

2024 ANNUAL REPORT

Monitoring conducted in compliance with U. S. Fish and Wildlife Service Incidental Take Permit TE89773D-0 and Deschutes Basin Habitat Conservation Plan

Submitted to:

U. S. Fish and Wildlife Service
Bend Fish and Wildlife Office
63095 Deschutes Market Road
Bend, OR 97701

Submitted by:

Arnold Irrigation District, Bend, OR
Central Oregon Irrigation District, Redmond, OR
Lone Pine Irrigation District, Terrebonne, OR
North Unit Irrigation District, Madras, OR
Ochoco Irrigation District, Prineville, OR
Swalley Irrigation District, Bend, OR
Three Sisters Irrigation District, Sisters, OR
Tumalo Irrigation District, Bend, OR
The City of Prineville, OR

January 2025

Introduction.....	1
Crane Prairie Reservoir	4
Compliance and Implementation Monitoring.....	4
Conservation Measure CP-1 (Crane Prairie Reservoir Operation: Crane Prairie Reservoir)	4
Conservation Measure CP-1 (Crane Prairie Reservoir Operation: Deschutes River Below Crane Prairie Dam).....	5
Effectiveness Monitoring	7
Adaptive Management Measure CP-1.1 (Crane Prairie Reservoir Breeding Surveys)	7
Adaptive Management Measure CP-1.2 (Drawdown Monitoring).....	8
Adaptive Management Measure CP-1.3 (Vegetation monitoring)	8
Wickiup Reservoir	9
Compliance and Implementation Monitoring.....	9
Conservation Measure WR-1 (Wickiup Reservoir Operation)	9
Conservation Measure WR-1 (Conserved Water)	12
Conservation Measure WR-1 (Dead Slough Monitoring)	12
Conservation Measure WR-1 (Habitat Suitability Analyses Along the Deschutes River)	12
Effectiveness Monitoring	13
Adaptive Management Measure WR-1.1 (Pre-breeding Activity Along the Upper Deschutes)	13
Adaptive Management Measure WR-1.2 (Monitoring OSF Egg/Larvae Survival Along the Upper Deschutes River).....	13
Adaptive Management Measure WR-1.3 (Variable Flow Tool).....	14
Upper Deschutes Basin	15
Compliance and Implementation Monitoring.....	15
Conservation Measure UD-1 (Upper Deschutes Basin Conservation Fund).....	15
Middle Deschutes River.....	17
Compliance and Implementation Monitoring.....	17
Conservation Measure DR-1 (Middle Deschutes River Flow Outside the Irrigation Season)	17
Crescent Creek and Little Deschutes River	18
Compliance and Implementation Monitoring.....	18
Conservation Measure CC-1 (Crescent Creek Flow Management: OSF storage).....	18
Conservation Measure CC-1 (Crescent Creek Flow Management).....	18
Conservation Measure CC-1 (Maintenance of Gage Downstream of Big Marsh Creek).....	20
Conservation Measure CC-1 (Breeding Surveys in Crescent Creek)	21
Conservation Measure CC-1 (Stranding Surveys in Crescent Creek)	21

Conservation Measure CC-1 (Habitat Suitability Crescent Creek)	21
Conservation Measure CC-2 (Crescent Dam Ramping Rates)	21
Conservation Measure CC-3 (Crescent Lake Reservoir Irrigation Release Season)	22
Whychus Creek Diversion.....	23
Compliance and Implementation Monitoring.....	23
Conservation Measure WC-1 (Whychus Creek Instream Flows: Permanent Instream Water Rights)	23
Conservation Measure WC-1 (Whychus Creek Instream Flows: Whychus Creek and TSID Diversion)	23
Conservation Measure WC-1 (Whychus Creek Instream Flows: Flow and Temperature at Camp Polk Road).....	24
Changed and Unforeseen Circumstances WC-1 (Change in the Status of Whychus Creek DBHCP Section 9.10)	24
Conservation Measure WC-2 (Whychus Creek Temporary Instream Leasing)	24
Conservation Measure WC-3 (Whychus Creek Diversion Fish Screens and Fish Passage)	25
Conservation Measure WC-4 (Piping of Patron Laterals)	25
Conservation Measure WC-5 (Whychus Creek Diversion Ramping Rate)	25
Conservation Measure WC-6 (Whychus Creek Habitat Conservation Fund)	26
Conservation Measure WC-7 (Plainview Dam Removal)	26
Crooked River Subbasin	27
Compliance and Implementation Monitoring.....	27
Conservation Measure CR-1 (Crooked River Flow Downstream of Bowman Dam).....	28
Conservation Measure CR-2 (Ochoco Creek Flow: OID Contributions to Ochoco Creek Flow).....	29
Conservation Measure CR-2 (Flow Monitoring).....	30
Conservation Measure CR-2 (Ochoco Creek Flow: Temporary Instream Leasing and Permanent Water Right Transfers).....	32
Conservation Measure CR-3 (McKay Creek Flow: McKay Switch)	33
Conservation Measure CR-3 (McKay Creek Flow).....	33
Conservation Measure CR-4 (Crooked River Conservation Fund)	35
Conservation Measure CR-5 (Screening of Diversion Structures: District Diversions).....	35
Conservation Measure CR-5 (Screening of Diversion Structures: Patron Diversions)	35
Conservation Measure CR-6 (Crooked River Flow Downstream of the Crooked River Pumps)	35
Conservation Measure CR-7 (Crooked River Downstream Fish Migration Pulse Flows)	36
References	38

