

MEMORANDUM FOR THE RECORD

**COORDINATION TITLE** - 16WVP05 Flow Targets for Willamette Mainstem at Salem and North Santiam

**DATE** - 05 July 2016

**PROJECT** - Willamette Valley Projects

**RESPONSE DATE** - 19 July 2016

**Description of the problem**

To balance flow and temperature needs in the mainstem Willamette and its tributaries for migrating salmonids (juveniles and adults), flow targets are being adjusted adaptively as conditions change and as the latest forecasts become available.

**Type of change/outage required**

After discussions among the Action Agencies, the Services, Oregon Department of Fish and Wildlife, and others flow targets were adjusted and are listed below:

Willamette mainstem flow targets at Salem:

June 15-30: 8,700 cfs (7-day moving average) to 6,000 cfs minimum flow

North Santiam flow target (Big Cliff Dam): decreased to rearing flows (~1,000 cfs) on 01 July.

Fern Ridge flows decreased to 30 cfs on June 6.

**Impact on facility operation**

This will conserve storage at Willamette Valley Projects.

**Dates of impacts/repairs**

Various, see section 'Type of change/outage required' above

**Length of time for changes/impacts/repairs**

Various, see section 'Type of change/outage required' above

**Expected impacts on fish**

The purpose of this effort is to balance flow and temperature needs in the mainstem Willamette and its tributaries for migrating salmonids (juveniles and adults) and other fish while considering water conservation for future needs.

**Comments from agencies**

-----Original Message-----

From: Anne Mullan - NOAA Federal [mailto:anne.mullan@noaa.gov]

Sent: Friday, June 17, 2016 10:56 AM

To: Teed, Tina J NWP <Tina.J.Teed@usace.army.mil>

Cc: Elise X Kelley <Elise.X.Kelley@coho2.dfw.state.or.us>; Walker, Christopher NWP <Christopher.E.Walker@usace.army.mil>; Taylor, Gregory A NWP <Gregory.A.Taylor@usace.army.mil>; Scullion, Mary K NWP <Mary.K.Scullion@usace.army.mil>; Donner, Alan D NWP <Alan.D.Donner@usace.army.mil>; Friesen, Tom <Tom.Friesen@oregonstate.edu>; Stephanie Burchfield - NOAA Federal <stephanie.burchfield@noaa.gov>; Domingue, Rich <Richard.domingue@noaa.gov>  
Subject: [EXTERNAL] Re: Salem forecast data

Hi Tina

I appreciate the actual numbers you sent and the graph showing how it would plateau as you drop flows toward July 1 target, from the current 7 day moving average of 8700 cfs to an instantaneous minimum of 6000 cfs. As we are seeing Chinook counts at Willamette Falls over 200 several days this month, which is typical for June, albeit on the lighter side, we would expect a significant number to still be crossing the Falls. I've looked at the last 15 years counts and see that there is on average 1/3 of the run that moves over the Falls in June, and for this year that would mean about 9000 fish would migrate in June.

NMFS would like to see some higher flows going into the end of next week than what the Corps proposed, followed by a drop as shown here to plateau at a higher level, dropping again closer to July 1st. This does allow a lower than RPA targets for 7 day moving average, beginning on June 25th, the same date as your proposal. The flows wouldn't drop as far below in the following days, which will help with fish migration, especially as air temperatures rise given the forecast of the sunny days returning.

Feel free to call me this morning if it would help to clarify this request. Best, Anne

Corps	NMFS	
9185	9185	20-Jun
8800	8800	21-Jun
8565	8600	22-Jun
8340	8600	23-Jun
8100	8600	24-Jun
7710	8000	25-Jun
7450	8000	26-Jun
7310	7500	27-Jun
7265	7000	28-Jun
7260	6900	29-Jun
7258	6500	30-Jun
7250	6000	1-Jul

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Anne Mullan  
Ph.D

Endangered Species Biologist  
National Marine Fisheries Service

-----Original Message-----

From: Anne Mullan - NOAA Federal [mailto:anne.mullan@noaa.gov]  
Sent: Friday, June 17, 2016 12:57 PM

To: Elise X Kelley <elise.x.kelley@state.or.us>  
Cc: Teed, Tina J NWP <Tina.J.Teed@usace.army.mil>; Walker, Christopher NWP <Christopher.E.Walker@usace.army.mil>; Taylor, Gregory A NWP <Gregory.A.Taylor@usace.army.mil>; Scullion, Mary K NWP <Mary.K.Scullion@usace.army.mil>; Donner, Alan D NWP <Alan.D.Donner@usace.army.mil>; Tom Friesen <tom.friesen@oregonstate.edu>; Stephanie Burchfield - NOAA Federal <stephanie.burchfield@noaa.gov>; Domingue, Rich <Richard.domingue@noaa.gov>  
Subject: [EXTERNAL] Re: Salem forecast data

