

**ROGUE BASIN PROJECT
CONSERVATION RELEASE SEASON OPERATING PLAN
WATER YEAR 2015**

1. General

Operational planning for the conservation release season begins with the January forecast and continues through October. The conservation release season plan identifies flow requirements for the Rogue and Applegate rivers and storage needs at Lost Creek and Applegate Reservoirs. The conservation release plan is developed in May with the Natural Resource Conservation Service (NRCS) May 1 water supply forecast. The plan is submitted for review and comment in mid-May and finalized about the first week in June. **Although the plan is “final”, the release plan is continuously updated as conditions change.**

a. The operating plan described herein is based on the NRCS May 2015 forecast for 50 percent probability of exceedance for Lost Creek and Applegate Reservoir inflows.

b. Hydrologic Conditions. Hydrologic conditions and forecasts have indicated that 2015 is a lower than average flow year for the Rogue Basin. Observed inflow to Lost Creek Reservoir is about 98 percent of average so far for Water Year 2015, October through April. Inflow for March and April, however, was 63 percent of average. Inflow to Applegate Reservoir is about 77 percent of average so far for Water Year 2015, October through April. Inflow for March and April was 35 percent of average. Runoff in Water Year 2015 for the Rogue Basin overall as measured at the Rogue River near Raygold gage is about 85 percent of average. Runoff for March and April was 58 percent of average measured at Raygold. Most of the runoff in the basin came early in the Water Year and the snowpack was poor due to above average temperatures. According to the NRCS the snowpack in the Rogue and Umpqua basins peaked at 70 to 90 percent below typical levels and the peak snowpack was 6 to 13 weeks earlier than normal. As of May 1, snow water equivalent in the basin was about 9 percent of median, and precipitation for the water year was about 89 percent of average.

The 2015 conservation plan was developed based on the NRCS May forecast. The forecast with 50 percent probability of exceedance for Lost Creek inflow for the May through September time period is 315,000 acre-feet, 64 percent of average. The forecast with 50 percent probability of exceedance for Applegate inflow for the May through September time period is 14,600 acre-feet, 19 percent of average.

The NRCS forecasts are based on a statistical correlation of current conditions with past flow outcomes in the 30-year period of record 1981 to 2010. The spring runoff in most of the years in the record had some significant snowmelt component. These types of forecasts may not be as reliable in a year like 2015 when snowpack is extremely low.

c. Coordination. The Rogue Basin Projects will be operated for the congressionally authorized purposes of flood damage reduction, fisheries enhancement, irrigation, municipal and industrial water supply, water quality, hydropower, and lake recreation. The conservation plan is developed and implemented in close coordination with the State of Oregon through the Oregon Water Resources Department (OWRD).

The flow objectives for Lost Creek and Applegate are based on meeting the authorized purposes. Conservation water storage in Lost Creek Reservoir is specifically allocated to the purposes of fisheries enhancement, irrigation, and municipal and industrial water supply. Conservation water storage in Applegate Reservoir is specifically allocated to the purposes of fisheries enhancement and irrigation. The fisheries enhancement objectives associated with the releases from the Rogue Basin projects are listed in Tables 1 and 2.

2. Conservation Plan

a. Assumptions. The planned releases are based on the NRCS May forecast for 50 percent probability of exceedance. This is a Lost Creek inflow volume of 315,000 acre-feet for May through September, 64 percent of average. For Applegate, this is an inflow volume of 14,600 acre-feet, 19 percent of average.

About 180,000 acre-feet is released from Lost Creek in most years to meet the authorized purposes of fisheries enhancement, irrigation, and municipal and industrial water supply. In Lost Creek Reservoir there is an additional 135,000 acre-feet of carryover storage available for the use in years of water shortage. Even though Lost Creek Reservoir filled this year, it is anticipated that a portion of the carryover storage will be used given the hydrologic conditions to date and the much lower than average flow forecast. The plan assumes that a total of about 230,000 acre-feet of storage will be released from Lost Creek which would include about 50,000 acre-feet of carryover storage.

Applegate Reservoir did not fill this year. The plan assumes a total of about 49,000 acre-feet of storage will be released for the authorized purposes of fisheries enhancement and irrigation, including a portion of the carryover storage. In years when Applegate fills there is about 62,000 acre-feet of storage available. Applegate has an additional 9,000 acre-feet of carryover storage.

Table 1 and Table 2 summarize the planned releases at Lost Creek and Applegate for the 2015 conservation plan. Figures 1 and 2 illustrate the range of elevations and flows that have a 50 percent probability of occurring at Lost Creek Reservoir and Applegate Reservoir, respectively, while following the planned releases.

