3503.4 feet. Outflows at Hungry Horse have been 8.4 Kcfs last week.

Dworshak is currently at an elevation of 1463.1 feet (3-31-11) and has drafted 5.0 feet last week. The end of March System Flood Control Elevation is 1445.0 feet, however the COE has approved a Flood Control deviation request to target an April 15 elevation of 1451.4 ft. Outflows from Dworshak have been 14.4-17.4 Kcfs last week.

The Brownlee Reservoir was at an elevation of 2018.1 feet on March 30<sup>th</sup>, 2011 drafting 14.4 feet last week. The end of March FC Elevation at Brownlee is 2038.7 feet. Over the last week, outflows at Brownlee have ranged between 38.7-43.9 Kcfs.

#### **Spill:**

Spill for fish passage is scheduled to begin on April 3<sup>rd</sup> at the lower Snake River projects, and on April 10<sup>th</sup> at the lower Columbia River projects. Involuntary spill has occurred over the past week in differing amounts. Earlier in the week spill was occurring due to unit outages at specific projects. Three units were out of operation at McNary Dam, limiting the hydraulic capacity of the project. A unit was also out at Ice Harbor Dam. At Bonneville Dam, spill was provided for attraction to the adult fishways.

However, beginning Wednesday, March 30 excess generation spill has been occurring in the hydrosystem due to weather conditions and the necessary drafting of reservoirs to meet flood control elevations. In addition, high levels of flow were spilled at Ice Harbor Dam on March 31 and April 1 as a result of a jam that occurred while installing fish screens. The issue has been resolved, and fish screens are expected to be installed by April 1.

#### **Smolt Monitoring:**

Sampling is ongoing at Bonneville Dam and the four SMP traps. Smolt monitoring activities began on March 25 at Lower Granite Dam with the first sample available Friday March 26. Sampling will also begin April 1 at Rock Island and John Day dams. Sampling for fish condition began April 1 at Lower Monumental Dam and the first condition sample will be April 4 at Little Goose Dam. Lower Monumental Dam will be doing fish condition samples every three days prior to the start of transportation, while Little Goose Dam will sample every five days. McNary Dam will be collecting fish for their first sample on April 6 when fish screens will be installed on operating units at that site. Screens had been left out to facilitate juvenile lamprey passage at that site.

Bonneville Dam had significant numbers of both yearling and subyearling Chinook passing the during the past week. While at Lower Granite Dam there were relatively large numbers of steelhead and sockeye (likely kokanee) in the sample for this early time period in the season. At the SMP traps large numbers of smolts have been collected over the past two days as tributary flows increased due to regional increases in precipitation and runoff.

The Grande Ronde Trap, operated by the Oregon Department of Fish and Wildlife, located at river mile two in the Grande Ronde River, began sampling March 7. Small numbers of juvenile salmonids have been captured at the Grande Ronde Trap in the first few weeks of sampling. However, over the past few days of sampling the numbers of yearling Chinook increased to over 100 fish per day. These fish were about equally, unmarked and adipose-fin clipped fish, indicating that many were wild as well as hatchery fish. Flows in the Grande Ronde River have been very high ranging between 5000 and 13000 cfs over the past week compare do median historic flows of 4500 to 5000 cfs.

At the Salmon River Trap, located at River km 103, and operated by Idaho Department of Fish

and Game, sampling began on March 6. The trap has captured almost all yearling Chinook to this point. A large number of hatchery yearling Chinook have been collected in the past week. Of the 4,300 yearling Chinook collected in the past week only about 725 of those fish were wild origin. Flows in the Salmon River at White Bird, ranged between 6000 and 9000 cfs from March 26 to April 1; flows rose sharply to 9,000 cfs on April 1. Historically median flows ranged between 5500 and 6000 cfs for the same time period.

The Imnaha River Trap, operated by the Nez Perce Tribe, provides data to the SMP, on their fish collection. The trap has been operating since mid-February. The Imnaha Trap has been collecting relatively small numbers of yearling Chinook over the past week; these were nearly all wild origin Chinook. Flows in the Imnaha River began the week at about 500 cfs but then spiked to 700 cfs by April 1. The median historic flows for this week, on the Imnaha River would have ranged between 400 and 550 cfs over the past week, as measured at the gage at river mile 19.3.

At the Lewiston Trap, operated by IDFG, located at River km 225 on the Snake River, just above the confluence with the Clearwater River, collections of yearling Chinook and steelhead have been small. But even the low numbers of yearling Chinook collected in the past week of 190 is more than double historic average. One reason for this increased collection could be the relatively high flows in the Snake River. The Lewiston trap typically collects fish more effectively at higher flows and flows at the USGS gage at Anatone have been between 50 and 75 Kcfs over the past week which is 50% above historic average.

At Bonneville Dam the largest collections over the past week have been hatchery yearling Chinook. Based on PIT-tag data these fish are mainly fish released from the Klickitat Hatchery on March 15. Also in those yearling Chinook were a significant number of holdover fall Chinook from releases above or at Lower Granite Dam in 2010. Subyearling Chinook collections were almost exclusively fry over the past week, with estimated collections well over 1,000 fish per day.

At Lower Granite Dam steelhead predominated in the sample over the first week of sampling followed by yearling Chinook and sockeye. The sockeye in the sample are likely kokanee washing out from Dworshak Reservoir. Hatchery steelhead have predominated in the sample and based on PIT-tag and hatchery release data it appears that releases from Clear Creek on the middle fork Clearwater River, releases from the south fork and

direct releases from Dworshak hatchery are all passing at this time. Yearling Chinook have been mixture of wild and hatchery origin spring/summer Chinook but also a number of holdover fall Chinook released during June and July of 2010 particularly from Big Canyon Creek acclimation facility.

#### **Adult Fish Passage:**

The historical counting schedule at Bonneville Dam began March 15<sup>th</sup> and continues through November 15<sup>th</sup>. This counting schedule allows for comparison of current year counts with historical data. The historical counting schedule begins today, April 1<sup>st</sup>, for The Dalles Dam, John Day Dam, McNary Dam, Lower Monumental Dam and Little Goose Dam. Willamette Falls Dam counts adult salmon throughout the entire year, while Lower Granite Dam started counting on March 1st.

Adult counts at Bonneville Dam have been updated through March 30th. From March 15th through March 30th, daily adult spring Chinook counts at Bonneville Dam ranged from 0 to 15 adult salmon per day. As of March 30th, using the historical counting schedule, 107 spring Chinook have been counted at Bonneville Dam. In 2010, 380 adult spring Chinook were counted at Bonneville Dam for the same time period. The 2011 adult spring Chinook count at Bonneville Dam is 28.1% of the 2010 count and only 4.6% of the 10 year average of 2,337. At Willamette Falls Dam 18 adult spring Chinook has been counted so far this year.

The Bonneville Dam 2011 steelhead count of 840 is about 52.9% of the 2010 count of 1,588. The 2011 steelhead count is about 1.12 times greater than the 10 year average count of 750. The 2011 Bonneville wild adult steelhead count, as of March 30th, was 366. This year's Lower Granite steelhead count of 4,282 is about 80.5% of the 2010 count of 5,322 and 90.3% of the 10 year average of 4,742. The 2011 Lower Granite wild adult steelhead count, as of March 28th, was 1,382. At Willamette Falls Dam, the 2011 count for steelhead was 4,866, as of March 30th. This year's steelhead count is about 95.1% of the 2010 count of 5,118.