Introduction

U. S. Fish and Wildlife Service (USFWS) issued Incidental Take Permit TE89773D-0 (USFWS Permit) to eight Central Oregon irrigation districts and the City of Prineville, Oregon on December 31, 2020. The USFWS Permit covers the incidental take of Oregon spotted frog (*Rana pretiosa*) and bull trout (*Salvelinus confluentus*) during lawful activities associated with the storage, release, diversion and return of irrigation water by Arnold Irrigation District (AID), Central Oregon Irrigation District (COID), Lone Pine Irrigation District (LPID), North Unit Irrigation District (NUID), Ochoco Irrigation District (OID), Swalley Irrigation District (SID), Three Sisters Irrigation District (TSID) and Tumalo Irrigation District (TID). The USFWS Permit also covers lawful activities associated with the diversion and withdrawal of water for municipal uses and discharge of municipal effluent by the City of Prineville. Collectively, the eight irrigation districts and City of Prineville are referred to hereinafter as the Permittees.

All activities covered by the USFWS Permit are described in detail in the Deschutes Basin Habitat Conservation Plan (DBHCP) (DBBC 2020), which was approved by USFWS simultaneous with permit issuance in December 2020 (USFWS 2020). DBHCP Chapter 6 (*Habitat Conservation*) and Chapter 7 (*Monitoring, Reporting and Adaptive Management*) are organized by covered activity (e.g., storage reservoir, diversion structure, etc.), with the conservation measures and monitoring requirements for each covered activity or set of activities described separately.

The DBHCP requires compliance/implementation monitoring (DBHCP Section 7.2) and effectiveness monitoring (DBHCP Section 7.3). The former involves documentation that the Permittees are complying with the requirements of the DBHCP and the USFWS Permit. The latter involves monitoring to support adaptive management provisions of the DBHCP that address minor levels of uncertainty about the effectiveness of the conservation measures. The organization of this report follows the numbered conservation and effectiveness measures associated with the covered activities. Results of monitoring for the reporting period follow. The biologist hours funded by the Permittees to complete required monitoring tasks are summarized in Table 1.

Annual reporting of DBHCP implementation requires numerous datasets and additional documentation that is submitted as part of this report package (Table 2). This includes reporting of hydrological data for the surface waters covered by the DBHCP and the hydrologic parameters used to evaluate compliance. For adaptive management measures, supplemental studies and/or monitoring are required in some years and are submitted as independent reports with this reporting package. Lastly, supplemental attachments also include documentation of correspondence among the Districts and the Services, implementation coordination meeting notes, and leasing and payment information.

Table 1. Monitoring hours funded by the Permittees in 2024.

Requirement Description	DBHCP Measure	Monitoring Interval	Maximum Required Hours	Qualified Biologist Hours Requested in WY24
Dead Slough Habitat Assessment	WR-1	Annual	80	0 ^a
Upper Deschutes River Habitat Suitability Assessment Downstream of Wickiup Dam	WR-1	5 years	80	175
Crescent Creek Egg Mass Counts	CC-1	Annual	80	56
Crescent Creek/Little Deschutes Monitoring for Stranding	CC-1	3 years	80	0 ^a
Crescent Creek/Little Deschutes Habitat Suitability Analyses	CC-1	5 years	80	0
Upper Deschutes River OSF Pre-breeding Assessment	OSF-1, WR-1.1	Annual		0 ^a
Upper Deschutes River OSF Egg/Larvae Survival Monitoring	OSF-1, WR-1.2	Annual	240	0 ^a
Crane Prairie OSF Egg Mass Counts	OSF-1, CP-1.1	Annual		89.75 ^b
Crane Prairie Monitoring for OSF Stranding	CP-1.2	Year 1, 2, and 2 of 10 years thereafter	No max	0
Crane Reservoir Wetland Vegetation Monitoring	CP-1.3	5 years	No max	2.5

^a District funding allocated for monitoring tasks WR-1 (Dead Slough Monitoring), CC-1, WR-1.1, and WR-1.2 were shifted to conduct an Upper Deschutes habitat suitability analysis, as directed by USFWS.

^b As per prior agreement with USFWS, MHE provided a boat for crew access for egg mass counts at Crane Prairie Reservoir. A 1.5-day fee for the boat (\$1,138.50) was converted to biologist hours using the billing rate of \$99.00 per hour.

Table 2. Supplemental attachments for Water Year 2024

Attachment	Description of Contents
A	Tables (.xlsx) containing specified hydrologic data, monitoring metrics, reporting of values outside the required ranges and allowable ranges of deviation, and explanation of deviations. All tables have metadata tabs with data dictionaries including calculation methods.
B	Email correspondence, official letters, or other documentation related to DBHCP compliance and implementation.
C	Monthly coordination meeting notes.
D	Monitoring reports (effectiveness, Oregon spotted frog breeding, habitat suitability)
E	Payments and leases

Crane Prairie Reservoir

Compliance and Implementation Monitoring

Central Oregon Irrigation District (COID) implements, monitors, adaptively manages, and reports on covered activities at Crane Prairie Dam and Reservoir. Monitoring and reporting requirements are described in the Deschutes Basin Habitat Conservation Plan Chapter 7.

