

# DESCHUTES BASIN HCP: Conservation Measures & Monitoring Requirements

SUMMARY OF MEASURES

U.S. FISH & WILDLIFE SERVICE, BEND, OR

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This document is a compilation of the final Deschutes Basin Habitat Conservation Plan's (DBHCP) Conservation Measures and monitoring requirements. They are copied directly from the DBHCP and are provided here for reference.

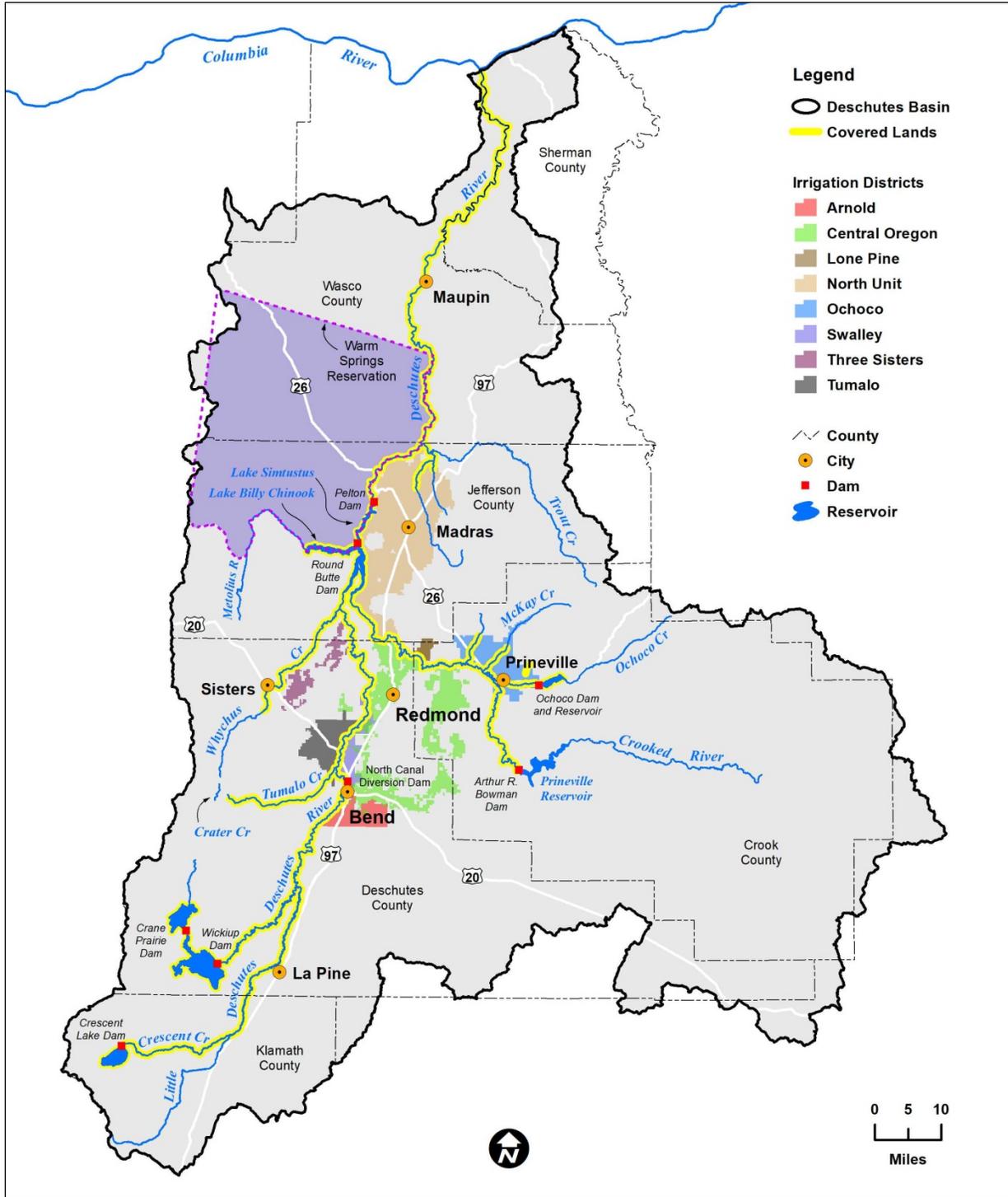


Figure 1 Map of the Deschutes River Basin, illustrating major facilities and waterways, and Permittee service areas (DBHCP, Figure 1-1).

## DBHCP CONSERVATION MEASURES

### CRANE PRAIRIE RESERVOIR CONSERVATION MEASURE

#### Measure CP-1: Crane Prairie Reservoir Operation \*

Crane Prairie Reservoir will be operated according to provisions A through F below for the entire term of the DBHCP. Water surface elevations will be measured at Hydromet Station CRA (OWRD Gage 14053500) at Crane Prairie Dam. Corresponding storage volumes are provided for reference only, and will not be used for verification of compliance with this measure. Flows will be measured at Hydromet Station CRAO (OWRD Gage 14054000) downstream of Crane Prairie Dam.

- A. From March 15 through July 15, the water surface elevation of Crane Prairie Reservoir will be maintained between 4,443.23 feet and 4,443.48 feet, which correspond to storage volumes of about 46,800 acre-feet and 48,000 acre-feet, respectively.
- B. From July 16 through July 31, the water surface elevation of Crane Prairie Reservoir may be lowered at a rate of no more than 0.05 foot per day.
- C. From August 1 through October 31, the water surface elevation of Crane Prairie Reservoir may be lowered at a rate of no more than 0.10 foot per day.
- D. From July 16 through October 31, the water surface elevation of Crane Prairie Reservoir will be no lower than elevation 4,441.23 feet (storage volume of about 37,870 acre-feet) and no higher than 4,443.48 feet (storage volume of about 48,000 acre-feet).
- E. From November 1 through March 14, the water surface elevation of Crane Prairie Reservoir will be increased from elevation 4,441.23 feet (storage volume of about 37,870 acre-feet) to at least 4,443.23 feet (storage volume of about 46,800 acre-feet), but no more than 4,443.48 feet (storage volume of about 48,000 acre-feet).
- F. The minimum instream flow in the Deschutes River between Crane Prairie Dam and Wickiup Reservoir (CRAO) will be 75 cfs at all times unless total inflow to the reservoir is not sufficient to maintain this level of instream flow and meet the water surface elevations requirements in Items A through D. When total inflow is not sufficient to maintain a minimum instream flow of 75 cfs and meet the water surface elevation requirements in Items A through D, the instream flow at CRAO may be reduced to 30 cfs. If total inflow to the reservoir is not sufficient to meet the water surface elevation requirements in Items A through D and maintain an instream flow of 30 cfs, the instream flow will remain at 30 cfs and the water surface elevation requirements in Items A through D will be relaxed until such time as inflow increases.
- G. For the term of the DBHCP, USFWS and COID will coordinate monthly on the implementation of this conservation measure.
- H. After coordination with and concurrence of USFWS, COID may release up to 5,000 acre-feet of additional stored water from Crane Prairie Reservoir for Oregon spotted frog flow management downstream of Wickiup Dam. Such releases of stored water may occur up to two times during Years 1 through 7 of DBHCP implementation, and once every 5 years