#### **Hatchery Release:**

**Snake River Zone:** The Snake River Zone encompasses the Snake River and its tributaries from its confluence with the Columbia River to Hells Canyon Dam. There were several releases of yearling spring Chinook scheduled to begin this week. In all, these releases were expected to total nearly 1.9 million spring

Chinook juveniles. Of these, approximately 71% were scheduled for release into the Clearwater River and its tributaries. The remaining 29% were scheduled for release to locations throughout this river zone, including the Imnaha (~13%), Tucannon (~12%), and Grande Ronde (~3%) rivers. Many of these spring Chinook releases are expected to run through the next few weeks. In addition to the yearling spring Chinook releases that began this week, several large releases from previous weeks continued this week. These include releases from the Rapid River, Dworshak, and Clearwater hatcheries, as well as acclimation facilities on the Grande Ronde River.

Approximately 1.27 million yearling summer Chinook were scheduled for release this week. Of these, about 84% were scheduled for release into the Pahasimeroi River, while the remaining 16% were scheduled for release into Crooked River, a tributary of the Clearwater River. This is the first year that yearling summer Chinook will be released to the Clearwater River basin. These summer Chinook were transferred from McCall Hatchery to the Clearwater Hatchery for final rearing and release and are 100% CWT.

The only other releases that were scheduled to begin this week were of steelhead juveniles. In all, approximately 2.02 million steelhead juveniles were scheduled to be released this week. The majority (59%) of these steelhead juveniles were scheduled for release into the Clearwater River. The remaining 41% were scheduled for release to locations throughout this river zone, including the Snake River below Hells Canyon Dam (26%), the Grande Ronde River (10%), and the Little Salmon River (5%).

There are several releases of yearling fall Chinook juveniles scheduled to take place over the next two weeks. In all, these releases are expected to total nearly 946,000 juveniles. Of these, approximately 49% are scheduled for release from Lyons Ferry Hatchery, which is below Little Goose Dam. The remaining 51% are scheduled for release from three acclimation facilities that are located above Lower Granite Dam. These acclimation facilities are the Captain Johns Rapids and Pittsburg Landing acclimation ponds on the Snake River and the Big Canyon Creek acclimation ponds on the Clearwater River. In addition to the yearling fall Chinook releases, there are several releases of yearling spring Chinook juveniles scheduled to take place over the next two weeks. In all, these releases are expected to total nearly 2.7 million spring Chinook juveniles. Of these, nearly 50% are scheduled for

release into the Salmon River, nearly 40% are scheduled for release into the Clearwater River, and about 11% are scheduled for release into the Grande Ronde River.

Finally, nearly 4.4 million summer steelhead are scheduled for release to this zone over the next two weeks. These releases of summer steelhead are spread throughout this river zone, including releases to the Salmon River (~41%), the Clearwater River (~22%), the Pahasimeroi River (~19%), the Wallowa River (~9%), Grande Ronde River (~4%), Snake River below Hells Canyon Dam (~4%), and the Tucannon River (~2%).

**Mid-Columbia Zone:** The Mid-Columbia Zone encompasses the area of the Columbia River and its tributaries from McNary Dam to Chief Joseph Dam. Volitional releases of yearling spring Chinook juveniles from Cle Elem Hatchery acclimation sites continued this week. In all, these releases are expected to total about 835,000 spring Chinook juveniles. These releases are expected to run through mid-May. The only releases that were scheduled to begin this week were two releases of summer steelhead. These two releases include a release of approximately 145,500 juveniles to the mid-Columbia River and a release of about 85,000 juveniles to the Touchet River.

There are several releases of juveniles salmonids scheduled for this zone over the next two weeks. First, a release of nearly 250,000 yearling spring Chinook to the Walla Walla River is scheduled to begin on or around April 11<sup>th</sup>. Second, approximately 150,500 yearling summer Chinook are scheduled for release from the Entiat NFH into the Entiat River, on or around April 13<sup>th</sup>. This is the first release of summer Chinook reared at the Entiat NFH. Releases of summer Chinook from the Entiat NFH are expected to continue over the years and will likely increase in numbers. Finally, approximately 114,400 summer steelhead are scheduled for release into this zone over the next two weeks. Of these, approximately 87% are scheduled for release into the Walla Walla River while 13% are scheduled for release into the Touchet River.

**Lower Columbia Zone:** The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. Approximately 234,000 spring Chinook juveniles were scheduled for release in the Umatilla River this week. These spring Chinook juveniles were reared at the Umatilla Hatchery and acclimated at the Thornhollow Acclimation Pond. This release is expected to run through the first week of April. The only other release that was scheduled

to begin this week was a release of approximately 2.5 million coho juveniles to the Klickitat River. This release is also expected to run through the first week of April.

Approximately 7.9 million subyearling fall Chinook tules are scheduled for release into this zone over the next two weeks. Specifically, 6.2 million will be released from Spring Creek NFH on or around April 12<sup>th</sup> and 1.7 million will be released from Little White Salmon NFH on or around April 14<sup>th</sup>. In addition, nearly 2.83 million yearling spring Chinook are scheduled for release into this zone over the next two weeks. These releases of yearling spring Chinook are spread throughout this river zone, including releases to the Wind River (~37%), Little White Salmon River (~35%), Deschutes River (~19%), Umatilla River (~7%), and Hood River (~1%). Finally, approximately 162,000 summer steelhead are scheduled to be released into the Deschutes River on or around April 8<sup>th</sup>.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: 3/18/2011 to 03/31/11

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2011	291,000	03-25-11	03-28-11	Clear Creek	Clearwater River M F
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2011	1,117,000	03-29-11	04-05-11	Red River	S Fk Clearwater River
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SU	2011	204,000	03-29-11	03-29-11	Crooked River	S Fk Clearwater River
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2011	100,000	03-31-11	04-05-11	Little Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2011	525,000	03-30-11	03-31-11	Hells Canyon Dam	Snake River
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2011	1,067,000	03-31-11	04-12-11	Pahsimeroi Hatchery	Pahsimeroi River
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2011	2,511,000	03-14-11	04-22-11	Rapid River Hatchery	Little Salmon River
<b>Idaho Dept. of Fish and Game Total</b>					<b>5,815,000</b>				
Nez Perce Tribe	Clearwater Hatchery	CH1	SP	2011	414,000	03-23-11	03-24-11	Selway River	Clearwater River M F
Nez Perce Tribe	Dworshak NFH	CO	UN	2011	313,000	03-15-11	04-08-11	Kooskia Hatchery	Clearwater River M F
Nez Perce Tribe	Dworshak NFH	ST	SU	2011	110,000	03-21-11	03-25-11	S Fk Clearwater River	Clearwater River M F
Nez Perce Tribe	Kooskia NFH	CH1	SP	2011	657,000	03-24-11	04-04-11	Kooskia Hatchery	Clearwater River M F
<b>Nez Perce Tribe Total</b>					<b>1,494,000</b>				
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1	SP	2011	253,000	03-30-11	04-14-11	Imnaha Acclim Pond	Imnaha River
<b>Oregon Dept. of Fish and Wildlife Total</b>					<b>253,000</b>				
U.S. Fish and Wildlife Service	Dworshak NFH	CH1	SP	2011	1,075,000	03-14-11	03-31-11	Dworshak Hatchery	Clearwater River M F
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2011	400,000	03-21-11	03-25-11	Clear Creek Redhouse (SFk ClearH2O R)	Clearwater River M F S Fk Clearwater River
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2011	450,000	03-21-11	03-25-11	ClearH2O R)	S Fk Clearwater River
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2011	1,200,000	03-28-11	04-01-11	Dworshak Hatchery	Clearwater River M F
<b>U.S. Fish and Wildlife Service Total</b>					<b>3,125,000</b>				
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	50,182	03-21-11	03-29-11	Catherine Cr Acclim Pond	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	53,115	03-22-11	03-30-11	Grande Ronde Acclim Pond	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	54,883	03-22-11	03-30-11	Grande Ronde Acclim Pond	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	58,798	03-30-11	04-14-11	Catherine Cr Acclim Pond	Grande Ronde River
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2011	234,000	03-31-11	04-08-11	Thornhollow Acclim Pond	Umatilla River
<b>Umatilla Tribe Total</b>					<b>450,978</b>				
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2011	273,539	03-15-11	05-14-11	Jack Creek Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2011	279,639	03-15-11	05-14-11	Clark Flat Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2011	282,335	03-15-11	05-14-11	Easton Pond	Yakima River
<b>Yakama Tribe Total</b>					<b>835,513</b>				
<b>Grand Total</b>					<b>11,973,491</b>				

