CENWP-OD 23 April 2021

MEMORANDUM FOR THE RECORD

TITLE - 21LOP01 Fish Passage Measure 21
PROJECT - Lookout Point Dam
RESPONSE DATE - 07 May 2021

Description of the problem
Operational downstream fish passage operations will be employed at Lookout Point Dam. The spillway gate at Lookout Point will be operated as soon as the reservoir reaches 900 ft. elevation. Spill operations will continue throughout the summer or until the reservoir drops below 900 feet (this typically occurs in late Aug/early Sept). The operation will end or spill will be dramatically reduced 01 September due to decrease risks due to elevated temperatures.

On the first day of implementation, a 25%/75% spill to generation ratio will be employed and gradually work up to a 50/50 split (between spillway and powerhouse) to gradually warm downstream water temperatures and ensure that water temperature targets are not exceeded. The recommended spill/generation flow splits are based on past data and operations conducted at Lookout Point Dam. Throughout the summer, spill at a 50/50 split will be employed using adaptive management reducing the spill ratio if water temperatures (as measured at the USGS gage downstream of Dexter) exceed targets and/or TDG exceeds State water quality standards. The TDG standard is 110%; downstream water temperature targets are attached below. As for water temperatures, the upper bounds of the range will be targeted; average daily water temperatures should not exceed the maximum threshold. In other words, hourly water temperature readings may, at times, go above/below maximum water temperature targets, but averages for the day should fall between the Resource Agency (RA) temperature ranges.

The Lookout Point spillway will be operated during the night from dusk until dawn; spill should occur under the largest gate opening possible to achieve 50% of the releases for that day. Spill will not occur continuously, but in blocks. Based on past biological information, a minimum spillway gate opening of 1.5 feet is recommended. Turbine operations should be limited at night and instead operated during the day (from dawn until dusk) or if total discharge results in high water temperatures, TDG exceedances, or if there is a need to reduce spillway flows for power emergencies or Station Service.

Starting in May, as water temperatures begin to warm and adult spring Chinook begin migrating upstream, spillway discharges may need to be reduced to avoid negative impacts to adults from high water temperatures. High pre-spawn mortality is directly linked to high water temperatures. Water temperatures that exceed the targets should be avoided if possible. Coordination with ODFW will be imperative so as not to disrupt Dexter Fish Trap operations or the health of fish being held at the facility. The Dexter Fish Trap is dependent on Dexter forebay water temperatures well into July. The POC for coordinating with the Dexter Fish Facility will be Chris Walker.

Dexter's spillway will be operated as much as possible at night for fish passage, from dusk until dawn, barring any need for turbine operations due to power needs or poor water quality. TDG should be monitored to ensure that TDG, as measured at the Dexter USGS gage, does not exceed 110%. Adaptive management should be used as necessary to stay below state water quality standards.

As summer water temperatures rise, this operation will be reevaluated and potentially halted earlier than September due to impacts to water quality (i.e. water temperatures). Regional discussions and continual communications with the regulators throughout the summer is anticipated.

Potential Impacts and Mitigation

This operation can be accomplished consistent with operating protocols as described in water control manuals and water control diagrams; however, surface spill from Lookout Point Dam during the summer can increase water temperatures and create high TDG levels, both of which can impact hatchery operations at Dexter Ponds and Trap facilities. Operations may need to be adjusted to limit those impacts.

Low gate openings are associated with flow induced gate vibration and flow fluctuations. The minimum spillway gate opening at Dexter is 0.75 feet. If there is a need to reduce the gate opening to less than 0.75 feet, then Engineering staff will need to be consulted and on-the-ground observations will need to be conducted to determine if the gates are vibrating or bouncing, and if flow fluctuations could cause ramp rates to be exceeded. If operation at less than 0.75 feet is permitted, then periodic observation by operations staff will be required.

This measure should not impact reservoir elevations, so boat ramp usage should not be negatively impacted (reduced).

The Dexter turbines will be operated at the required minimum flow to alleviate cavitation concerns. Throughout this year, the team will work to refine guidance from staff at Willamette Valley projects. If minimum flow requirements change, this will be communicated with the reservoir regulators and documented accordingly.

Month	RA Target Temperature Range Maximum/Minimum*		ODEQ 2006 TMDL Target Temperatures		
			Hills Creek	Lookout Point/Dexter	Fall Creek
	°F	°F	°F	°F	°F
January	40.1	40.1	No Allocation Needed		
February	42.1	41.0			
March	42.1	41.0			
April	45.1	43.2	42.4	43.7	43.7
May	49.1	46.0	46.0	47.5	47.5
June	56.1	51.1	51.8	55.8	54.0
July	61.2	54.1	57.6	63.3	60.6
August	60.3	54.1	56.5	61.7	60.4
September	56.1	52.3	54.5	57.0	56.3
October	<50.0	<50.0	49.3	50.4	51.1
November	<50.0	<50.0	49.3	50.4	51.1
December	41.0	41.0	No Allocation Needed		

Operational Measure 21 will target the Resource Agency (RA) Temperature Targets, below. Discharge water temperatures should follow the upper bounds of these targeted ranges, but should not exceed the maximum temperature.

Biological Monitoring

A rotary screwtrap will be installed and operated below Lookout Point ~~or Dexter Dam~~ to provide information on the migration timing and size of naturally-produced juvenile salmonids exiting downstream of the dam(s). Results will be evaluated and compared to rotary screwtrap results previously collected under normal operating conditions.

Expected impacts on fish

The purpose is to provide safer passage and/or temperatures for salmonids. Additional insight may be provided by monitoring.

Comments from agencies

No comments

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

Greg Taylor
Willamette Valley Projects
541.349.3039
Gregory.A.Taylor@usace.army.mil

Kathryn Tackley
NWP Engineering and Construction

503.808.4883
Kathryn.L.Tackley@usace.army.mil