thereafter. The timing and rate of release shall be determined through coordination with USFWS to minimize impacts to Oregon spotted frogs. These releases of stored water may be timed to serve the dual purpose of contributing water to the Oregon spotted frog flow management account in Wickiup Reservoir, and controlling undesirable plant and animal species in Crane Prairie Reservoir. If a release conducted under this Item H results in the lowering of Crane Prairie Reservoir at a rate faster than allowed by Items B and C of this conservation measure, COID shall be exempt from those limits during the release. If such a release causes the water surface elevation of Crane Prairie Reservoir to drop below 4,441.23 feet (storage volume of about 37,870 acre-feet), COID shall not be required to comply with Items A, D and E of this conservation measure until such time as the water surface elevation again reaches 4,443.23 feet (storage volume of about 46,800 acre-feet). However, COID shall make a good faith effort after a release to reach a water surface elevation of 4,443.23 feet in the reservoir by the first March 15 following the release.

- I. Reservoir water surface elevations and instream flows within the allowable ranges of deviation specified in Table CP-1 shall be considered in compliance with this conservation measure. However, values outside the required ranges specified in Table CP-1 shall be reported to USFWS as specified in DBHCP Section 7.2.1. Reservoir water surface elevations and instream flows outside the allowable ranges of deviation specified in Table CP-1 that are the result of release of additional stored water under Item H of this conservation measure shall not be considered out of compliance with this conservation measure.

*\* USFWS is not a water manager. All references here and elsewhere in this DBHCP regarding USFWS involvement in water management decisions are intended to define where USFWS technical assistance will be sought to remain in compliance with the Conservation Measures.*

**Table CP-1. Required ranges and allowable ranges of deviation for Crane Prairie Reservoir water surface elevation at CRA and Deschutes River flow at CRAO.**

Time Period	Metric	Required Range		Allowable Range of Deviation	
		Elevation	Approximate Storage Volume (acre-feet) <sup>1</sup>	Elevation	Approximate Storage Volume (acre-feet) <sup>1</sup>
Mar 15 – Jul 15	Water surface elevation (feet) at CRA	4,443.23 – 4,443.48	46,800 – 48,000	4,443.05 – 4,443.69	46,000 – 50,000
Jul 16 – Mar 14	Water surface elevation (feet) at CRA	4,441.23 – 4,443.48	37,870 – 48,000	4,441.03 – 4,443.69	37,000 – 49,000
Jul 16 – Jul 31	Decrease in water surface elevation (feet/day) at CRA	≤0.05	225	≤0.06	270
Aug 1 – Oct 31	Decrease in water surface elevation (feet/day) at CRA	≤0.10	450	≤0.11	495
Time Period	Metric	Flow (cfs)		Flow (cfs)	
Jan 1 – Dec 31	Deschutes River flow at CRAO (cfs) <sup>2</sup>	≥ 75; ≥ 30		≥ 70; ≥ 25	

Notes:

- <sup>1</sup> Approximate storage volumes are provided for reference purposes only. DBHCP compliance will be based on water surface elevation alone.
- <sup>2</sup> See Item F for detailed explanation of CRAO flow requirements.

## WICKIUP RESERVOIR CONSERVATION MEASURE

### Measure WR-1: Wickiup Reservoir Operation \*

Wickiup Reservoir will be operated according to the following items. Except as otherwise indicated, flows and water surface elevations specified in this measure will be verified at Hydromet Station WICO (OWRD Gage 14056500) below Wickiup Dam.

- A. From April 1 through September 15, flow at WICO will be at least 600 cfs. An adaptive management element will be used to test whether going directly to 600 cfs by April 1 provides enhanced survival of OSF. In coordination with USFWS, flows may be set at 400 cfs by April 1 and increased to 600 cfs within the first 2 weeks of April. Annual snow pack, weather and in-stream conditions will inform this decision.
- B. From April 1 through April 30, flow at WICO shall not exceed 800 cfs unless USFWS or a biologist approved by USFWS and funded by the Permittees has verified that Oregon spotted frog eggs at Dead Slough in La Pine State Park have hatched or are physically situated in a portion of the slough where an increase in flow will not harm them.
- C. If the flow at WICO is increased above 600 cfs during the month of April, it will not subsequently be allowed to decrease more than 30 cfs, whether in a single flow adjustment or cumulatively over the course of multiple flow adjustments, until after April 30 or an earlier date approved after coordination with USFWS.
- D. From May 1 through June 30, flow decrease at WICO over any 5-day period shall be no more than 20 percent of total flow at the time the decrease is initiated.
- E. Flow at BENO gauge (OWRD Gage 14064500) shall be no less than 1,300 cfs from July 1 through at least September 15.
- F. For the first 7 years of DBHCP implementation, flow at WICO shall be at least 100 cfs from September 16 through March 31. Beginning in Year 1 of implementation, minimum flow at WICO from September 16 through March 31 shall be increased above 100 cfs in proportion to the amount of live Deschutes River flow made available to NUID during the prior irrigation season as a result of the piping of COID owned canals. For each acre-foot (or portion thereof) of live flow made available to NUID as a result of the piping of COID owned canals after the date of incidental take permit issuance, an equal volume of water shall be added to the minimum flow below Wickiup Dam from September 16 through March 31. This water shall be in addition to the amount of water needed to maintain a flow at WICO of at least 100 cfs. The timing for release of the additional water shall be determined in coordination with USFWS for optimal benefit to Oregon spotted frogs.
- G. Beginning no later than Year 8 of DBHCP implementation, flow at WICO shall be at least 300 cfs from September 16 through March 31, and not more than 1,400 cfs for more than 10 days per year between April 1 and September 15. If the volume of live Deschutes River flow made available to NUID as a result of the piping of COID owned canals exceeds the volume of water needed to increase the minimum flow at WICO from 100 to 300 cfs from September 16 through March 31, the minimum flow at WICO shall be increased above 300 cfs in proportion to the amount of additional water available and in the manner described in Item F of this conservation measure.