Conservation Measure CP-1 (Crane Prairie Reservoir Operation: Crane Prairie Reservoir)

The DBHCP Conservation Measure CP-1 specifies required ranges and allowable ranges of deviation for both midnight water surface elevation and daily change in water surface elevation at Crane Prairie Reservoir (provisions A through E). Conservation Measure CP-1 also requires monthly coordination between USFWS and COID on the implementation of this conservation measure (provision G) and coordination on the release of an additional 5,000 acre-feet of stored water (provision H). Lastly, COID is required to report any deviations from provisions A through F to USFWS via email (provision I).

Daily reported values for midnight water surface elevation and daily changes in water surface elevation in Crane Prairie Reservoir from October 1 through September 30 are presented in Figure 1 and Figure 2. All surface elevations for Water Year 2024 were reported in a Microsoft Excel file (CranePrairie_WY2024.xlsx) and submitted to USFWS as part of this report package. This file also includes daily values that were outside the allowable range of deviation for Conservation Measure CP-1, the rationale or explanation for those deviations, and any remedial actions taken. Email notifications of compliance deviations and other correspondences are included in supplemental materials, Attachment B.

During the previous water year (Water Year 2023), the Permittees did not release the additional 5,000 acre-feet of storage from Crane Prairie Reservoir allowed for under Provision H of Conservation Measure CP-1. Accordingly, COID was not exempt from provisions A, D and E of this conservation measure. Water surface elevations in the reservoir were above the allowable range of deviation between January 21 - February 10 and between February 15 - 17 due to rain-on-snow events that precipitously increased the inflows. COID reported the deviation promptly and responded with real-time outflow adjustments to manage the rising volume (Attachment B); OWRD also adjusted the outflow in coordination with COID during this time. This period occurred prior to Oregon spotted frog (OSF) breeding activity, when there was still considerable snow and ice along the reservoir perimeter. Therefore, there was likely no impact to OSF. Rapid inflows also raised the surface elevation in the reservoir above the allowable range of deviation between May 4 and May 8. COID reported the rising volume on May 3 (Attachment B) and its intent to increase the outflow. During the May 17 monthly meeting (Attachment C), it was also noted that wind was influencing the gage readings during this period of high inflow. The high surface elevations did not affect OSF egg mass locations, which were oviposited in March and April. Further, these surface elevations remained at the upper end of (or above) the Conservation

Measure CP-1 requirement prior to drawdown in July. Consequently, stranding of larvae or juvenile frogs was not a concern. There were no water surface elevations that fell below the allowable range of deviation during Water Year 2024. Daily changes in water surface elevation at Crane Prairie Reservoir (Provision B) were within the allowable range of deviation throughout the 2024 water year (Figure 2).

Monthly coordination between USFWS and the Permittees on the implementation of Conservation Measure CP-1 (Provision G) occurred via Microsoft Teams video conferencing and by email for all 12 months during water year 2024 (Attachment C). Participants in these meetings included representatives of USFWS, Bureau of Reclamation, Oregon Water Resources Department (OWRD), AID, COID, LPID, and NUID. Meeting notes were provided to the USFWS via email.

Conservation Measure CP-1 (Crane Prairie Reservoir Operation: Deschutes River Below Crane Prairie Dam)

Provision F of Conservation Measure CP-1 defines the minimum instream flow in the Deschutes River between Crane Prairie Dam and Wickiup Reservoir. Releases from the reservoir, monitored by the discharge below Crane Prairie Dam (Hydromet Station CRAO), were within the allowable range of deviation the entire water year (Figure 3). All flows for Water Year 2024 are reported in a Microsoft Excel file (Attachment A: CranePrairie_WY2024.xlsx) and were submitted to the USFWS as part of this report package. Email notifications regarding compliance (Provision I) and other correspondences are included in supplemental materials, Attachment B.