3. Management Approach

a. The Corps will continue to coordinate with the State of Oregon agencies. The purpose of these meetings is to continue to assess the hydrologic situation as it develops, and if necessary, make occasional changes to the planned releases. Weekly coordination meetings may be preceded by internal conference calls among Corps employees.

b. The volume of conservation storage remaining at Lost Creek and Applegate will be closely monitored through the conservation season. **If appropriate, planned releases will be adjusted to ensure objectives are met.**

Table 1. 2015 State Recommendations for Flow Releases from Lost Creek Reservoir

Period	Average Proposed release (cfs)	Fishery Objective	ODFW target at Agness (Max Temp.)	Period	Average Proposed release (cfs)	Fishery Objective
May 21-31	2,300	a,b	67°F	Aug 1-10	1,500	f
				11-20	1,900	e,f
				21-31	1,900	e,f
June 1-10	2,600	a,b	68°F	Sept 1-5	1,900	e,f
11-20	2,600	a,b	68°F/69°F	6-10	1,300	d,e,f,g
21-30	2,100	a,b	69°F	11-20	900	c,d,g
July 1-10	1,500	a,b,f	--	21-30	900	
				Oct 1-10	900	c,d,g
				11-20	850	c,d,g
21-31	1,500	f	--	21-31	850	c,d,g

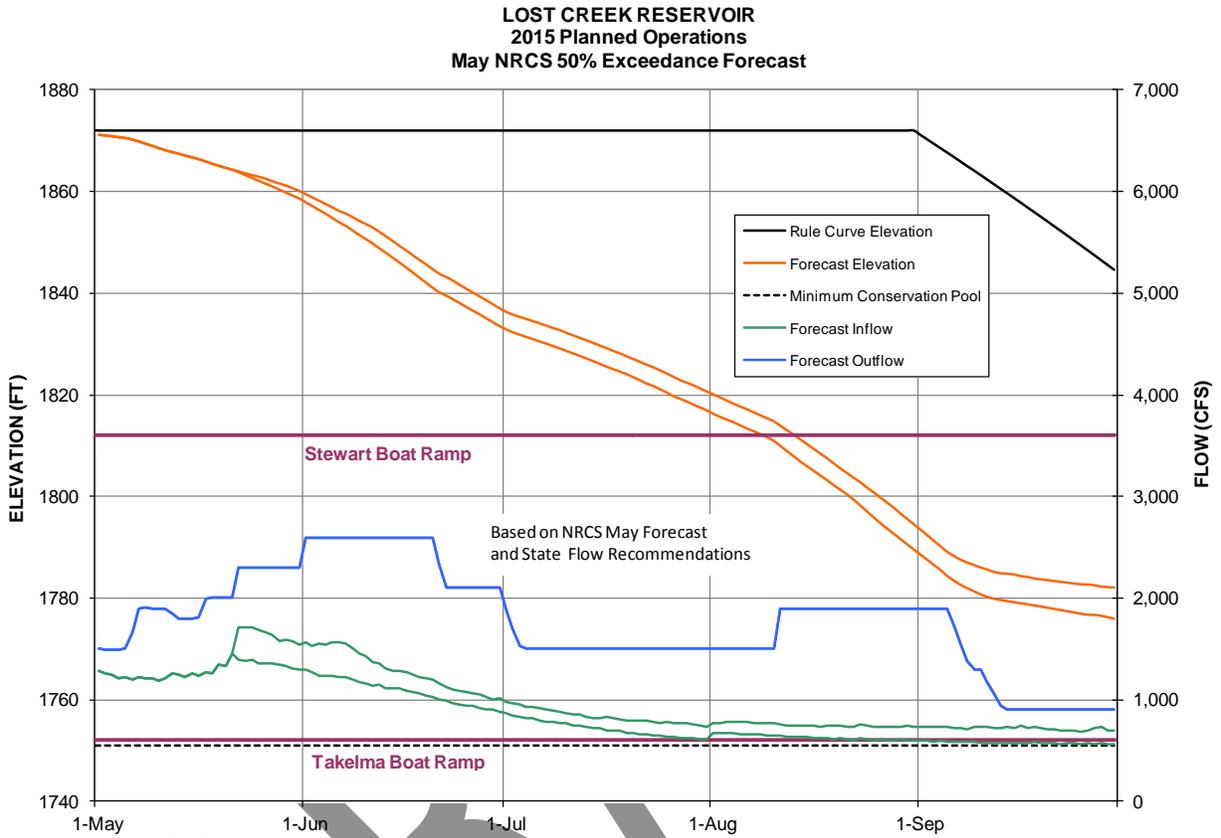
ODFW Fisheries Management Objectives Affected by River Flow:

- (a) Minimize pre-spawning mortality among adult spring chinook.
- (b) Minimize dewatering of juvenile salmonids.
- (c) Minimize dewatering of spring chinook redds in 2015-16.
- (d) Minimize early emergence by spring chinook fry in spring 2016.
- (e) Minimize pre-spawning mortality among adult fall chinook.
- (f) Increase survival rates of juvenile salmonids in summer.
- (g) Minimize the proportion of fall chinook that spawn above Gold Ray Dam (site).