The cap of 1,400 cfs on flow specified in this item is in addition to, and not a replacement for, any other caps on flow at WICO required under this conservation measure. If NUID anticipates the need to exceed 1,400 cfs at WICO in Years 8 through 12, it will contact USFWS in advance to discuss options for minimizing the adverse effects on the Deschutes River and Oregon spotted frogs, such as conditioning the rate or timing of flow increases above 1,400 cfs.

- H. Beginning no later than Year 13 of DBHCP implementation, minimum flow at WICO shall be between 400 cfs and 500 cfs from September 16 through March 31, with actual flow during this period determined according to the variable flow tool described below and in Section 7.3.3, *Wickiup Reservoir and Upper Deschutes River*, and not more than 1,200 cfs for more than 10 days per year between April 1 and September 15. The variable flow tool shall be developed collaboratively by USFWS and the Permittees in consultation with OWRD and Reclamation. USFWS must approve the final variable flow tool for use. A prototype of the variable flow tool shall be developed by the end of Year 10 of DBHCP implementation and tested in Years 11 and 12. The final variable flow tool shall be implemented beginning in Year 13. The variable flow tool shall be used to establish the September 16 to March 31 minimum flow at WICO each year based on available storage in Wickiup Reservoir at the beginning of the storage season and anticipated inflow to the reservoir during the storage season. Monitoring, reporting and adaptive management provisions for the variable tool shall also be developed by the end of Year 10. For purposes of this calculation, target reservoir storage volume at the end of the storage season shall never be less than 92,000 acre-feet. The cap of 1,200 cfs on flow specified in this item is in addition to, and not a replacement for, any other caps on flow at WICO required under this conservation measure in Years 13 and later. If NUID anticipates the need to exceed 1,200 cfs at WICO in Year 13 and later, it will contact USFWS in advance to discuss options for minimizing the adverse effects on the Deschutes River and Oregon spotted frogs, such as conditioning the rate or timing of flow increases above 1,200 cfs.
- I. For all years, the volume of water equivalent to the amount scheduled for winter releases in excess of 100 cfs may be stored in Wickiup Reservoir for release later in the same water year. These releases would be designed to provide the maximum conservation benefit to the covered species, based on the current condition of the covered lands. The timing of release of the stored water will be determined in coordination with USFWS, based on its review of potential benefits to Oregon spotted frogs and/or covered fish species. Water stored in this manner and released during the irrigation season will be treated as NUID storage and available for diversion by NUID at North Canal Dam. Water stored in this manner and not released for Oregon spotted frogs or fish by the end of the same water year can be used to meet the minimum flow requirements of this conservation measure at WICO through March 31 of the subsequent water year. Any water stored in this manner and not released to meet DBHCP minimum flow requirements by March 31 will become NUID storage and available for irrigation use.
- J. Whenever the flow at WICO is at or below 800 cfs, the maximum rate of increase in flow, as measured by change in water surface elevation at WICO, shall be 0.1 foot per 4-hour period, and the maximum rate of decrease shall be 0.2 foot per 12-hour

period. In addition during fall ramp-down, flow reductions at WICO shall be halted for 5 days when the corresponding flow at BENO gage reaches 1,200, and again for 5 days when the corresponding flow at BENO reaches 1,100 cfs.

- K. Flows and water surface elevations at WICO and BENO within the allowable ranges of deviation specified in Table WR-1 shall be considered in compliance with this conservation measure; however, values outside the required ranges specified in Table WR-1 shall be reported to USFWS as specified in DBHCP Section 7.2.2. Flows outside the allowable ranges of deviation specified in Table WR-1 that are beyond the control of NUID and the other Permittees shall not be considered out of compliance with this conservation measure.
- L. For the term of the DBHCP, USFWS, NMFS and NUID will coordinate monthly on the implementation of this conservation measure. OWRD will also be invited to participate in this monthly coordination.

*\* USFWS is not a water manager. All references here and elsewhere in this DBHCP regarding USFWS involvement in water management decisions are intended to define where USFWS technical assistance will be sought to remain in compliance with the Conservation Measures.*

**Table WR-1. Required ranges and allowable ranges of deviation for Deschutes River flow and water surface elevation at WICO and BENO.**

Item	Time Period	Metric	Required Flow or Water Surface Elevation	Allowable Range of Deviation
A.	Apr 1 – Sep 15	Flow at WICO	≥ 600 cfs (≥400 cfs if allowed by USFWS)	≥ 570 cfs (≥ 370 cfs if target is 400 cfs)
B.	Apr 1 – Apr 30	Flow at WICO	≤ 800 cfs (unless higher flow approved by USFWS)	≤ 830 cfs (when target is ≤ 800 cfs)
C.	Apr 1 – Apr 30	Decrease in flow at WICO after flow is ≥ 600 cfs	≤ 30 cfs	≤ 50 cfs
D.	May 1 – Jun 30	Decrease in flow at WICO over any 5-day period	≤ 20% of total flow	≤ 25% of total flow
E.	Through Sep 15	Flow at BENO	≥ 1,300 cfs	≥ 1,260 cfs
F.	Sep 16 – Mar 31	Flow at WICO in Years 1 – 7	≥100 cfs (higher if conserved water is available)	≥ 90 cfs (or ≥ 10 cfs below target if target is >100 cfs)
G.	Sep 16 – Mar 31	Flow at WICO in Years 8 – 12	≥ 300 cfs (higher if conserved water is available)	> 280 cfs (or ≥ 20 cfs below target if target is > 300 cfs)
	Apr 1 – Sep 15	Flow at WICO in Years 8 – 12	> 1,400 cfs for no more than 10 days	> 1,440 cfs for no more than 10 days
H.	Sep 16 – Mar 31	Flow at WICO in Years 13 – 30	≥ 400 – 500 cfs, as determined by variable flow tool	No lower than 25 cfs below target set by variable flow tool