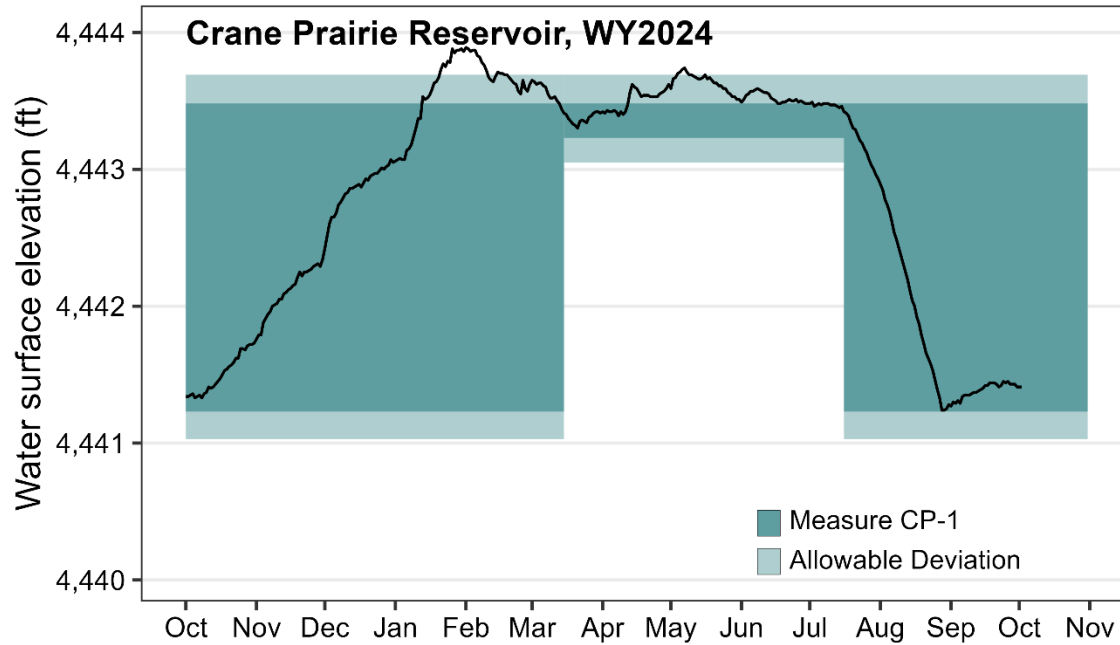


Figure 1: Daily (midnight) water surface elevations (feet) in Crane Prairie Reservoir measured at Hydromet Station CRA (OWRD Gage 14053500). Values outside the colored areas fall outside the required range and allowable deviation for Conservation Measure CP-1.

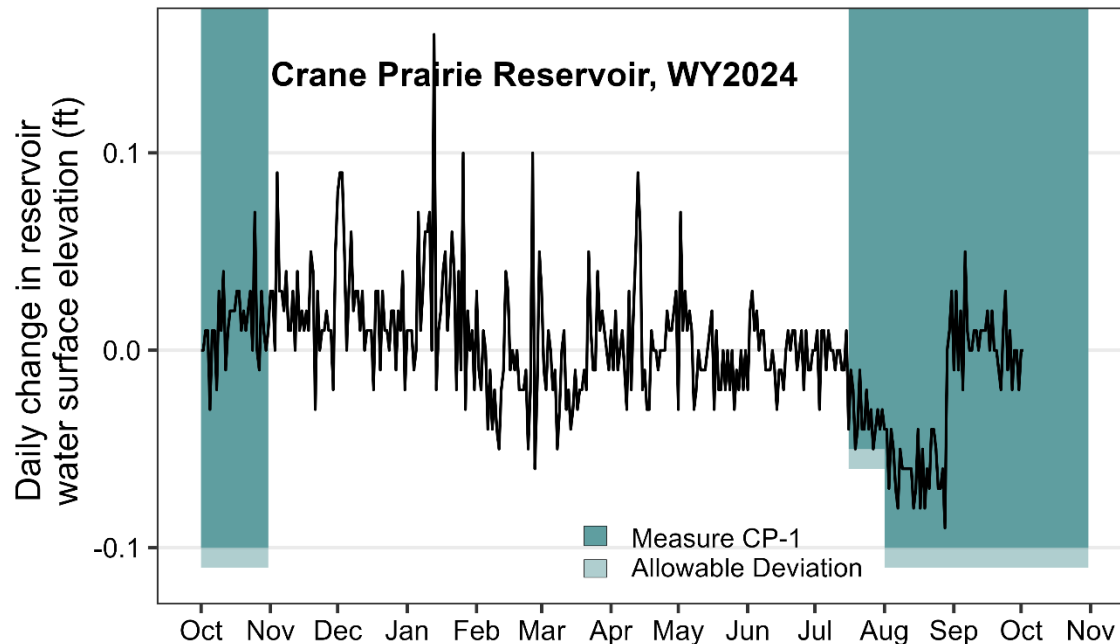


Figure 2: Daily change in reservoir surface elevation (feet) in Crane Prairie Reservoir measured at Hydromet Station CRA (OWRD Gage 14053500). DBHCP requirements apply October 1-31 and July 15-September 30 (shaded blue regions).