### Hatchery Releases Next Two Weeks

#### Hatchery Release Summary

From: 4/1/2011 to 4/14/2011

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2011	413,000	04-06-11	04-07-11	Powell Acclim Pond	Lochsa River
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2011	1,117,000	03-29-11	04-05-11	Red River	S Fk Clearwater River
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2011	213,000	04-12-11	04-19-11	S Fk Clearwater River	Clearwater River M F
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2011	268,000	04-12-11	04-19-11	S Fk Clearwater River	Clearwater River M F
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2011	90,000	04-06-11	04-06-11	Shoup Br (Salmon R)	Salmon River (ID)
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2011	120,000	04-04-11	04-06-11	Salmon River (ID)	Salmon River (ID)
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2011	120,000	04-06-11	04-08-11	Salmon River (ID)	Salmon River (ID)
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2011	190,000	04-11-11	04-15-11	Little Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2011	220,000	04-11-11	04-14-11	Little Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2011	100,000	03-31-11	04-05-11	Little Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2011	345,000	04-06-11	05-04-11	Little Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2011	830,000	04-13-11	05-03-11	Pahsimeroi River	Pahsimeroi River
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2011	1,067,000	03-31-11	04-12-11	Pahsimeroi Hatchery	Pahsimeroi River
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2011	2,511,000	03-14-11	04-22-11	Rapid River Hatchery	Little Salmon River
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SP	2011	1,340,000	04-11-11	04-11-11	Salmon River (ID)	Salmon River (ID)
<b>Idaho Dept. of Fish and Game Total</b>					<b>8,944,000</b>				
Nez Perce Tribe	Clearwater Hatchery	ST	SU	2011	85,600	04-10-11	04-20-11	Crooked River	S Fk Clearwater River
Nez Perce Tribe	Clearwater Hatchery	ST	SU	2011	135,000	04-11-11	04-13-11	Newsome Creek	S Fk Clearwater River
Nez Perce Tribe	Clearwater Hatchery	ST	SU	2011	153,500	04-10-11	04-20-11	Red River	S Fk Clearwater River
Nez Perce Tribe	Dworshak NFH	CO	UN	2011	313,000	03-15-11	04-08-11	Kooskia Hatchery	Clearwater River M F
Nez Perce Tribe	Dworshak NFH	ST	SU	2011	103,700	04-10-11	04-20-11	Newsome Creek	S Fk Clearwater River
Nez Perce Tribe	Kooskia NFH	CH1	SP	2011	657,000	03-24-11	04-04-11	Kooskia Hatchery	Clearwater River M F
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2011	155,000	04-10-11	04-20-11	Cpt John Acclim Pond	Snake River
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2011	164,000	04-10-11	04-20-11	Big Canyon (Clearwater River)	Clearwater River M F
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2011	167,000	04-10-11	04-20-11	Pittsburg Landing	Snake River
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH1	SP	2011	240,000	04-01-11	04-15-11	Acclim Pond	Snake River
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH1	SP	2011	240,000	04-01-11	04-15-11	Nez Perce Tribal Hatchery	Clearwater River M F
<b>Nez Perce Tribe Total</b>					<b>2,173,800</b>				
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2011	168,000	04-12-11	04-12-11	Big Canyon Acclim.Pd (Grande Ronde)	Grande Ronde River
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2011	378,000	04-12-11	04-12-11	Wallowa Acclim Pond	Wallowa River
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1	SP	2011	103,000	04-14-11	04-14-11	Lookingglass Creek	Grande Ronde River
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1	SP	2011	253,000	03-30-11	04-14-11	Imnaha Acclim Pond	Imnaha River
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	ST	SU	2011	162,000	04-08-11	04-08-11	Deschutes River	Deschutes River
<b>Oregon Dept. of Fish and Wildlife Total</b>					<b>1,064,000</b>				

**Hatchery Releases Next Two Weeks - (Continued)**

U.S. Fish and Wildlife Service	Carson NFH	CH1	SP	2011	1,059,327	04-14-11	04-14-11	Carson Hatchery	Wind River
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2011	1,200,000	03-28-11	04-01-11	Dworshak Hatchery	Clearwater River M F
U.S. Fish and Wildlife Service	Entiat Hatchery	CH1	SU	2011	150,500	04-13-11	04-14-11	Entiat Hatchery	Entiat River
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2011	739,346	04-11-11	04-11-11	Salmon River (ID)	Salmon River (ID)
								Little White Salmon	Little White Salmon
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH0	FA	2011	1,700,000	04-14-11	04-14-11	Hatchery	River
								Little White Salmon	Little White Salmon
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH1	SP	2011	600,000	04-14-11	04-14-11	Hatchery	River
U.S. Fish and Wildlife Service	Spring Creek NFH	CH0	FA	2011	6,200,000	04-12-11	04-12-11	Spring Creek Hatchery	L Col R (D/s McN Dam)
								Warm Springs	
U.S. Fish and Wildlife Service	Warm Springs NFH	CH1	SP	2011	538,388	04-04-11	04-27-11	Hatchery	Deschutes River
U.S. Fish and Wildlife Service	Willard Hatchery	CH1	SP	2011	400,000	04-14-11	04-14-11	Willard Hatchery	Little White Salmon River
<b>U.S. Fish and Wildlife Service Total</b>					<b>12,587,561</b>				
Umatilla Tribe	Carson NFH	CH1	SP	2011	247,196	04-11-11	04-12-11	Walla Walla River	Walla Walla River
								Catherine Cr Acclim	
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	50,307	04-05-11	04-14-11	Pond	Grande Ronde River
								Catherine Cr Acclim	
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	58,798	03-30-11	04-14-11	Pond	Grande Ronde River
								Grande Ronde Acclim	
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	135,247	04-06-11	04-14-11	Pond	Grande Ronde River
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2011	193,000	04-06-11	04-06-11	Umatilla River	Umatilla River
								Thornhollow Acclim	
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2011	234,000	03-31-11	04-08-11	Pond	Umatilla River
<b>Umatilla Tribe Total</b>					<b>918,548</b>				
Warm Springs Tribe	Round Butte Hatchery	CH1	SP	2011	37,500	04-09-11	04-09-11	W Fk Hood River	Hood River
<b>Warm Springs Tribe Total</b>					<b>37,500</b>				
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH1	FA	2011	460,000	04-10-11	04-20-11	Lyons Ferry Hatchery	Snake River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2011	6,400	04-10-11	04-20-11	Baileysburg Bridge	Touchet River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2011	8,000	04-10-11	04-20-11	Baileysburg Bridge	Touchet River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2011	85,000	04-01-11	04-15-11	Dayton Acclim Pond	Touchet River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2011	100,000	04-10-11	04-20-11	Walla Walla River	Walla Walla River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2011	160,000	04-10-11	04-20-11	Lyons Ferry Hatchery	Snake River
								Cottonwood Acclim	
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2011	197,000	04-01-11	04-10-11	Pond	Grande Ronde River
								Ringold Springs	
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	ST	SU	2011	145,500	04-01-11	04-15-11	Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2011	113,000	04-01-11	04-30-11	Curl Lake Acclim Pond	Tucannon River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2011	118,000	04-01-11	04-30-11	Curl Lake Acclim Pond	Tucannon River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	ST	SU	2011	77,000	04-10-11	04-20-11	Tucannon Hatchery	Tucannon River
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CO	NO	2011	2,500,000	04-01-11	04-07-11	Klickitat River	Klickitat River
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>3,969,900</b>				
								Jack Creek Acclim	
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2011	273,539	03-15-11	05-14-11	Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2011	279,639	03-15-11	05-14-11	Clark Flat Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2011	282,335	03-15-11	05-14-11	Easton Pond	Yakima River
<b>Yakama Tribe Total</b>					<b>835,513</b>				
<b>Grand Total</b>					<b>30,530,822</b>				