	Apr 1 – Sep 15	Flow at WICO in Years 13 – 30	> 1,200 cfs for no more than 10 days	> 1,240 cfs for no more than 10 days
J.	Jan 1 – Dec 31	Rate of increase in water surface elevation at WICO when total flow at WICO is < 800	0.10 foot per 4-hour period	0.18 foot per 4-hour period
	Jan 1 – Dec 31	Rate of decrease in water surface elevation at WICO when total flow at WICO is < 800	0.20 foot per 12-hour period	0.28 foot per 12-hour period
	Sep 15 – Oct 31	First 5-day pause in flow at BENO during ramp-down	1,200 cfs	1,160 – 1,240 cfs
	Sep 15 – Oct 31	Second 5-day pause in flow at BENO during ramp-down	1,100 cfs	1,060 – 1,140 cfs

## UPPER DESCHUTES RIVER CONSERVATION MEASURE

### Measure UD-1: Upper Deschutes Basin Conservation Fund

Within 6 months after issuance of the Incidental Take Permits, and no later than March 1 of each year thereafter for the term of the Permits, the Permittees collectively will contribute a combined total of \$150,000 annually to the Upper Deschutes Basin Conservation Fund. This amount will be adjusted annually for inflation in direct proportion to the change in annual average Consumer Price Index for all urban consumers (CPI-U), West Region, all items, Base Period 1982-84=100, published by the Bureau of Labor Statistics. The fund shall be held, managed and distributed by a third-party designated by USFWS. The fund shall be used to improve or enhance habitat in the Upper Deschutes Basin for the Oregon spotted frog and other aquatic species, or otherwise address conditions in the Upper Deschutes Basin that affect the conservation and recovery of the Oregon spotted frog in the wild. The DBHCP Permittees shall have no responsibility for determining the use of the fund for the outcome of activities supported by the fund.

## MIDDLE DESCHUTES RIVER CONSERVATION MEASURE

### Measure DR-1: Middle Deschutes River Flow Outside the Irrigation Season

Three DBBC Districts (AID, COID and SID) will coordinate stock water diversions and other diversions of live flow from the Deschutes River between November 1 and March 31 to prevent such diversions from resulting in a 1-day average flow of less than 250 cfs ( $\pm 25$  cfs) at Hydromet Station DEBO (OWRD Gage 14070500) below Bend. If flow in the Deschutes River upstream of Bend (Hydromet Station BENO) is less than 250 cfs, the three DBBC Districts will not conduct stock water diversions or other diversions of live flow from the Deschutes River, but they also will have no obligation to release storage beyond the requirements of Conservation Measure WR-1, or otherwise augment flow, in order to provide 250 cfs at DEBO.

AID, COID and SID shall have no obligation to reduce diversions to account for simultaneous diversions by other parties between BENO and DEBO. If the flow at BENO minus the combined diversions by AID, COID and SID is  $\geq 250$  cfs, but the flow at DEBO is  $< 250$  cfs due to simultaneous diversion or retention of water by another party, AID, COID and SID shall be considered in compliance with this measure. In addition, none of the three Districts shall be found out of compliance with this measure during any time they are not actively diverting water from the Deschutes River.

## CRESCENT CREEK AND THE LITTLE DESCHUTES RIVER CONSERVATION MEASURES

### Measure CC-1: Crescent Creek Flow Management \*

During the term of the DBHCP the storage volumes shown in Table CC-1 shall be made available for Oregon spotted frog conservation in Crescent Creek. The volumes in Table CC-1 include Crescent Creek instream and storage rights for fish and wildlife use that have already been created through TID conserved water projects, as well as water rights that will result from future TID conserved water projects. The volume of water available each year shall be determined on July 1 based on total storage volume in Crescent Lake Reservoir on that date. This water will be available for release over the subsequent (first) water year (October 1 – September 30), after coordination with USFWS and ODFW to maximize benefits to fish and wildlife, and may not be carried over in whole or in part into the second water year. The rate of release of this stored water from Crescent Lake Reservoir may be adjusted up to two times per month. A portion of the water shall be used each year to maintain the storage season minimum instream flows specified in Table CC-2. The remaining water may be used to: a) increase the storage season minimum flows above the levels specified in Table CC-2, b) increase instream flow prior to the ramping up of irrigation releases from Crescent Lake Reservoir in late spring or early summer, or c) delay the ramping down of irrigation releases from the reservoir at the end of the irrigation season. If TID conserved water projects result in Crescent Creek rights for fish and wildlife use that exceed the amounts specified in Table CC-1 for the respective years of DBHCP implementation, the higher storage rights will become the requirement under this conservation measure when the conservation projects are complete.

**Table CC-1. Volumes of storage in Crescent Lake Reservoir to be made available for Oregon spotted frog conservation under the DBHCP.**

DBHCP Implementation Years	Volume of Crescent Lake Reservoir Storage (acre-feet) to be Available for Oregon Spotted Frog Conservation <sup>1,2</sup>		
	When Total Storage Volume <sup>2</sup> on July 1 is < 45,000 acre-feet	When Total Storage Volume <sup>2</sup> on July 1 is 45,000 – 75,000 acre-feet	When Total Storage Volume <sup>3</sup> on July 1 is > 75,000 acre-feet
1-10	5,264	7,264	8,764
11-15	6,464	8,464	9,964
16-20	7,664	9,664	11,164
21-30	8,864	10,864	12,364

Notes:

- <sup>1</sup> Total volume of water available for Oregon spotted frog conservation under this measure includes, and is not in addition to, Crescent Lake Reservoir storage allocated for fish and wildlife use under Oregon water law.
- <sup>2</sup> The water made available each year can only be used during the subsequent (first) water year, and may not be carried over in whole or in part into the second water year.
- <sup>3</sup> Total storage volume will be measured at Hydromet Station CRE (OWRD Gage 14059500) as the 3-day average for June 29 – July 1 to reduce the effects of wind-induced fluctuations in storage volume readings at the gage.

**Table CC-2. Minimum flows at Hydromet Station CREO (OWRD Gage 1406000) under the DBHCP.**

<b>DBHCP Implementation Years</b>	<b>Storage Season Minimum Flow (cfs) <sup>1</sup> (Oct 1 – Jun 30)</b>	<b>Irrigation Season Minimum Flow (cfs) <sup>2, 3</sup> (Jul 1 – Sep 30)</b>
1-10	10 ( $\pm$ 1) cfs	50 ( $\pm$ 5) cfs
11-15	10 ( $\pm$ 1) cfs	50 ( $\pm$ 5) cfs
16-20	11 ( $\pm$ 1) cfs	50 ( $\pm$ 5) cfs
21-30	12 ( $\pm$ 1) cfs	50 ( $\pm$ 5) cfs

Notes:

- <sup>1</sup> Allowances of  $\pm$  1 cfs are for compliance purposes to allow for inaccuracies in gage measurements and limitations in the precision of dam operation.
- <sup>2</sup> Allowances of  $\pm$  5 cfs are for compliance purposes to allow for inaccuracies in gage measurements and limitations in the precision of dam operation.
- <sup>3</sup> Instream flow may be less than 50 cfs if low storage volume in Crescent Lake Reservoir makes passive release of water impossible.