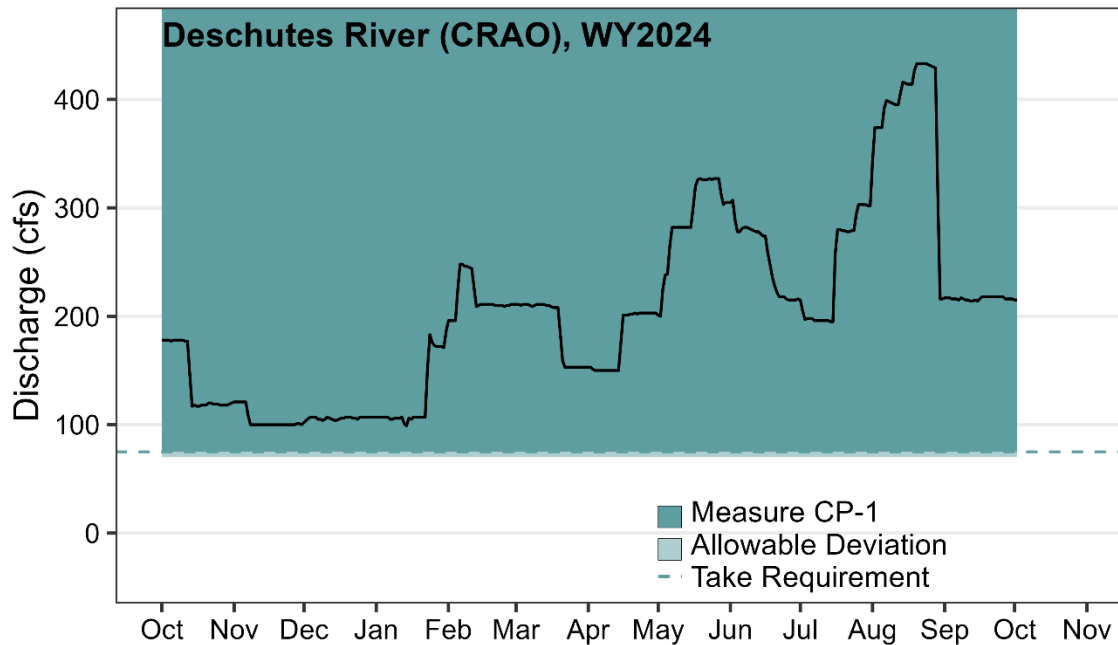


Figure 3: Deschutes River discharge (cfs) below Crane Prairie Reservoir measured at Hydromet Station CRAO (OWRD Gage 14054000). The dashed line indicates the 75 cfs minimum required under the Incidental Take Permit.

Effectiveness Monitoring

Adaptive Management Measure CP-1.1 (Crane Prairie Reservoir Breeding Surveys)

Permittees provided three qualified biologists to conduct Oregon spotted frog (OSF) egg mass counts at Crane Prairie Reservoir in close coordination with USFWS in 2024. The number of hours of qualified biologist time that were funded to support Adaptive Management Measure CP-1.1 are shown in Table 1. This includes time for field data collection and data processing under the direction of USFWS. Additionally, the Permittees provided a boat for crew access to the breeding habitat.

The Mount Hood Environmental (MHE) team visited the northern shore along Cultus Creek on April 8 to provide reconnaissance regarding potential breeding activity. Egg masses were observed during that brief survey and three MHE staff and three USFWS representatives returned to the north shore via boat on April 15. The survey area included NW Bay and NE Bay. Egg masses were in various stages of development. Most masses were in blastula/gastrula - neurula phases with only a few having recently hatched out. All oviposition sites were marked with pin flags. It is noted that during the survey of NE Bay (Cow Meadow) the Survey123 software underwent a technical error and data was not saved. USFWS revisited the site April 19 and re-collected the spatial data at pin flags and recorded several new oviposition sites. On April 16, three MHE biologists surveyed wetlands from the Cultus River outlet to Cultus Creek. Egg

masses in this shoreline reach were all in blastula to neurula stages. All egg mass data were reported directly to USFWS via ArcGIS Survey123 using the USFWS egg mass survey form. Submitted data are provided back to MHE following QAQC from USFWS. However, at the date of submission for this report, USFWS had not completed QAQC on the egg mass data, and final counts are subject to change. A detailed report of the annual egg mass survey is submitted with this report in Attachment D: EggMassMonitoringReport_WY2024.pdf.

Adaptive Management Measure CP-1.2 (Drawdown Monitoring)

Crane Prairie drawdown was intensively monitored during the first two years of implementation (2021 and 2022) to document any observations of OSF stranding (DBBC 2022, 2023). Monitoring is required for two of ten years thereafter; however, this task was not requested by USFWS in 2024. Like Water Year 2023, this decision was the result of observations made during the spring breeding survey which indicated that there was a very low risk for stranding larval frogs.

Adaptive Management Measure CP-1.3 (Vegetation monitoring)

In accordance with Adaptive Management Measure CP-1.3, orthophotography and vegetation surveys occurred in 2021 along the northern shoreline of Crane Prairie Reservoir. Vegetation mapping was completed by Mount Hood Environmental and Smayda Consulting during 2023 and early 2024. Mapping incorporated data from vegetation surveys, orthophotography, and existing LiDAR to create a baseline assessment of the area and type of wetland habitats present at Crane Prairie Reservoir. Suitable breeding habitat for the OSF was also mapped and quantified within the operational minimum and maximum surface water elevations that coincide with the OSF breeding and rearing period. Detailed reporting of vegetation mapping was included with the submission of the 2023 Annual Report (DBBC 2024, Smayda et al. 2024).

During annual OSF monitoring coordination, USFWS requested that the mapping extent should report reservoir storage volumes in addition to the surface elevations (Attachment C: OSFMonitoringCoordNotes_20240311). Mount Hood Environmental submitted the revised report to USFWS on May 9, 2024, and it is submitted with this report package (Attachment D).

Wickiup Reservoir

Compliance and Implementation Monitoring

North Unit Irrigation District (NUID) implements, monitors, adaptively manages, and reports on covered activities at Wickiup Reservoir. Monitoring and reporting requirements are described in the Deschutes Basin Habitat Conservation Plan Chapter 7.

Conservation Measure WR-1 (Wickiup Reservoir Operation)

DBHCP Conservation Measure WR-1 specifies required ranges and allowable ranges of deviation for the daily average flows in the Deschutes River below Wickiup Dam (Items A through D, F through H, and J) and daily average flows in the Deschutes River at Benham Falls (Item E). Conservation Measure WR-1 also requires monthly coordination between USFWS and NUID on the implementation of this conservation measure (Item L). Lastly, NUID is required to report any deviations from Items A through L to USFWS via email (Item K).