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



## 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>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>#</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>	
3/18	---	---	---	0	103.4	104.2	104.4	23	102.7	103.3	103.8	24	104.4	104.9	105.3	23	---	---	---	0
3/19	---	---	---	0	103.7	104.0	104.4	23	103.5	103.7	103.9	24	105.1	105.4	105.8	23	---	---	---	0
3/20	---	---	---	0	103.4	104.3	105.2	23	103.3	103.8	104.0	24	105.1	105.7	105.9	23	---	---	---	0
3/21	100.0	100.0	100.2	13	103.8	104.1	104.6	23	103.9	104.1	104.7	24	104.3	105.4	106.3	23	103.0	103.0	103.3	10
3/22	100.0	100.1	100.2	24	103.3	103.6	104.1	24	103.1	103.3	103.6	24	101.9	102.1	102.7	24	102.5	102.6	102.7	24
3/23	96.7	96.9	99.3	23	103.9	104.1	104.3	23	103.1	103.7	103.9	24	102.0	102.5	102.7	23	102.2	102.3	102.4	24
3/24	96.2	96.2	96.3	24	104.0	104.2	104.5	24	104.4	104.6	104.9	24	103.0	103.3	103.7	24	102.8	102.9	103.0	24
3/25	96.1	96.1	96.3	14	103.5	103.5	103.8	13	104.3	104.5	104.6	24	102.9	102.9	103.4	13	102.8	102.9	103.0	24
3/26	---	---	---	0	---	---	---	0	104.3	104.6	104.9	24	---	---	---	0	102.8	102.9	103.0	24
3/27	---	---	---	0	---	---	---	0	104.3	104.4	104.6	24	---	---	---	0	102.7	102.8	103.0	24
3/28	96.3	96.3	96.5	18	103.1	103.4	104.1	16	103.4	103.6	103.9	24	102.4	102.5	103.3	16	102.2	102.3	102.5	24
3/29	96.3	96.4	96.5	24	103.2	103.7	104.0	22	103.5	103.7	103.7	24	102.2	102.4	102.6	22	102.6	102.8	103.0	24
3/30	96.4	96.5	96.5	22	103.5	103.7	104.3	18	103.8	103.9	104.0	24	102.7	103.0	103.9	18	102.8	103.0	103.2	24
3/31	97.7	98.6	100.0	24	103.7	104.0	104.4	24	104.1	104.2	104.4	24	102.7	103.0	103.3	24	102.9	103.1	103.2	24

### 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>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>#</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>	
3/18	---	---	---	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	103.0	103.1	103.8	14	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/25	103.1	103.7	104.5	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/26	97.9	98.7	103.0	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/27	99.9	100.2	100.8	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/28	101.0	101.4	102.2	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/29	102.3	102.6	103.5	23	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/30	102.7	103.1	104.8	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/31	106.1	109.1	109.7	24	---	---	---	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>							
	<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>#</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>	
3/18	---	---	---	0	---	---	---	0	102.2	102.6	102.9	24	102.1	102.5	102.8	24	102.6	103.0	103.3	24
3/19	---	---	---	0	---	---	---	0	102.8	102.9	103.0	24	102.6	102.7	102.9	24	103.1	103.5	103.7	24
3/20	---	---	---	0	---	---	---	0	103.2	103.5	103.6	24	102.9	103.2	103.3	24	103.4	103.8	104.0	24
3/21	---	---	---	0	---	---	---	0	103.3	103.5	103.6	24	103.2	103.3	103.4	24	103.5	103.8	104.1	24
3/22	---	---	---	0	---	---	---	0	102.2	102.4	102.8	24	102.0	102.2	102.7	24	102.5	102.7	103.0	24
3/23	---	---	---	0	---	---	---	0	102.5	103.0	103.5	24	103.0	104.3	105.9	24	102.5	103.0	103.9	24
3/24	---	---	---	0	---	---	---	0	103.8	104.0	104.1	24	104.4	104.5	104.6	24	105.2	105.5	106.2	24
3/25	---	---	---	0	---	---	---	0	104.1	104.3	104.6	24	104.3	104.4	104.6	24	104.6	104.8	104.9	24
3/26	---	---	---	0	---	---	---	0	104.2	104.4	104.5	24	104.3	104.5	104.6	24	104.4	104.6	104.7	24
3/27	---	---	---	0	---	---	---	0	103.9	104.1	104.1	24	104.1	104.3	104.3	24	104.2	104.3	104.4	24

## 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>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
3/18	---	---	---	0	103.4	104.2	104.4	23	102.7	103.3	103.8	24	104.4	104.9	105.3	23	---	---	---	0
3/19	---	---	---	0	103.7	104.0	104.4	23	103.5	103.7	103.9	24	105.1	105.4	105.8	23	---	---	---	0
3/20	---	---	---	0	103.4	104.3	105.2	23	103.3	103.8	104.0	24	105.1	105.7	105.9	23	---	---	---	0
3/21	100.0	100.0	100.2	13	103.8	104.1	104.6	23	103.9	104.1	104.7	24	104.3	105.4	106.3	23	103.0	103.0	103.3	10
3/22	100.0	100.1	100.2	24	103.3	103.6	104.1	24	103.1	103.3	103.6	24	101.9	102.1	102.7	24	102.5	102.6	102.7	24
3/23	96.7	96.9	99.3	23	103.9	104.1	104.3	23	103.1	103.7	103.9	24	102.0	102.5	102.7	23	102.2	102.3	102.4	24
3/24	96.2	96.2	96.3	24	104.0	104.2	104.5	24	104.4	104.6	104.9	24	103.0	103.3	103.7	24	102.8	102.9	103.0	24
3/25	96.1	96.1	96.3	14	103.5	103.5	103.8	13	104.3	104.5	104.6	24	102.9	102.9	103.4	13	102.8	102.9	103.0	24
3/26	---	---	---	0	---	---	---	0	104.3	104.6	104.9	24	---	---	---	0	102.8	102.9	103.0	24
3/27	---	---	---	0	---	---	---	0	104.3	104.4	104.6	24	---	---	---	0	102.7	102.8	103.0	24
3/28	96.3	96.3	96.5	18	103.1	103.4	104.1	16	103.4	103.6	103.9	24	102.4	102.5	103.3	16	102.2	102.3	102.5	24
3/29	96.3	96.4	96.5	24	103.2	103.7	104.0	22	103.5	103.7	103.7	24	102.2	102.4	102.6	22	102.6	102.8	103.0	24
3/30	96.4	96.5	96.5	22	103.5	103.7	104.3	18	103.8	103.9	104.0	24	102.7	103.0	103.9	18	102.8	103.0	103.2	24
3/31	97.7	98.6	100.0	24	103.7	104.0	104.4	24	104.1	104.2	104.4	24	102.7	103.0	103.3	24	102.9	103.1	103.2	24