The flow at CREO may be less than the minimums specified in Table CC-2 during gate tests, gallery/conduit inspections, dam maintenance, and minor repairs. Flow changes to accommodate these actions will be done in coordination with USFWS.

- Gate tests and gallery/conduit inspections will be conducted between October 1 and November 31 and will last no more than 8 hours each. During gate tests and gallery/conduit inspections TID will utilize the existing bypass (estimated to be 5 cfs) to maintain a flow downstream of the dam.
- Maintenance involving removal of rock from the ramp flume will not cause cessation of flows for more than 2 hours. The timing of these maintenance activities will be coordinated in advance with USFWS.
- Minor repairs will not result in complete cessation of flows for more than 4 hours, flows below 10 cfs for more than 8 consecutive hours, or flows of less than 10 cfs for more than 24 hours cumulatively in a one-week period. The timing of minor repairs will be coordinated in advance with USFWS.

*\* USFWS is not a water manager. All references here and elsewhere in this DBHCP regarding USFWS involvement in water management decisions are intended to define where USFWS technical assistance will be sought to remain in compliance with the Conservation Measures.*

### **Measure CC-2: Crescent Dam Ramping Rates**

Tumalo Irrigation District will not increase in the flow below Crescent Dam (as measured at OWRD Gage 14060000) more than 30 ( $\pm 2$ ) cfs per 24-hour period or decrease the flow more than 20 ( $\pm 2$ ) cfs per 48-hour period, except under emergency conditions.

### **Measure CC-3: Crescent Lake Reservoir Irrigation Release Season**

Annual transition from irrigation season flows ( $\geq 50$  cfs) to storage season flows ( $\geq 10$  cfs) at Hydromet Station CREO below Crescent Dam will end no later than October 31 of each year.

## **WHYCHUS CREEK CONSERVATION MEASURES**

### **Measure WC-1 : Whychus Creek Instream Flows**

For the full term of the DBHCP, and subject to the last paragraph of this conservation measure, Three Sisters Irrigation District (TSID) will pass all water the District has converted to permanent instream water rights on Whychus Creek (currently 31.18 cfs) at its diversion. In addition, TSID will pass all water required under Oregon water law to senior water right holders downstream of the TSID diversion (currently 3 cfs), for a combined minimum flow past the TSID diversion of 34.18 cfs. All future additional conversions of senior water rights to permanent instream flow use will be added to this minimum flow as such rights are converted.

TSID will monitor flow in Whychus Creek at OWRD Gage 14076020 whenever TSID is diverting water, and will adjust its diversions as necessary to pass required minimum instream flows on an hourly basis when the flow reaching the TSID diversion is 60 cfs or less. Instream flows when TSID is diverting will be determined by using the proportionality calculator developed by TSID and the Deschutes River Conservancy in 2019. Any updates to the proportionality calculator during the term of the DBHCP that affect flow in Whychus Creek shall be approved in advance of use by the Services.

For TSID irrigation rights with priority dates equal to instream rights, water will be shared proportionally between irrigation and instream rights whenever there is insufficient natural flow above the TSID diversion to meet all of the rights. However, TSID will reduce diversions disproportionately if necessary to ensure the instream flow at Gage 14076020 does not drop below 20 cfs (averaged over no more than 60 minutes) while TSID is diverting. This 20 cfs minimum does not include the 3 cfs of senior water that TSID will pass below the TSID diversion, or any future additional conversions of senior water rights to permanent instream use. To help minimize the amount of time when the flow at Gage 14076020 is less than the full instream water right, TSID will continue to manage water "on-demand," whereby TSID will only divert and deliver to its patrons when specifically requested by its patrons.

### **Measure WC-2: Whychus Creek Temporary Instream Leasing**

Within 6 months after issuance of the Incidental Take Permits, and no later than March 1 of each year thereafter for the term of the Permits, TSID will provide \$6,000 each year for the Whychus Creek temporary In-stream Leasing Fund. This amount will be adjusted annually for inflation in direct proportion to the change in annual average Consumer Price Index for all urban consumers (CPI-U), West Region, all items, Base Period 1982-84=100, published by the Bureau of Labor Statistics. The fund shall be held, managed and distributed by a third-party designated by USFWS and NMFS. The funds will be distributed to secure temporary instream leases and/or improve or enhance habitat in Whychus Creek.

### **Measure WC-3: Whychus Creek Diversion Fish Screens and Fish Passage**

Over the term of the DBHCP, TSID will maintain and operate fish screens at its Whychus Creek diversion to ensure they function according to the NMFS downstream migrant fish screen criteria they were designed to meet.

Over the term of the DBHCP, TSID will maintain and operate its diversion structure to ensure it continues to function without interference to the upstream migration of anadromous fish.

Annual turn-off of the TSID diversion will be done in accordance with the TSID Diversion Screen Maintenance Plan (Appendix C) to minimize impacts to covered species and resident fish.

### **Measure WC-4: Piping of Patron Laterals**

TSID will assist with the piping of patron-owned canals (patron laterals) within TSID. The goal of this measure will be to pipe all patron laterals in TSID (remaining 5 miles) within 5 years of issuance of the Incidental Take Permits, subject to patron willingness and funding. TSID will assist with project design, application for funding, and pipe installation.

### **Measure WC-5: Whychus Creek Diversion Ramping Rate**

When the flow in Whychus Creek downstream of TSID's diversion (measured at OWRD Gage 14076020) is 30 cfs or less, the amount of water being diverted will not be increased or decreased more than 5 cfs/hour. When the flow at OWRD Gage 14076020 is between 30 and 50 cfs, the amount of water being diverted will not be increased or decreased more than 10 cfs/hour. TSID may reduce diversions faster than these rates during emergency conditions to maintain human safety and/or protect infrastructure.