Monthly storage volume for Wickiup Reservoir (Hydromet Station WIC) along with daily average flow and continuous water stage data from the Deschutes River downstream of Wickiup Reservoir (Hydromet Stations WICO and BENO) from October 1, 2023 through September 30, 2024 are submitted in supplemental materials, Attachment A: Wickiup_WY2024.xlsx. Daily values for discharge and the percent change in daily discharge at WICO are shown in Figure 4 and Figure 5, respectively. Deschutes River discharge below Benham Falls (Hydromet station BENO) is presented in Figure 6. Flow metrics that were outside the allowable range of deviation for Conservation Measure WR-1 are indicated in Attachment A: Wickiup_WY2024.xlsx, including the rationale or explanation for those deviations and any remedial actions taken. Email notifications of compliance deviations or other operational coordination with USFWS are included in supplemental materials, Attachment B.

Compliance with Item J was determined using a rolling average of water surface elevations (WSE; measured every 15 minutes at Hydromet station WICO) to calculate the rate of change for 4-hour and 12-hour periods (Attachment A: WickiupItemJ_WY2024.xlsx). The rate of change in WSE at WICO exceeded the allowable deviations allowed under Item J of WR-1 on two occasions during Water Year 2024: April 10 and May 14. On April 10, NUID made an adjustment at 8:00 AM, but the change didn't register on the sensor until 11:00 AM. As a result, the rate of change in surface elevation was erroneously flagged out of compliance; an email notification was promptly sent to USFWS. On May 14, the rate of change in WSE was outside the allowable deviation between 5:30 and 9:00 PM during NUID's ramp-up. BOR applied a (negative) gage shift on May 15 after the NUID ramp up began May 14 – 15; this shift updated the data on Hydromet, resulting in the rate of increase to be outside the requirement of Item J for approximately 4 hours. However, the ramping operations were based on, and in compliance with, real-time data. This incident was reported directly to USFWS via email and discussed during the

monthly coordination meeting. Explanations for each deviation are noted in Attachment A: Wickiup_WY2024.xlsx and are summarized as follows:

- **April 10, 2024:** The rate of increase was > 0.1 but was a result of the sensor not registering an adjustment in real-time; the resulting rate of change was erroneous.
- **May 14, 2024:** The rate of increase was > 0.1 for a period of 4 hours, the deviation occurred after BOR applied a negative gage shift and was not present in real-time.

Additionally, Item J requires that during the fall ramp-down (September 15 – October 31), the flow reduction at WICO must be halted for five days when flows at BENO reach 1,200 and 1,100 cfs. It should be noted that this ramp-down period often spans consecutive water years and ramp down flows during October 2023 are reported in the annual report for Water Year 2023 (DBBC 2024) while ramp down flows during October 2024 are included in this report. In fall 2024 (Water Year 2025), the fall ramp-down schedule was determined in coordination with USFWS (see Attachment C: September and October meeting notes) and is summarized as follows:

- **October 2:** Reduced flows at BENO to 1,200 cfs; held for five days.
- **October 7:** Held flows at BENO for 2 additional days, based on OSF account water in Wickiup. During this period, the remaining OSF storage account was exhausted.
- **October 9:** Flows were reduced to 1,100 cfs and held for 5 days.
- **October 14:** Began ramp down to target flow, 105 cfs.
- **October 19:** Target flow of 105 cfs.

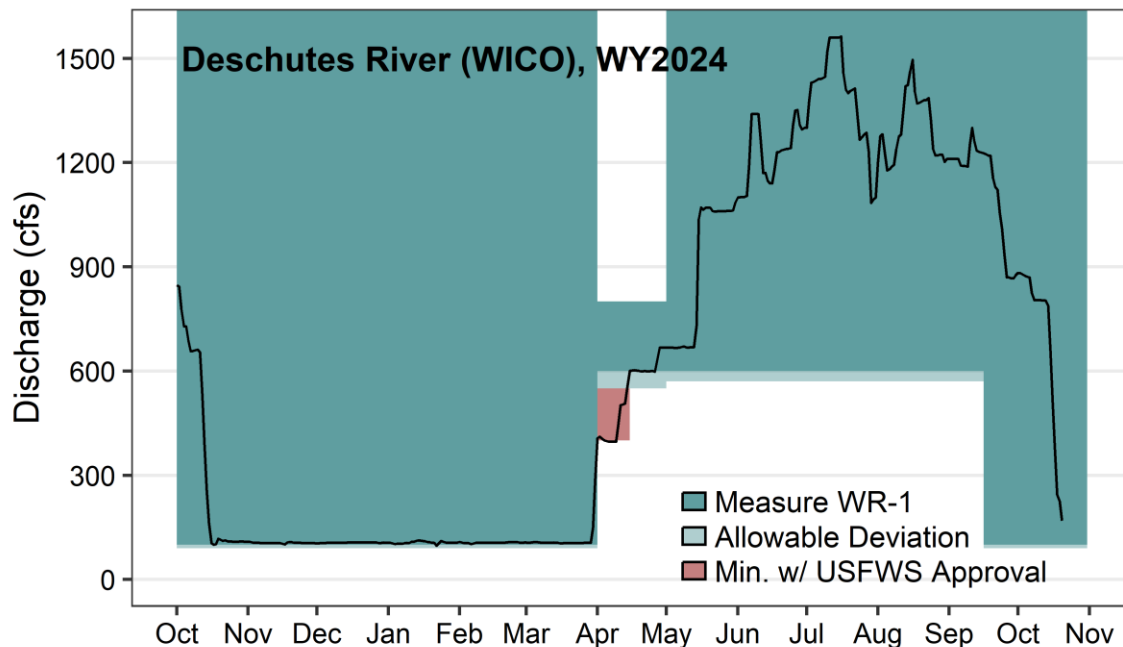


Figure 4. Deschutes River discharge below Wickiup Dam (OWRD Gage 14056500). The minimum flow between April 1 and April 15 can be modified below 600 cfs with USFWS approval.