### 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>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
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	103.0	103.1	103.8	14	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/25	103.1	103.7	104.5	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/26	97.9	98.7	103.0	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/27	99.9	100.2	100.8	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/28	101.0	101.4	102.2	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/29	102.3	102.6	103.5	23	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/30	102.7	103.1	104.8	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/31	106.1	109.1	109.7	24	---	---	---	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>			#
	<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
3/18	---	---	---	0	---	---	---	0	102.2	102.6	102.9	24	102.1	102.5	102.8	24	102.6	103.0	103.3	24
3/19	---	---	---	0	---	---	---	0	102.8	102.9	103.0	24	102.6	102.7	102.9	24	103.1	103.5	103.7	24
3/20	---	---	---	0	---	---	---	0	103.2	103.5	103.6	24	102.9	103.2	103.3	24	103.4	103.8	104.0	24
3/21	---	---	---	0	---	---	---	0	103.3	103.5	103.6	24	103.2	103.3	103.4	24	103.5	103.8	104.1	24
3/22	---	---	---	0	---	---	---	0	102.2	102.4	102.8	24	102.0	102.2	102.7	24	102.5	102.7	103.0	24
3/23	---	---	---	0	---	---	---	0	102.5	103.0	103.5	24	103.0	104.3	105.9	24	102.5	103.0	103.9	24
3/24	---	---	---	0	---	---	---	0	103.8	104.0	104.1	24	104.4	104.5	104.6	24	105.2	105.5	106.2	24
3/25	---	---	---	0	---	---	---	0	104.1	104.3	104.6	24	104.3	104.4	104.6	24	104.6	104.8	104.9	24
3/26	---	---	---	0	---	---	---	0	104.2	104.4	104.5	24	104.3	104.5	104.6	24	104.4	104.6	104.7	24
3/27	---	---	---	0	---	---	---	0	103.9	104.1	104.1	24	104.1	104.3	104.3	24	104.2	104.3	104.4	24
3/28	---	---	---	0	---	---	---	0	102.8	103.1	103.3	24	103.1	103.3	103.6	24	103.1	103.3	103.6	24
3/29	---	---	---	0	---	---	---	0	102.8	102.9	103.0	24	103.1	103.2	103.8	24	103.3	103.3	103.4	24
3/30	---	---	---	0	---	---	---	0	102.8	102.9	103.0	24	103.9	104.8	108.3	24	103.4	103.6	104.0	24
3/31	---	---	---	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>Clrwrtr-Peck</u>			<u>Anatone</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>	#	<u>24 h</u>	<u>12 h</u>	#					
	Avg	Avg		High	Avg		Avg	High		Avg	Avg		High	Avg		Avg	High			
3/18	102.6	103.0	103.2	24	103.0	104.0	104.5	24	105.2	105.8	106.0	24	102.5	103.3	103.8	24	102.2	102.9	103.5	24
3/19	102.9	103.0	103.3	24	103.3	104.1	104.8	24	107.8	108.4	109.1	24	103.5	103.9	104.4	24	102.7	103.5	104.5	24
3/20	103.4	103.8	104.0	24	103.4	104.2	104.9	24	108.2	108.6	108.7	24	103.7	104.2	104.6	24	103.5	104.1	104.5	24
3/21	103.5	103.6	103.8	24	103.0	103.5	103.9	24	106.5	108.4	109.9	24	103.2	103.9	104.8	24	103.4	103.6	103.8	24
3/22	102.3	102.5	102.7	24	102.1	102.8	103.3	24	107.2	107.4	107.6	23	102.9	103.2	103.6	24	103.0	103.6	104.2	24
3/23	102.6	103.3	103.5	24	103.0	104.2	104.6	24	108.0	109.1	112.9	24	103.8	104.8	106.8	24	104.0	105.0	105.5	24
3/24	104.8	105.1	105.5	24	104.1	104.6	105.1	24	111.0	111.6	113.7	24	105.6	106.0	107.3	24	105.0	105.7	106.3	24
3/25	104.3	104.4	104.5	24	103.8	104.1	104.4	24	112.3	112.9	113.5	24	106.3	106.7	107.7	24	105.2	105.7	106.1	24
3/26	104.3	104.6	104.8	24	103.2	103.7	104.1	24	107.5	108.0	108.5	24	104.0	104.8	105.7	24	105.5	106.2	106.8	24
3/27	104.0	104.2	104.3	24	102.7	103.2	103.6	24	107.1	107.4	108.1	24	103.5	104.1	105.0	24	105.4	106.0	106.6	24
3/28	103.0	103.2	103.4	24	102.3	103.2	103.6	24	106.2	106.6	107.0	24	102.8	103.2	103.8	24	104.9	105.3	105.8	24
3/29	103.1	103.3	103.4	24	102.6	102.8	103.0	24	106.2	106.6	107.1	24	102.9	103.3	103.8	24	105.3	105.7	106.3	24
3/30	103.4	103.7	104.3	24	102.7	103.2	103.5	24	106.3	106.8	107.6	24	102.7	103.0	103.5	24	105.8	106.2	106.4	24
3/31	---	---	---	0	103.3	104.0	104.4	24	114.2	114.6	115.8	24	105.2	105.8	106.2	24	104.7	105.1	105.3	24

