



FISH PASSAGE CENTER

1827 NE 44th, Suite 240, Portland, OR 97213

Phone: (503) 230-4099 Fax: (503) 230-7559

<http://www.fpc.org>

e-mail us at fpcstaff@fpc.org

MEMORANDUM

TO: Tom Lorz, CRITFC

Michele DeHart

FROM: Michele DeHart, FPC

DATE: April 14, 2010

RE: 2010 Water Supply and Snowpack

At your request, the FPC staff has summarized Water Supply Forecasts issued by the River Forecast Center (RFC) over February, March, and April of 2010 at The Dalles Dam (April-Aug) and Lower Granite Dam (April-July). Water Supply Forecasts are issued three times per month by the RFC and involve a monthly Early Forecast, a Final Forecast, and a Mid-Month Forecast. The forecast periods used for this comparison were the April through August period at The Dalles and the April through July period at Lower Granite Dam. These forecast periods are important as they are the official periods used in the Biological Opinion to set spring flow objectives at McNary Dam (April Final Forecast at The Dalles) and Lower Granite Dam (April Final Forecast at Lower Granite Dam). Our summary points from this comparison follow:

- Since the March Final Forecast issued on March 5, 2010, Water Supply Forecasts at both The Dalles Dam and Lower Granite Dam have remained relatively stable.
- Snow water equivalents have been relatively stable over most of March and have seen some increases over the beginning of April due to recent storm activity. These increases in snow water equivalents are not reflected in the April final forecast.
- Water Year 2010 at The Dalles will not approach the volume actually recorded at The Dalles in Water Year 2007 between April and August. However, the current water supply volume at Lower Granite Dam (April Final) is close to that recorded at Lower Granite Dam in 2007 between April and July.

The forecasts issued by the RFC at The Dalles Dam and Lower Granite Dam over February, March, and April of 2010 are presented in Table 1.

Table 1. 2010 Forecasts issued by the River Forecast Center over February, March, and April at The Dalles Dam and Lower Granite Dam. All Forecast can be found at: http://www.nwrfc.noaa.gov/water_supply/ws_fcst.cgi.

RFC Forecast, Date Issued	The Dalles Dam (April-Aug), Maf	Lower Granite Dam (April-July), Maf
February Early, 1-28-10	66.5	13.2
February Final, 2-5-10	68.5	13.8
February Mid-Month, 2-19-10	65.9	13.3
March Early, 2-25-10	64.3	12.7
March Final, 3-5-10	62.1	12.1
March Mid-Month, 3-18-10	60.7	11.7
April Early, 4-1-10	61.7	12.1
April Final, 4-7-10	60.9	12.0

From Table 1, Water Supply Forecasts issued by the RFC over February, March, and April have generally decreased over the 2010 Water Year at The Dalles Dam and Lower Granite Dam. However, since the March Final Forecast issued on March 5, 2010, Water Supply Forecasts at both The Dalles Dam and Lower Granite Dam have remained relatively stable.

Table 2 displays snow water equivalents (percent of average) over March and April 2010 at individual basins within the Columbia and Snake River drainages. In Table 2, basins are also grouped into the following larger basins: Columbia above the Snake confluence, Snake River, and the Lower Columbia between Bonneville and McNary Dams. Average values shown in Table 2 are not weighted by area and are simply straight averages of each individual basin within each group. Table 2 shows the snow water equivalents as of certain dates (i.e., March 1) spaced by approximately one week time increments.

From Table 2, it is clear that snow water equivalents have been relatively stable over most of March and have seen some increases over the beginning of April due to recent storm activity. It should be pointed out that the increases seen in snow water equivalents over early April have not resulted in similar increases in the Water Supply Forecasts between the March Forecasts and the April Final forecast at either The Dalles or Lower Granite Dams. It is important to note that the April Final forecasts issued by the River Forecast Center, although issued on April 7th, 2010, only includes snow water equivalents through the end March. For this reason, the increases seen in snow water equivalents over early April in 2010 throughout the Columbia and Snake Basins have not had a notable influence on the April Final Water Supply Forecasts issued by the RFC. Moreover, it is reasonable to assume that the recent increases in snow water equivalents will have an impact on future Water Supply Forecasts, leading future forecasts to either

continue to stabilize or even increase slightly depending on what occurs over the remaining portion of April.