Table 2. 2015 State Recommendations for Flow Releases from Applegate Reservoir

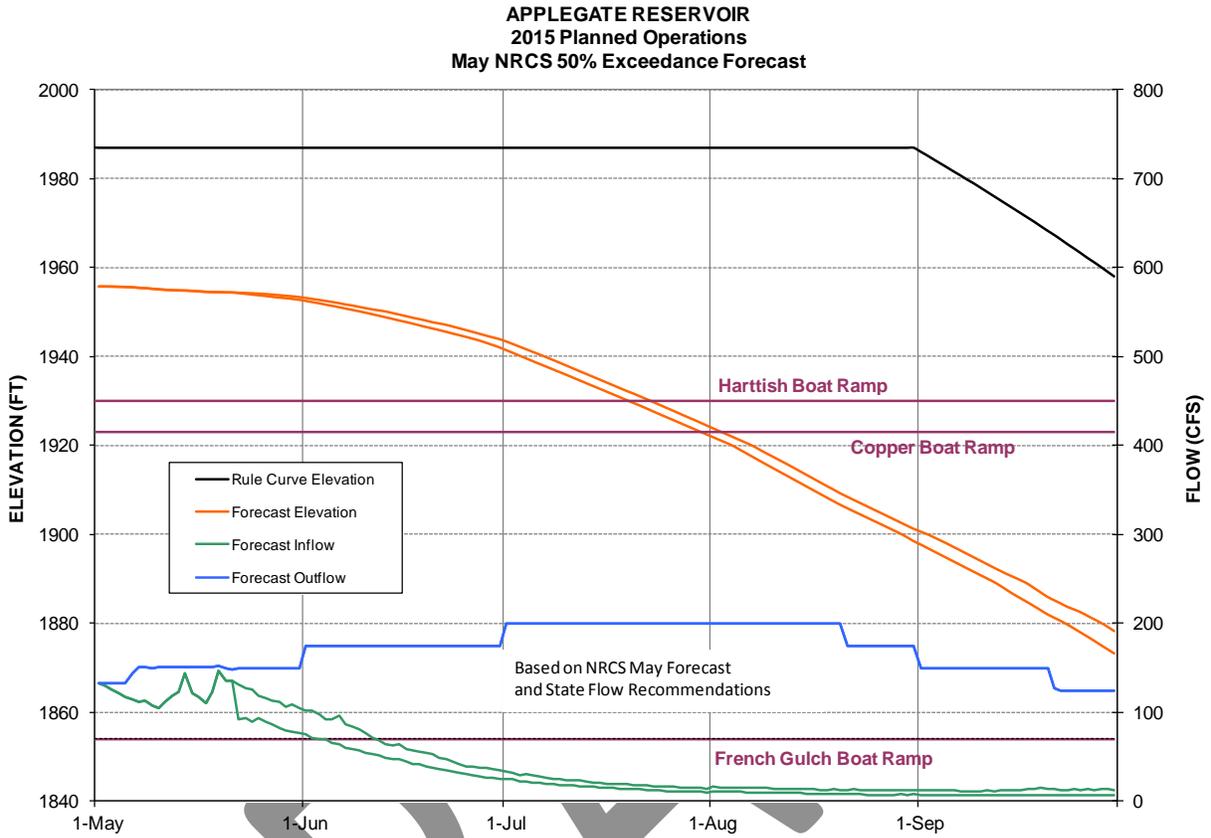
Period	Average Proposed release (cfs)	Fishery Objective		Period	Average Proposed release (cfs)	Fishery Objective
May 11-20 21-31	150	a,d		Sept 1-10	150	a
	150	a,d		11-20	150	a
				21-30	125	a
June 1-10 11-20 21-30	175	a,d		Oct 1-10	100	b
	175	a,d		11-20	100	b
	175	a		21-30	100	b
July 1-10 11-20 21-31	200	a				
	200	a				
	200	a				
Aug 1-10 11-20 21-31	200	a				
	200	a				
	175	a				
<p>ODFW Fisheries Management Objectives Affected by River Flow:</p> <p>(a) Increase summer rearing area for juvenile coho salmon, juvenile steelhead, and cutthroat trout.</p> <p>(b) Increase spawning distribution of fall chinook salmon.</p> <p>(c) Minimize dewatering loss of fall chinook eggs and fry in 2015-16.</p> <p>(d) Enhance rearing conditions for juvenile fall chinook salmon.</p>						

Figure 1. Lost Creek Reservoir Forecast Operations.



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Figure 2. Applegate Reservoir Forecast Operations.



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