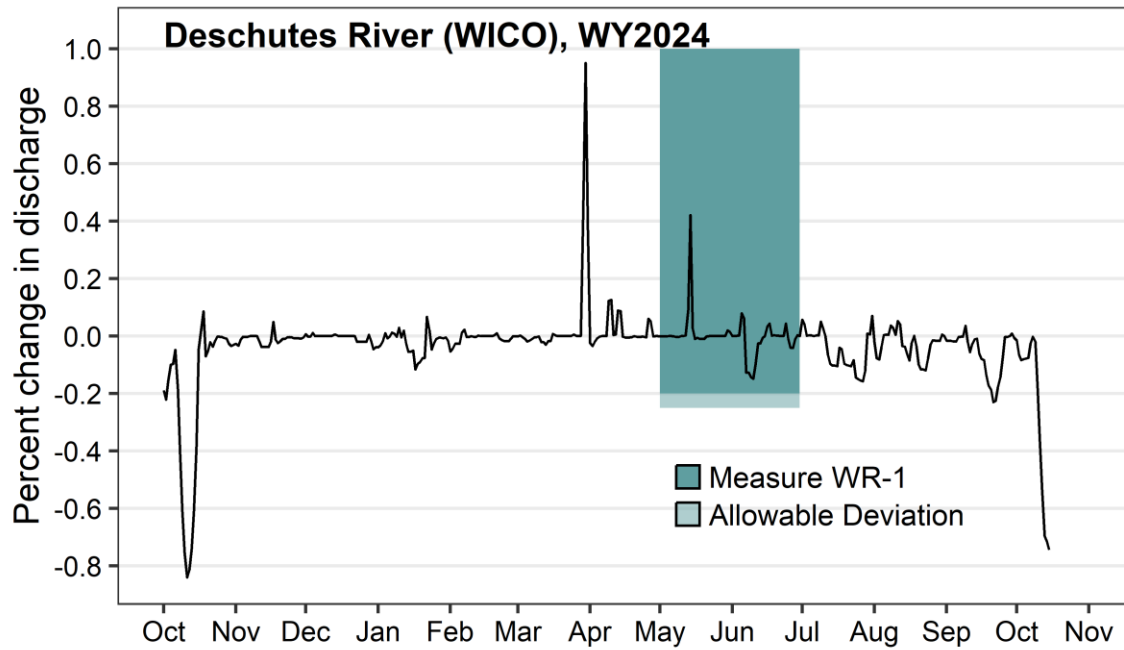


Figure 5. The percent change in Deschutes River discharge below Wickiup Dam (OWRD Gage 14056500).

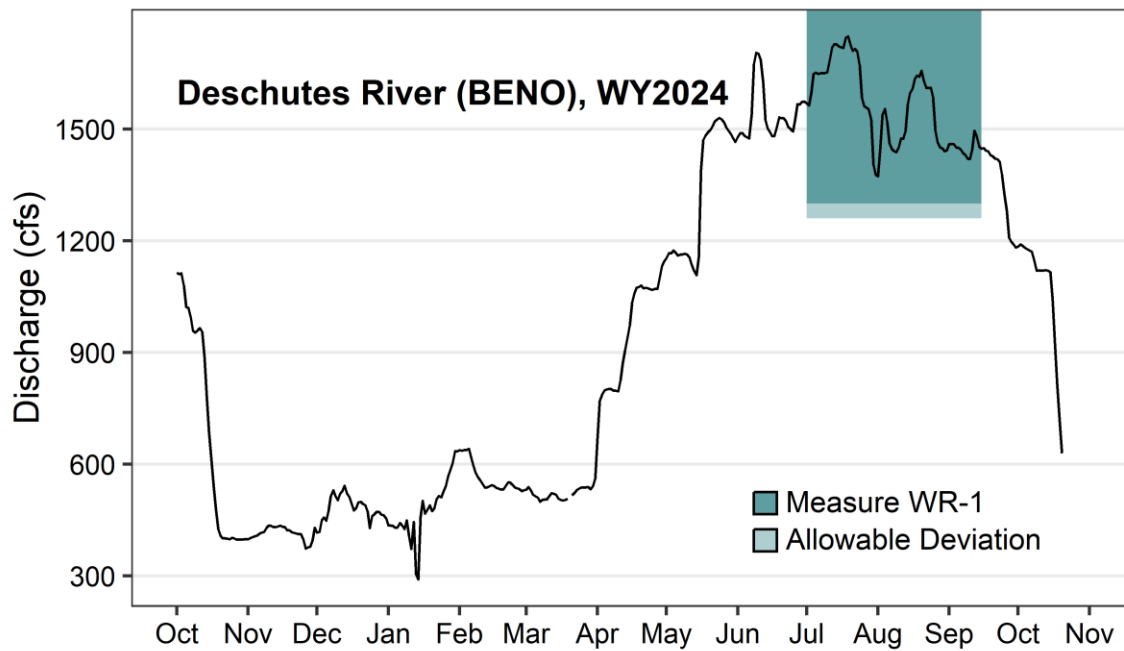


Figure 6. Deschutes River discharge at Benham Falls (OWRD Gage 14064500).