Table 3 compares the April Final Forecast issued by the RFC at The Dalles (April to August period) and Lower Granite (April to July Period) in 2010 to actual runoff volumes over the same periods and locations in 2007. If the water supply volumes shown in the 2010 April Final Forecasts remain steady or even increase slightly, it does not appear that Water Year 2010 at The Dalles will approach the volume actually recorded at The Dalles in Water Year 2007 between April and August. However, the current water supply volume at Lower Granite Dam (April Final) is close to that recorded at Lower Granite Dam in 2007 between April and July. If the early April storm activity does translate to slight increases in future water supply, Water 2010 at Lower Granite could be very close to that actually recorded at Lower Granite in 2007.

Table 3. 2010 April Final Water Supply at The Dalles (April-August) and Lower Granite (April-July) in comparison to actual runoff volumes in 2007.

Location	2010 April Final WSF (Maf)	2007 Actual Runoff Volume (Maf)
The Dalles (April-August)	60.9	78.9
Lower Granite (April-July)	12.0	12.4

The last Single Trace Procedure (STP) issued by the RFC on April 13th, 2010 has flows at Lower Granite averaging 61.4 Kcfs over May and flows at The Dalles Dam averaging 173.5 Kcfs over May. The April 13th, 2010 STP can be found at:

http://www.nwrfc.noaa.gov/stp/stp_table.cgi.

Table 2. Weekly Snowpack Summary over March and April of Water year 2010.
 Data used from the Natural Resource Conservation Service, at
<ftp://ftp.wcc.nrcs.usda.gov/data/snow/update/columbia/>.

Basin	3/1/2010 Snow Water Equivalent (% Avg.)	3/8/2010 Snow Water Equivalent (% Avg.)	3/15/2010 Snow Water Equivalent (% Avg.)	3/22/2010 Snow Water Equivalent (% Avg.)	3/29/2010 Snow Water Equivalent (% Avg.)	4/5/2010 Snow Water Equivalent (% Avg.)	4/12/2010 Snow Water Equivalent (% Avg.)
<i>Columbia Above the Snake River Confluence</i>							
Kootenai River in Montana	68	66	65	65	67	72	75
Flathead River	72	69	68	68	68	71	73
Upper Clark Fork River	69	67	68	65	64	68	70
Bitterroot	52	51	52	51	52	57	59
Lower Clark Fork River	53	50	51	50	51	56	59
Idaho Panhandle Region	58	54	58	56	58	62	65
Columbia Above Methow	79	77	81	79	80	80	76
Chelan, Entiat, Wenatchee	80	78	79	78	77	85	92
Yakima, Ahtanum	81	79	80	79	80	91	97
<i>Average*</i>	68	66	67	66	66	71	74
<i>Snake River</i>							
Snake Above Palisades	57	55	53	52	52	59	62
Henry Fork, Teton, Willow, Blackfoot, Portneuf	57	55	53	51	52	60	64
Big and Little Wood	62	62	64	62	61	71	73
Big and Little Lost	55	53	56	53	52	62	64
Raft, Goose, Salmon Falls, Bruneau	73	73	77	73	76	87	90
Weiser, Payette, Boise	64	62	64	61	62	71	72
Owyhee Malheur	83	83	87	83	88	102	109
Grande Ronde, Powder, Burnt, Imnaha	77	74	76	76	77	84	91
Clearwater and Salmon	57	55	57	54	56	63	64
<i>Average*</i>	65	64	65	63	64	73	77
<i>Lower Columbia Between Bonneville and McNary</i>							
Umatilla, Walla Walla, Willow	65	57	59	55	59	64	74
Deschutes, Crooked, John Day	71	67	71	65	68	78	83
Lower Columbia, Hood River	43	40	47	45	50	68	79
<i>Average*</i>	60	55	59	55	59	70	79

*Straight average, not weighted by area.