To clarify, in essence, NMFS is not asking for the daily flows listed necessarily but rather that these 7 day moving averages are achieved: 8700 cfs through June 25th, 8000 cfs or above through June 28th, and dropping from there as gradually as possible to July 1st, when the instantaneous minimum target of 6000 cfs is met. When we meet to discuss on June 29th (per our June 15th conversation), we can review how the Salem and Albany August targets look.

best, Anne

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Anne Mullan  
Ph.D

Endangered Species Biologist  
National Marine Fisheries Service

-----Original Message-----

From: Anne Mullan - NOAA Federal [mailto:anne.mullan@noaa.gov]  
Sent: Friday, June 17, 2016 3:34 PM  
To: Teed, Tina J NWP <Tina.J.Teed@usace.army.mil>  
Cc: Elise X Kelley <elise.x.kelley@state.or.us>; Walker, Christopher NWP <Christopher.E.Walker@usace.army.mil>; Taylor, Gregory A NWP <Gregory.A.Taylor@usace.army.mil>; Scullion, Mary K NWP <Mary.K.Scullion@usace.army.mil>; Donner, Alan D NWP <Alan.D.Donner@usace.army.mil>; Tom Friesen <tom.friesen@oregonstate.edu>; Stephanie Burchfield - NOAA Federal <stephanie.burchfield@noaa.gov>; Domingue, Rich <Richard.domingue@noaa.gov>; Hart, Salina N NWP <Salina.N.Hart@usace.army.mil>  
Subject: Re: [EXTERNAL] Re: Salem forecast data

hi Tina

I've probably missed you by now, and so for Mary Karen? here's the bottom line from NMFS:

Provide the flows that allow the 7-day moving average on 6/25 to be 8700 cfs, then the gradual decline you've shown will be fine (and appears to achieve the lower 8000 7-day moving average target through 6/28). As noted below table 9-2.1 in the RPA, the 7-day moving average is observed over the prior 7-day period.

best, Anne

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Anne Mullan  
Ph.D

Endangered Species Biologist  
National Marine Fisheries Service

-----Original Message-----

From: Anne Mullan - NOAA Federal [mailto:anne.mullan@noaa.gov]  
Sent: Thursday, June 30, 2016 9:07 AM  
To: Teed, Tina J NWP <Tina.J.Teed@usace.army.mil>  
Cc: Elise X Kelley <Elise.X.Kelley@coho2.dfw.state.or.us>; Walker, Christopher NWP <Christopher.E.Walker@usace.army.mil>; Taylor, Gregory A NWP <Gregory.A.Taylor@usace.army.mil>; Scullion, Mary K NWP <Mary.K.Scullion@usace.army.mil>; Donner, Alan D NWP <Alan.D.Donner@usace.army.mil>; Hart, Salina N NWP <Salina.N.Hart@usace.army.mil>; Turner, Daniel F NWP <Daniel.F.Turner@usace.army.mil>; Stephanie Burchfield - NOAA Federal <stephanie.burchfield@noaa.gov>; Domingue, Rich <Richard.domingue@noaa.gov>  
Subject: [EXTERNAL] Re: Detroit/Big Cliff 1000 cfs July 1 release

Hello Tina, et al.

Based on our discussion yesterday that the flows at current RPA levels will cause the elevation level in Detroit/Big Cliff to drop below spillway levels by July 22, so that if instead the Corps drops to July 16 RPA target levels on July 1, we may have 8 or 10 days further spill operations. We also appreciate that the higher elevations will benefit marina and dock owners and recreational users.

Given the report from Greg Taylor that past years shift to 1000 cfs did not dewater steelhead redds, and that there are potential temperature benefits from spill operations to adult migrating spring Chinook (coming up a bit later this year), as well as outmigrating subyearlings Chinook, we agree to the earlier drop to 1000 cfs beginning soon after July 1, ramping down from the current 1200 cfs, for this 'wet' drought year's conditions.

Thanks for your informative communication on this matter.

best, Anne

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Anne Mullan  
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Endangered Species Biologist  
National Marine Fisheries Service

-----Original Message-----

From: Richard Domingue - NOAA Federal [mailto:richard.domingue@noaa.gov]  
Sent: Friday, June 03, 2016 3:30 PM

To: Walker, Christopher NWP <Christopher.E.Walker@usace.army.mil>  
Subject: [EXTERNAL] Re: Fern Ridge flows

NMFS has no concern with reducing Fern Ridge outflows.

**Final results**

Flow changes are being implemented as coordinated.

Please email or call with questions or concerns.

Thank you,

Chris Walker  
NWP Operations Division Fishery Section  
503.808.4316  
[Christopher.E.Walker@usace.army.mil](mailto:Christopher.E.Walker@usace.army.mil)