### **Measure WC-6: Whychus Creek Habitat Conservation Fund**

For the full term of the DBHCP, TSID will provide \$10,000 each year in funding, in-kind services, or a combination of funding and in-kind services to support the restoration and enhancement of aquatic and riparian habitats in Whychus Creek. This amount will be adjusted annually for inflation in direct proportion to the change in annual average Consumer Price Index for all urban consumers (CPI-U), West Region, all items, Base Period 1982-84=100, published by the Bureau of Labor Statistics. The use of the funds and/or in-kind services will be directed by an entity acceptable to USFWS and NMFS.

### **Measure WC-7: Plainview Dam Removal**

No later than Year 1 of DBHCP implementation, TSID will provide in-kind services for the removal of the Plainview Dam, restoration of the associated reach of Whychus Creek, and installation of a fish screen at the Runco diversion.

## **CROOKED RIVER, OCHOCO CREEK, AND MCKAY CREEK CONSERVATION MEASURES**

### **Measure CR-1: Crooked River Flow Downstream of Bowman Dam**

In coordination with Reclamation, Ochoco Irrigation District (OID) will bypass live flow and/or release OID contracted storage to maintain a daily average flow of 50 cfs<sup>1</sup> at OWRD Gage 14080500 below Bowman Dam (Hydromet Station PRVO) outside the active irrigation season<sup>2</sup> whenever all of the following conditions exist:

1. All uncontracted storage available in Prineville Reservoir on the annual day of allocation, up to a maximum of 13,000 acre-feet, is held until the end of the active irrigation season<sup>2</sup> and thereafter released at a daily average rate of 50<sup>1</sup> cfs as measured at PRVO.
2. All City of Prineville mitigation storage available in Prineville Reservoir on the annual day of allocation and not required for another mitigation use<sup>3</sup>, up to a maximum of 5,100 acre-feet, is held until December 1 and thereafter released in lieu of uncontracted storage to maintain the daily average flow of 50 cfs as measured at PRVO.
3. The combined total of available uncontracted storage (up to 13,000 acre-feet) and available City of Prineville mitigation storage described herein is insufficient to maintain the daily average flow of 50 cfs as measured at PRVO until the beginning of the next irrigation season.

Water that is temporarily leased instream from OID patrons may be used to support the flow of 50 cfs ( $\pm 5$  cfs), except during the period from December 1 through January 31.

During the active irrigation season, the DBHCP will not obligate OID or NUID to allow bypass of live flow or release of contracted storage by Reclamation on OID's or NUID's behalf to

maintain specific instream flows at PRVO Gage or CAPO Gage. However, OID will not divert stored water at the Crooked River Diversion until the water has been released from Prineville Reservoir and adequate time has elapsed for the water to reach the diversion. In addition, as the operator of Bowman Dam, OID will respond to calls for Prineville Reservoir stored water from other contract holders and begin releasing the requested water within 24 hours.

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- <sup>1</sup> Actual flows in the Crooked River may be  $\pm 10\%$  of flows specified in Measure CR-1 due to inherent inaccuracies in flow measuring devices.
- <sup>2</sup> For purposes of this conservation measure, the *active irrigation season* on the Crooked River is the period of time during which water is being diverted at the Crooked River Diversion for delivery to OID patrons. This period typically occurs from mid-April to mid-October, with actual dates varying slightly from year to year.
- <sup>3</sup> The use of City of Prineville mitigation storage in this way is contingent on approval by Oregon Water Resources Department and subject to any preemptory use of the water. The actual amount of City of Prineville mitigation storage used as described in this measure may be less than the total present in Prineville reservoir on the day of allocation.

### **Measure CR-2: Ochoco Creek Flow**

**OID Contributions to Ochoco Creek Flow:** OID will contribute to the flow in Ochoco Creek as specified in Table CR-2 by releasing water from the Ochoco Main Canal downstream of Ochoco Reservoir. These contributions will be additive to any permanent instream water right transfers and/or temporary instream leases secured through the Crooked River Conservation Fund (Measure CR-5) on Ochoco Creek. The OID contributions will not be made if they would require pumping from inactive storage in Ochoco Reservoir (below water surface elevation 3,074.94 feet) unless OID is pumping water from inactive storage for irrigation purposes. If mechanical failure or malfunction at Ochoco Dam prevents the release of the full amount specified in Table CR-2, the OID contribution will be the maximum amount Reclamation determines can safely be released, and the full contribution will be resumed as soon as the mechanical problem or malfunction is corrected.

**Table CR-2. Ochoco Irrigation District contributions to Ochoco Creek flow.**

Stream Reach	Average OID Contribution <sup>1</sup>		Measurement Location	Averaging Interval
	During Active Irrigation Season <sup>2</sup>	Outside Active Irrigation Season		
Ochoco Dam (RM 11.2) to D-2 Drain Confluence (RM 6.3)	5.0 cfs	3.0 cfs	OWRD Gage 14085300 below Ochoco Dam	Hourly
D-2 Drain Confluence (RM 6.3) to mouth	5.0 cfs	5.0 cfs	RM 4.7 at Ryegrass Diversion	Daily

## Notes:

- <sup>1</sup> Actual contributions to flow in Ochoco Creek may be  $\pm 10\%$  of amounts specified in Table CR-2 due to inherent inaccuracies in flow measuring devices.
- <sup>2</sup> For purposes of this conservation measure, the *active irrigation season* on Ochoco Creek is the period of time during which water is being released from Ochoco Reservoir into the Ochoco Main Canal for irrigation. This period typically occurs from mid-April to mid-October, with actual dates varying slightly from year to year.

**Pass-through of Upstream Temporary and Permanent Instream Transfers:** Subject to approval by OWRD on a case-by-case basis, OID will allow water from temporary and permanent instream water right transfers upstream of Ochoco Reservoir to pass through the reservoir and to the mouth of Ochoco Creek without storage or diversion, regardless of whether the associated water rights are senior or junior to OID's storage and diversion rights. These instream enhancement projects may be subject to other private diversions based on priority dates according to the doctrine of prior appropriation.

### Measure CR-3: McKay Creek Flow

**Minimum Flow in McKay Creek:** Water will be bypassed and/or released into McKay Creek, as needed, to provide the minimum instream flows specified in Table CR-3 during the active irrigation season<sup>1</sup>. Outside the active irrigation season, McKay Creek will be allowed to flow without diversion by OID or its patrons.