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

Date	<u>Clrwrtr-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>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	Avg		Avg	High		Avg	Avg		High	Avg		Avg	High			
3/18	101.8	102.8	103.5	21	102.2	102.4	102.9	24	101.7	102.0	102.2	24	102.1	102.6	103.1	24	101.3	101.8	102.1	24
3/19	101.8	102.8	104.0	24	102.3	102.4	102.5	24	101.7	101.8	101.9	24	102.8	103.0	103.2	24	101.9	102.0	102.2	24
3/20	101.8	102.7	103.4	24	103.1	103.4	103.6	24	102.4	102.8	103.0	24	103.1	103.4	103.5	24	102.1	102.4	102.5	24
3/21	101.6	101.8	102.1	24	103.0	103.4	103.7	24	102.5	102.9	103.1	24	102.9	103.2	103.3	24	101.9	102.2	102.6	24
3/22	101.2	102.2	103.2	23	101.8	102.0	102.4	24	101.3	101.5	101.8	24	101.3	101.5	102.1	24	100.2	100.4	100.8	24
3/23	102.0	103.4	104.1	24	102.4	102.9	103.6	24	101.9	102.5	102.8	24	101.7	102.1	102.4	24	100.9	101.7	102.0	24
3/24	103.2	104.2	104.9	24	103.6	104.0	104.7	24	103.3	103.7	104.1	24	102.8	102.9	103.1	24	102.2	102.3	102.5	24
3/25	103.3	104.3	105.4	24	104.6	104.8	104.9	24	104.0	104.1	104.2	24	102.8	103.0	103.4	24	102.0	102.2	102.3	24
3/26	102.6	103.2	103.9	24	105.0	105.2	105.4	24	104.4	104.7	104.9	24	103.1	103.4	103.6	24	102.2	102.5	102.7	24
3/27	102.0	103.1	104.2	24	104.5	104.8	105.1	24	104.0	104.1	104.4	24	102.9	103.1	103.4	24	102.0	102.1	102.2	24
3/28	101.3	102.0	102.5	24	103.7	104.0	104.6	24	103.1	103.3	103.8	24	102.3	102.5	102.7	24	101.4	101.5	101.8	24
3/29	101.4	102.0	102.6	24	103.4	103.6	103.7	24	102.9	103.0	103.1	24	102.7	102.8	102.9	24	102.1	102.6	104.4	24
3/30	101.1	101.2	101.3	24	103.8	103.9	104.1	24	102.5	109.8	113.1	24	102.8	102.9	103.0	24	104.1	105.6	107.1	24
3/31	102.5	103.5	104.0	24	104.4	104.5	104.7	24	108.3	108.6	108.9	24	103.0	103.1	103.3	24	107.0	107.2	107.4	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>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	Avg		Avg	High		Avg	Avg		High	Avg		Avg	High			
3/18	102.1	102.6	103.0	24	102.5	103.0	103.4	24	102.8	103.2	103.6	24	104.8	107.7	108.3	24	---	---	---	0
3/19	102.5	102.7	102.8	24	103.0	103.2	103.6	24	103.0	103.1	103.3	24	104.5	106.7	107.2	24	---	---	---	0
3/20	103.0	103.4	103.5	24	103.2	103.8	105.1	23	103.4	103.8	104.1	24	104.7	106.6	110.9	24	---	---	---	0
3/21	103.2	103.4	103.5	24	103.4	103.6	103.7	24	103.4	103.8	103.9	24	105.9	108.2	108.6	24	---	---	---	0
3/22	101.7	101.9	102.4	24	101.8	102.0	102.5	24	101.8	102.0	102.4	24	101.3	101.5	101.8	24	---	---	---	0
3/23	101.8	102.3	102.6	24	102.0	102.4	102.6	24	102.4	103.0	103.5	24	103.6	105.8	109.4	24	---	---	---	0
3/24	102.8	102.9	103.1	24	103.0	103.2	103.4	24	103.5	103.6	103.8	24	104.1	105.2	109.7	24	---	---	---	0
3/25	102.8	102.9	103.0	24	103.1	103.3	103.5	24	103.1	103.3	103.5	24	108.0	109.1	110.2	24	---	---	---	0
3/26	102.7	102.8	102.9	24	102.8	103.0	103.3	24	102.8	103.0	103.1	24	107.5	110.7	110.9	24	---	---	---	0
3/27	102.4	102.5	102.5	24	102.6	102.7	103.2	24	102.5	102.7	102.8	24	102.6	103.2	107.1	24	---	---	---	0
3/28	101.5	101.7	102.1	24	101.7	101.9	102.3	24	101.4	101.6	102.1	24	105.1	108.3	109.9	24	---	---	---	0
3/29	101.7	101.8	101.9	24	101.5	101.8	102.3	24	101.5	101.6	101.6	24	107.8	108.9	109.0	24	---	---	---	0
3/30	102.1	102.2	102.3	24	103.2	104.9	106.0	24	101.8	101.9	102.0	24	110.8	112.7	115.1	24	---	---	---	0
3/31	102.6	102.7	102.9	24	106.6	107.2	107.5	24	102.3	102.5	102.7	24	116.5	117.1	117.6	24	---	---	---	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 River Sites

Date	<u>McNary-Wash</u>			# hr	<u>McNary Tlwr</u>			# hr	<u>John Day</u>			# hr	<u>John Day Tlwr</u>			# hr	<u>The Dalles</u>			# hr
	<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24h</u>	<u>12h</u>	High		<u>24h</u>	<u>12h</u>	High		<u>24h</u>	<u>12h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
3/18	103.1	103.3	103.6	24	112.4	112.7	112.9	24	---	---	---	0	106.3	106.6	106.9	24	---	---	---	0
3/19	103.5	103.9	104.6	24	110.8	110.9	111.2	24	---	---	---	0	106.2	106.5	106.7	24	---	---	---	0
3/20	104.6	104.8	104.8	24	108.7	111.0	111.3	24	---	---	---	0	106.8	107.0	107.3	24	---	---	---	0
3/21	104.2	104.4	104.6	24	107.6	110.2	110.7	24	---	---	---	0	106.3	106.6	106.8	24	---	---	---	0
3/22	103.0	103.2	103.6	24	105.7	107.9	108.6	24	---	---	---	0	105.4	105.7	105.8	24	---	---	---	0
3/23	103.5	104.1	104.5	24	110.1	111.0	112.0	24	---	---	---	0	106.5	107.3	107.6	24	---	---	---	0
3/24	104.3	104.6	104.9	24	110.5	110.9	111.6	24	---	---	---	0	107.1	107.3	107.4	24	---	---	---	0
3/25	104.4	104.5	104.6	24	111.6	111.7	111.9	24	---	---	---	0	106.0	106.1	106.3	24	---	---	---	0
3/26	104.4	104.5	104.6	24	111.6	111.7	111.8	24	---	---	---	0	105.4	105.5	105.6	24	---	---	---	0
3/27	104.0	104.1	104.2	24	111.4	111.9	112.1	24	---	---	---	0	105.2	105.4	105.6	24	---	---	---	0
3/28	102.6	102.9	103.6	24	109.3	109.5	109.6	24	---	---	---	0	104.3	104.4	104.8	24	---	---	---	0
3/29	102.5	102.6	102.7	24	110.4	111.4	112.1	24	105.0	105.0	106.5	9	104.5	104.6	104.7	24	104.1	104.1	104.2	11
3/30	103.1	103.3	103.5	24	111.1	111.2	111.5	24	104.8	104.9	105.0	24	105.8	107.0	110.5	24	103.9	104.0	104.1	24
3/31	103.6	103.8	104.0	24	112.6	114.1	115.1	24	104.6	104.8	104.9	24	110.6	111.5	112.6	24	104.5	104.8	105.0	24