**Table CR-3. Minimum instream flows for McKay Creek during the active irrigation season.**

Stream Reach	Minimum Daily Average Instream Flow During the Active Irrigation Season <sup>1,2</sup>		Measurement Location
	Prior to McKay Creek Water Switch	After Full Implementation of McKay Creek Water Switch <sup>3</sup>	
Jones Dam (RM 5.8) to Dry Creek (RM 3.9)	Equal to flow immediately upstream of Jones Dam, to a maximum of 2.0 cfs	Equal to flow immediately upstream of Jones Dam, to a maximum of 11.2 cfs	At Jones Dam
Dry Creek (RM 3.9) to Reynolds Siphon (RM 3.2)	3.0 cfs	Equal to flow immediately upstream of Jones Dam, to a maximum of 12.2 cfs	At Reynolds Siphon
Reynolds Siphon (RM 3.2) to mouth	5.0 cfs	Equal to flow immediately upstream of Jones Dam, to a maximum of 14.2 cfs	At Cook Inverted Weir (RM 1.3)

Notes:

- <sup>1</sup> For purposes of this conservation measure, the *active irrigation season* on McKay Creek is the period of time during which water is being diverted from the Crooked River into the Crooked River Diversion Canal and/or released from Ochoco Reservoir into the Ochoco Main Canal for irrigation. This period typically occurs from mid-April to mid-October, with actual dates varying slightly from year to year.
- <sup>2</sup> Actual flows in McKay Creek may be  $\pm 10\%$  of flows specified in Table CR-3 due to inherent inaccuracies in flow measuring devices. Additional flow variation may result from circumstances beyond the control of OID, such as irrigation diversions by parties other than OID and its patrons.
- <sup>3</sup> Flows in this column are based on full implementation of the McKay Creek water switch, which is expected to replace 11.2 cfs of live flow diversion upstream of Jones Dam with water from the Crooked River. In the event of a partial or phased switch, the instream flow below Jones Dam will reflect the actual McKay Creek switch instream right above Jones Dam.

**McKay Creek Water Switch:** OID will fulfill its obligations under the Memorandum of Understanding (MOU) between OID and the Deschutes River Conservancy (DRC) effective as of May 30, 2017, subject to the terms and conditions of the MOU. OID will not exercise its termination rights under the MOU, provided that the DRC fulfills its obligations under the MOU and OID determines, in its discretion, that the contingencies described in Paragraph F of the MOU are satisfied.

### Measure CR-4: Crooked River Conservation Fund

Within 6 months after issuance of the Incidental Take Permits, and no later than March 1 of each year thereafter for the term of the Permits, OID, NUID and the City of Prineville will contribute a combined total of \$8,000 annually to the Crooked River Conservation Fund. The fund shall be held, managed and distributed by Deschutes River Conservancy or another third-party selected and approved by USFWS, NMFS and the Permittees. This amount will be adjusted annually for inflation in direct proportion to the change in annual average Consumer Price Index for all urban consumers (CPI-U), West Region, all items, Base Period 1982-84=100, published by the Bureau of Labor Statistics. Individual permittee contributions to the fund will be as specified in Table CR-4.

The fund may be used for activities that support DBHCP conservation measures and/or benefit the covered species within the Crooked River subbasin. Any use of the fund must be approved by USFWS and NMFS after consultation and coordination with OID, NUID and the City of Prineville.

Water purchased from OID patrons with the Conservation Fund for temporary instream leasing may be stored in Ochoco Reservoir or Prineville Reservoir, as appropriate, and released at any time during the OID legal irrigation season (February 1 through November 30) determined by USFWS and NMFS.

**Table CR-4. District and City responsibilities for contributing to the Crooked River Conservation Fund.**

Permittee	Proportional Responsibility Based on Total Fund Amount (assumes annual increase in fund based on CPI)		
	Total Amount \$8,000	Total Amount \$8,001 to \$12,000	Total Amount > \$12,000
City	\$4,000	\$4,000	One-third of total
OID	\$4,000	\$4,000	One-third of total
NUID	\$0	Amount over \$8,000	One-third of total

### Measure CR-5: Screening of Diversion Structures

**District Diversions:** OID and NUID will maintain and operate fish screens to prevent the entrainment of juvenile salmonids on all District-controlled diversions accessible to covered fish species. Existing screens will be maintained and operated to ensure they function to their original design standards for safe fish exclusion. In the event that any screens require replacement during the term of the DBHCP, the replacement screens will meet NMFS criteria for downstream migrant fish screens current at the time of construction.

**Patron Diversions:**

- a. OID will provide \$5,000 per year in cash or in-kind contributions of labor and technical expertise for the first 5 years of DBHCP implementation, for a total of \$25,000, to fund the voluntary screening of patron pumps on the Crooked River, Ochoco Creek and McKay Creek.
- b. OID will proactively contact patrons, arrange screen manufacturers and actively seek matching funds to encourage screening as quickly as possible.
- c. Prior to OID funding of an individual screen the patron must:
  - i. willingly enter into a written agreement with OID to allow the screening, and
  - ii. agree in writing to maintain the screen in proper working order and to allow OID, USFWS, NMFS and ODFW access for routine inspection of the screen outside the active irrigation season with 48-hour notice of the patron.

### Measure CR-6: Crooked River Flow Downstream of the Crooked River Pumps

For the term of the DBHCP, except for water made available to North Unit Irrigation District (NUID) from Prineville Reservoir, whether under a Temporary Water Service Contract with Reclamation or acquisition from another contract holder, NUID will only divert water at the Crooked River Pumps (RM 27.6) when the minimum daily average flow indicated in Table CR-6 can be maintained, as measured in real time at OWRD Gage 14087300 (RM 27.0) or an alternate gage location established by Oregon Water Resources Department (OWRD) that adequately describes stream flow in the reach downstream of the Crooked River Pumps.

**Table CR-6. Minimum flows to be maintained downstream of the Crooked River Pumps when NUID is diverting water at the pumps <sup>1</sup>.**

Month	Minimum Daily Average Flow (cfs)	
	Dry Year	Non-Dry Year
Apr	120	181
May	50	95
Jun	54	86
Jul	51	61
Aug	56	68
Sep	57	114
Oct	121	151

For purposes of this measure, Dry Years and Non-Dry Years shall exist when OWRD makes a written declaration according to the following metrics:

1. Dry Year Declaration in March – Established only if the following conditions apply:
  - a. The OWRD’s or Bureau of Reclamation’s predicted March month-end contents of Prineville Reservoir are less than or equal to the 50 percent exceedance level of the contents at March 31 based on all data from the prior 30 years, and
  - b. Either:
    - i. The Prineville Reservoir outflow has not exceeded 75 cfs within 30 days of the actual date of OWRD’s Non-Dry Year/Dry Year declaration, or
    - ii. The Prineville Reservoir outflow has exceeded 75 cfs within 30 days of the actual date of OWRD’s Non-Dry Year/Dry Year declaration only to supply irrigation demands for downstream users.
2. Non-Dry Year Declaration – Established if any of the following conditions apply:
  - a. The conditions necessary for a Dry Year Declaration do not apply, or
  - b. When OWRD fails to make any written Dry Year Declaration.

OWRD shall maintain discretion to apply and interpret the Dry Year Declaration metric if there is an extenuating circumstance(s) with respect to predicted March month-end contents of Prineville Reservoir or its outflows 30 days prior to a Dry or Non-Dry Year Declaration so as to target a Dry Year recurrence interval of 3 out of 10 years over a 30-year period. Further, upon request by NUID and the DRC, OWRD may revise the metric, including revisions to the timing for finalizing a Dry Year or Non-Dry Year Declaration, if it is expected that the recurrence interval of a Dry Year Declaration over a 30-year period will change from 3 out of 10 years.

<sup>1</sup> Daily average flows at OWRD Gage 14087300 shall be no less than the specified minimums. NUID will also attempt to keep hourly average flows at or above the specified minimums by manually adjusting diversion rates in response to changes in flow upstream of the pumps, but in recognition of the inherent difficulty in making manual adjustments around the clock the hourly average flows may be up to 20% less than the specified minimums until December 31, 2024. NUID will install equipment at the pumps to automate diversion rate adjustment, and starting no later than January 1, 2025 the daily average and hourly average flows shall both be no less than the specified minimums.

#### **Measure CR-7: Crooked River Downstream Fish Migration Pulse Flows**

OID and NUID will not divert water from the Crooked River that is part of a downstream fish migration pulse flow, where such flow is defined as a quantity of uncontracted Prineville Reservoir storage that is determined by Reclamation, in consultation with NMFS and USFWS, to be released above and beyond the base release of uncontracted storage for the purpose of facilitating downstream migration of young anadromous salmonids in the Crooked River. A pulse flow will begin when the rate of release of uncontracted storage is increased above the base release of uncontracted storage (measured at CAPO), and it will end when the rate of release of uncontracted storage returns to the base rate of release. The pulse flow will include the time needed for ramping up to the desired maximum flow, time spent at the desired maximum flow, and time needed for ramping back down to the base rate of release of uncontracted water. The entire process may last up to 10 days, including ramping time.

Prior to the release of a downstream fish migration pulse flow, USFWS, NMFS and Reclamation shall give OID and NUID 72-hour advance notice on the timing (start time and end time) of the release, the maximum anticipated rate (cfs) of the release and the total anticipated volume (acre-feet) of the release so that OID and NUID may make any necessary adjustments or accommodations at their diversions.

## HCP MONITORING REQUIREMENTS

**Table 7-2. Summary of DBHCP compliance and implementation monitoring and reporting.**

Measure	Monitoring Requirement	Reporting Frequency	Annual Report Due Date
CP-1	Daily (midnight) Crane Prairie Reservoir water surface elevation and storage volume	Annual, and as needed when deviations occur	Jan 31
	Daily average flow in Deschutes River below Crane Prairie Dam		
WR-1	Daily (midnight) storage volume in Wickiup Reservoir	Annual, and as needed when deviations occur	Jan 31
	Daily average flow and water depth (stage) in Deschutes River below Wickiup Dam		
	Daily average flow in Deschutes River at Benham Falls		
	Transfers of live flow from COID to NUID	Annual	Jan 31
UD-1	Annual contributions to Upper Deschutes Basin Conservation Fund	Annual	Jan 31
	Dead Slough habitat assessment	Real time (within 24 hours) and annual	Jan 31
	Oregon spotted frog habitat suitability analyses	Real time (within 24 hours) and annual	Jan 31
DR-1	Daily average flow in Deschutes River below Bend from November 1 to March 31	Annual, and as needed when deviations occur	Jan 31
CC-1, CC-2, CC-3	Daily average flow in Crescent Creek below Crescent Dam	Annual, and as needed when deviations occur	Jan 31
	Daily average flow in Crescent Creek below Big Marsh Creek	Annual, and bi-monthly until there is real-time access to gage readings	Jan 31
	Storage volume in Crescent Lake Reservoir available for OSF management on July 1, and volume released in water year	Annual	Jan 31
	Oregon spotted frog breeding survey results	Real time (within 24 hours) and annual	Jan 31
	Results of monitoring for stranding of Oregon spotted frog tadpoles	Real time (within 24 hours) and annual	Jan 31

Measure	Monitoring Requirement	Reporting Frequency	Annual Report Due Date
	Results of Oregon spotted frog habitat suitability analyses	Annual	Jan 31
WC-1	Permanent instream water right transfers in Whychus Creek	Annual	Jan 31
WC-1, WC-5	Hourly average flow at TSID Diversion and in Whychus Creek when TSID is diverting water	Annual, and as needed when deviations occur	Jan 31
WC-1	Daily average flow and daily maximum water temperature in Whychus Creek at Camp Polk Road	Annual	Jan 31
WC-2	Annual contributions to temporary instream leasing in Whychus Creek	Annual	Jan 31
WC-3	Annual inspection of TSID fish screen and passage	Annual	TBD
	5-year evaluation of TSID fish screen and passage	Every 5 years	Jan 31
WC-4	TSID patron piping (miles piped and water conserved)	Annual	Jan 31
WC-6	Annual in-kind and cash contributions to Whychus Creek Habitat Conservation Fund	Annual	Jan 31
WC-7	Removal of Plainview Dam	Once, after year of completion	Jan 31
CR-1, CR-2, CR-3	Flow at multiple locations and variable intervals (see Table 7-1)	Annual, and as needed when deviations occur	Jan 31
	Temporary instream leasing in Crooked River and Ochoco Creek	Annual	Jan 31
	Status of McKay Creek Water Switch	Annual	Jan 31
CR-4	Annual contributions to Crooked River Conservation Fund	Annual	Jan 31
CR-5	Annual inspection of OID fish screens and fish passage	Annual	TBD
	5-year evaluation of OID fish screens and fish passage	Every 5 years	Jan 31
	Screening of OID patron diversions	Annual in Years 2-6	Jan 31
CR-6, CR-7	Crooked River Pump diversions	Annual, and as needed when deviations occur	Jan 31