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

Date	<u>The Dalles Dnst</u>			# hr	<u>Bonneville</u>			# hr	<u>Warrendale</u>			# hr	<u>Camas\Washougal</u>			# hr	<u>Cascade Island</u>			# hr
	<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24h</u>	<u>12h</u>	High		<u>24h</u>	<u>12h</u>	High		<u>24h</u>	<u>12h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
3/18	105.5	105.7	106.0	24	---	---	---	0	105.8	106.0	106.2	24	105.1	105.4	105.7	24	112.2	112.8	113.4	24
3/19	105.4	105.5	105.6	24	---	---	---	0	106.1	106.3	106.5	24	105.6	106.1	106.6	24	112.0	112.5	112.7	24
3/20	106.0	106.2	106.6	24	---	---	---	0	106.7	107.0	107.2	24	105.5	105.8	106.1	24	112.1	112.5	112.6	24
3/21	105.6	106.0	106.1	24	---	---	---	0	105.8	106.0	106.4	24	105.2	105.4	105.8	24	110.7	111.0	111.3	24
3/22	104.6	104.7	104.8	24	---	---	---	0	105.1	105.3	105.4	24	104.9	105.8	106.6	24	110.4	110.8	111.3	24
3/23	105.8	106.4	106.7	24	---	---	---	0	105.8	106.2	106.4	24	105.0	105.5	106.0	24	111.2	111.8	112.3	24
3/24	106.5	106.8	106.8	24	---	---	---	0	106.5	106.7	107.1	24	105.4	105.6	105.8	24	111.3	111.8	112.2	24
3/25	105.4	105.7	105.9	24	---	---	---	0	106.1	106.3	106.4	24	105.3	105.8	106.1	24	111.1	111.6	111.8	24
3/26	105.0	105.3	105.5	24	---	---	---	0	106.1	106.3	106.6	24	105.8	106.1	106.8	24	111.0	111.5	111.8	24
3/27	104.2	104.4	104.7	24	---	---	---	0	105.2	105.4	105.7	24	105.0	105.2	105.3	24	110.5	111.3	111.8	24
3/28	103.6	103.8	103.9	24	---	---	---	0	103.6	104.0	104.7	24	103.6	104.0	104.3	24	109.3	110.0	110.6	24
3/29	104.2	104.4	104.5	24	---	---	---	0	103.9	104.0	104.2	24	103.4	103.5	103.7	24	109.4	109.9	110.2	24
3/30	104.0	104.2	105.0	24	103.6	103.7	103.7	24	103.9	104.1	104.2	24	103.2	103.4	103.6	24	109.0	109.7	111.3	24
3/31	105.9	106.5	107.2	24	103.6	103.8	104.1	24	105.5	106.1	106.7	24	104.3	105.2	106.0	24	113.0	113.9	114.9	24

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)
03/18/2011	*	741	127	23	0	---	---	---	---	---	535
03/19/2011	*	497	47	27	2	---	---	---	---	---	4,097
03/20/2011	*	501	41	25	3	---	---	---	---	---	3,171
03/21/2011	*	35	22	25	3	---	---	---	---	---	1,185
03/22/2011		72	33	26	3	---	---	---	---	---	329
03/23/2011		99	61	12	9	---	---	---	---	---	384
03/24/2011		10	3	21	7	---	---	---	---	---	882
03/25/2011	*	42	18	15	18	---	---	---	---	---	2,706
03/26/2011		1,293	30	15	7	380	---	---	---	---	3,080
03/27/2011	*	1,181	42	13	16	700	---	---	---	---	2,574
03/28/2011	*	534	51	67	17	1,190	---	---	---	---	1,910
03/29/2011		190	42	78	13	3,110	---	---	---	---	707
03/30/2011	*	558	85	89	21	5,138	---	---	---	---	458
03/31/2011	*	581	163	107	99	5,023	---	---	---	---	540
04/01/2011		---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>6,334</b>	<b>765</b>	<b>543</b>	<b>218</b>	<b>15,541</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>22,558</b>
<b># Days:</b>		<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>
<b>Average:</b>		<b>452</b>	<b>55</b>	<b>39</b>	<b>16</b>	<b>2,590</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,611</b>
<b>YTD</b>		<b>7,365</b>	<b>1,296</b>	<b>625</b>	<b>219</b>	<b>15,541</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>22,764</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)
03/18/2011	*	0	0	0	0	---	---	---	---	---	1,635
03/19/2011	*	0	0	0	0	---	---	---	---	---	1,292
03/20/2011	*	0	2	0	1	---	---	---	---	---	913
03/21/2011	*	0	0	0	0	---	---	---	---	---	1,005
03/22/2011		0	0	0	0	---	---	---	---	---	880
03/23/2011		0	0	0	0	---	---	---	---	---	1,558
03/24/2011		0	0	0	2	---	---	---	---	---	1,491
03/25/2011	*	0	0	0	3	---	---	---	---	---	1,387
03/26/2011		0	0	1	1	10	---	---	---	---	1,125
03/27/2011	*	0	0	0	2	20	---	---	---	---	1,434
03/28/2011	*	0	0	0	0	30	---	---	---	---	1,406
03/29/2011		0	0	0	1	20	---	---	---	---	1,232
03/30/2011	*	0	0	3	8	0	---	---	---	---	1,508
03/31/2011	*	0	1	1	12	32	---	---	---	---	1,310
04/01/2011		---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>3</b>	<b>5</b>	<b>30</b>	<b>112</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>18,176</b>
<b># Days:</b>		<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>19</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,298</b>
<b>YTD</b>		<b>9</b>	<b>3</b>	<b>10</b>	<b>34</b>	<b>112</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>34,204</b>

Two-Week Summary of Passage Indices

		COMBINED COHO									
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
03/18/2011	*	0	0	0	2	---	---	---	---	---	70
03/19/2011	*	0	0	0	1	---	---	---	---	---	63
03/20/2011	*	0	0	0	3	---	---	---	---	---	7
03/21/2011	*	0	0	0	1	---	---	---	---	---	36
03/22/2011		0	0	0	0	---	---	---	---	---	23
03/23/2011		0	0	0	4	---	---	---	---	---	31
03/24/2011		0	0	0	0	---	---	---	---	---	31
03/25/2011	*	0	0	0	1	---	---	---	---	---	15
03/26/2011		0	0	0	0	50	---	---	---	---	16
03/27/2011	*	0	0	0	1	50	---	---	---	---	23
03/28/2011	*	0	0	0	0	60	---	---	---	---	16
03/29/2011		0	0	0	0	30	---	---	---	---	29
03/30/2011	*	0	0	0	0	0	---	---	---	---	79
03/31/2011	*	0	0	0	1	63	---	---	---	---	311
04/01/2011		---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>253</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>750</b>
<b># Days:</b>		<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>42</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>54</b>
<b>YTD</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>18</b>	<b>253</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,316</b>

		COMBINED STEELHEAD									
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
03/18/2011	*	0	0	0	0	---	---	---	---	---	0
03/19/2011	*	0	4	1	1	---	---	---	---	---	0
03/20/2011	*	0	3	1	0	---	---	---	---	---	33
03/21/2011	*	1	1	0	1	---	---	---	---	---	13
03/22/2011		0	4	0	0	---	---	---	---	---	0
03/23/2011		0	2	2	0	---	---	---	---	---	0
03/24/2011		0	2	2	0	---	---	---	---	---	0
03/25/2011	*	0	4	0	0	---	---	---	---	---	8
03/26/2011		0	1	0	0	260	---	---	---	---	8
03/27/2011	*	0	2	0	0	810	---	---	---	---	39
03/28/2011	*	0	7	0	0	1,760	---	---	---	---	8
03/29/2011		0	1	0	0	8,550	---	---	---	---	29
03/30/2011	*	0	1	0	0	11,525	---	---	---	---	24
03/31/2011	*	2	44	22	2	9,759	---	---	---	---	41
04/01/2011		---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>3</b>	<b>76</b>	<b>28</b>	<b>4</b>	<b>32,664</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>203</b>
<b># Days:</b>		<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>5</b>	<b>2</b>	<b>0</b>	<b>5,444</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>15</b>
<b>YTD</b>		<b>6</b>	<b>103</b>	<b>32</b>	<b>6</b>	<b>32,664</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>256</b>

Two-Week Summary of Passage Indices

COMBINED SOCKEYE											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
03/18/2011	*	0	0	0	0	---	---	---	---	---	8
03/19/2011	*	0	0	0	0	---	---	---	---	---	8
03/20/2011	*	0	0	0	0	---	---	---	---	---	44
03/21/2011	*	0	0	0	0	---	---	---	---	---	0
03/22/2011		0	0	0	0	---	---	---	---	---	0
03/23/2011		0	0	0	0	---	---	---	---	---	8
03/24/2011		0	0	0	0	---	---	---	---	---	0
03/25/2011	*	0	0	0	0	---	---	---	---	---	23
03/26/2011		0	0	0	0	740	---	---	---	---	8
03/27/2011	*	0	0	0	0	570	---	---	---	---	16
03/28/2011	*	0	0	0	0	550	---	---	---	---	8
03/29/2011		0	0	0	0	660	---	---	---	---	15
03/30/2011	*	0	0	0	0	1,725	---	---	---	---	0
03/31/2011	*	0	0	0	0	694	---	---	---	---	0
04/01/2011		---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,939</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>138</b>
<b># Days:</b>		<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>823</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>
<b>YTD</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,939</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>226</b>

COMBINED LAMPREY JUVENILES											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR† (Coll)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)
03/18/2011	*	0	0	0	0	---	---	---	---	---	104
03/19/2011	*	0	0	0	0	---	---	---	---	---	72
03/20/2011	*	0	0	0	0	---	---	---	---	---	120
03/21/2011	*	0	0	0	0	---	---	---	---	---	40
03/22/2011		0	0	0	0	---	---	---	---	---	133
03/23/2011		0	0	0	0	---	---	---	---	---	100
03/24/2011		0	0	0	0	---	---	---	---	---	68
03/25/2011	*	0	0	0	0	---	---	---	---	---	80
03/26/2011		0	0	0	0	10	---	---	---	---	88
03/27/2011	*	0	0	0	0	0	---	---	---	---	76
03/28/2011	*	0	0	0	0	0	---	---	---	---	100
03/29/2011		0	0	0	0	30	---	---	---	---	148
03/30/2011	*	0	0	0	0	0	---	---	---	---	160
03/31/2011	*	0	---	0	0	27	---	---	---	---	104
04/01/2011		---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>67</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,393</b>
<b># Days:</b>		<b>14</b>	<b>13</b>	<b>14</b>	<b>14</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>100</b>
<b>YTD</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>67</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3,289</b>

## Two-Week Summary of Passage Indices

\* See sampling comments

<http://www.fpc.org/currentDaily/smpcomments.htm>

Smolt indices, clipped & unclipped or combined, are presented in the following order: yearling chinook (chinook 1's), subyearling chinook (chinook 0's), steelhead, coho, sockeye, and lamprey juveniles. Two classes of fish counts are shown in these tables:

Two classes of fish counts are shown in these tables:

Collection counts (Coll), which account for sample rates but are not adjusted for flow;

Passage indices (INDEX), 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.

Combined lamprey juvenile collection counts are provided for all sites. Combined lamprey juveniles is a combination of pacific lamprey ammocoetes, brook lamprey ammocoetes, unknown lamprey ammocoetes, and pacific lamprey macrophthalmia.

† Caution should be used with interpreting lamprey juvenile collection counts at LGR because of the possibility that lamprey may escape the sample tank before being sampled

### 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 =  $\text{Collection Counts} / \{ \text{Powerhouse Flow} / (\text{Powerhouse Flow} + \text{Spill}) \}$

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

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

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

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

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

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

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

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

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

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

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

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

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: 03/31

DAM	EndDate	Spring Chinook						Summer Chinook						Fall Chinook					
		2011		2010		10-Yr Avg.		2011		2010		10-Yr Avg.		2011		2010		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	03/30	107	0	380	14	2337	3	0	0	0	0	0	0	0	0	0	0	0	0
TDA	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JDA	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MCN	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IHR	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LMN	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LGS	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LGR	03/28	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PRD	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RRH	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEL	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WFA	03/30	18	0	326	0	-	-	-	-	-	-	-	-	0	0	0	0	0	-

DAM	Coho						Sockeye			Steelhead			
	2011		2010		10-Yr Avg.		2011	2010	10-Yr Avg.	2011	2010	10-Yr Avg.	Wild 2011
	Adult	Jack	Adult	Jack	Adult	Jack							
BON	0	0	0	0	0	0	0	0	0	840	1588	750	366
TDA	0	0	0	0	0	0	0	0	0	0	0	0	0
JDA	0	0	0	0	0	0	0	0	0	0	0	0	0
MCN	0	0	0	0	0	0	0	0	0	0	0	0	0
IHR	0	0	0	0	0	0	0	0	0	0	0	0	0
LMN	0	0	0	0	0	0	0	0	0	0	0	0	0
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0
LGR	0	0	0	0	0	0	0	0	0	4282	5322	4742	1382
PRD	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS	0	0	0	0	0	0	0	0	0	0	0	0	0
RRH	0	0	0	0	0	0	0	0	0	0	0	0	0
WEL	0	0	0	0	0	0	0	0	0	0	0	0	0
WFA	0	0	0	0	-	-	-	-	-	4866	5118	-	-

PRD does not post wild steelhead numbers.

These numbers were collected from USACE, Grant PUD, Douglas PUD, Chelan PUD, ODFW and DART.

Wild steelhead numbers are included in the total. Wild Steelhead are defined as unclipped fish.

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.

Page last updated on: 03/31/11

BON counts from January 1, 2009 to March 15, 2010 (historical counts begin March 15):

Year	Chinook Adult	Chinook Jack	Steelhead	Wild Steelhead
2011	49	1	1,419	600
2010	39	0	2,318	657

### Two Week Transportation Summary

Source: Fish Passage Center

Updated:

4/1/11 10:11 AM

03/18/11 TO 04/01/11

		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
<b>LGR</b>	Sum of NumberCollected	107	14,735	243	31,099	4,828	51,012
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	103	14,728	242	31,095	4,799	50,967
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	4	7	1	4	28	44
	Sum of FacilityMorts	0	0	0	0	1	1
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	4	7	1	4	29	45
Total Sum of NumberCollected		107	14,735	243	31,099	4,828	51,012
Total Sum of NumberBarged		0	0	0	0	0	0
Total Sum of NumberBypassed		103	14,728	242	31,095	4,799	50,967
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		4	7	1	4	28	44
Total Sum of FacilityMorts		0	0	0	0	1	1
Total Sum of ResearchMorts		0	0	0	0	0	0
Total Sum of TotalProjectMorts		4	7	1	4	29	45

### YTD Transportation Summary

Source: Fish Passage Center

Updated:

4/1/11 10:11 AM

TO: 04/01/11

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
<b>LGR</b>	Sum of NumberCollected	107	14,735	243	4,828	31,099	51,012
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	103	14,728	242	4,799	31,095	50,967
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	4	7	1	28	4	44
	Sum of FacilityMorts	0	0	0	1	0	1
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	4	7	1	29	4	45
Total Sum of NumberCollected		107	14,735	243	4,828	31,099	51,012
Total Sum of NumberBarged		0	0	0	0	0	0
Total Sum of NumberBypassed		103	14,728	242	4,799	31,095	50,967
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		4	7	1	28	4	44
Total Sum of FacilityMorts		0	0	0	1	0	1
Total Sum of ResearchMorts		0	0	0	0	0	0
Total Sum of TotalProjectMorts		4	7	1	29	4	45