Conservation Measure WR-1 (Conserved Water)

COID's conserved water during the 2023 irrigation season amounted to 6,744 acre-feet of Wickiup Reservoir storage to be made available for OSF purposes in Water Year 2024. This stored water was subsequently called on by USFWS and released as instream flows in 2024 from May 1 to May 13; and from October 2 to October 4 (Attachment B: USFWSFrogWaterTrackerFINAL.xlsx). Conserved water during the 2024 Water Year amounted to 7,701 acre-feet which will be stored during the winter storage season and released during the 2025 irrigation season, from April 1 – October 31.

Conservation Measure WR-1 (Dead Slough Monitoring)

The Permittees will provide up to two qualified biologists for up to 40 hours each per year to assess habitat conditions in Dead Slough if the flow at WICO decreases by 20 percent over any 5-day period between May 1 and June 30. As per USFWS's request in 2023, NUID will notify the District's consultant at least 24 hours before NUID intends to reduce the flow during the period covered in this conservation measure to allow for a site visit to Dead Slough, if needed. Observations from 2021 indicated that the downstream end of the slough was not at risk of surface connection with the river until the flow at WICO was between 1,050 and 1,100 cfs and sufficient time had elapsed for this flow to reach Dead Slough (DBBC 2022).

There were no instances during the 2024 water year when the change in flow at WICO (calculated as the rate of change over a rolling five-day period), was outside of the requirement or allowable deviation for this conservation measure (Figure 5). No monitoring requests were made by USFWS to assess the habitat conditions at Dead Slough. Flows and percent change in flow at WICO are included in Attachment A: Wickiup_WY2024.xlsx.

While no monitoring at Dead Slough occurred in 2024, District funding for monitoring tasks WR-1 (Dead Slough Monitoring), CC-1, WR-1.1, and WR-1.2 was reallocated to conduct habitat suitability analyses along the Deschutes River. The reallocation of funding was decided in coordination with USFWS and to fulfill its request to utilize allocated funding for alternate tasks. See DBBC (2024) for additional documentation.

Conservation Measure WR-1 (Habitat Suitability Analyses Along the Deschutes River)

Implementation of the Deschutes Basin Habitat Conservation Plan (DBHCP) necessitates Permittees to provide qualified biologists to fulfill specific conservation and adaptive management measures in cooperation and agreement with USFWS. An analysis of OSF habitat suitability along the upper Deschutes River below Wickiup Dam (HCP 7.2.2.1) is required in year 1 (Water Year 2021) and every 5 years thereafter for the term of the DBHCP. Habitat suitability analyses were initially conducted in 2022 (Blackman et al. 2022). USFWS requested that Permittees' funding for DBHCP monitoring tasks WR-1, CC-1, WR-1.1, and WR-1.2 be reallocated to conduct additional habitat suitability analyses. Accordingly, the East Slough and Dead Slough sites, along the Deschutes River, were selected for monitoring by USFWS in 2023

(Blackman and Mackey 2024, Blackman et al. 2024). The East Slough analysis was intended to span multiple years and was expanded in 2024 in coordination with USFWS.

The habitat suitability study at East Slough is intended to capture the potential effects of Deschutes River flow changes scheduled in years 1, 8, and 13 of the DBHCP on existing vegetation. There will be four major components to this study: (1) UAV remote sensing to capture high-resolution imagery, (2) vegetation mapping: plant associations and breaks within OSF habitats, (3) photogrammetric processing and analysis, and (4) groundwater monitoring. Using these four components over multiple growing seasons, we will address the following research questions:

1. What is the baseline condition of OSF habitat at East Slough during the first phase of DBHCP implementation?
2. Is vegetation changing as implementation of the DBHCP proceeds?
 - a. What is the relationship between wetland / riparian plant associations and Deschutes River flow (community type and area)?

The work conducted in 2024 aimed to refine the vegetation mapping completed in 2023 and complete the installation of groundwater monitoring stations in select breeding areas. The East Slough habitat suitability report, which includes preliminary results from 2023 and 2024 monitoring and analysis is included in supplemental materials Attachment D (HabitatSuitability_EastSlough_WY2024.pdf).

Effectiveness Monitoring

Adaptive Management Measure WR-1.1 (Pre-breeding Activity Along the Upper Deschutes)

Under prior arrangement by USFWS, the field assessment described in Adaptive Management Measure WR-1.1 was completed by biologists employed by the U.S. Geological Survey (USGS). Funding for this measure was reallocated to conduct a habitat suitability analysis at East Slough. OSF survey coordination notes from the March 11, 2024 meeting (Attachment C) document that this task was completed by USGS in 2024, and that funding was re-allocated.

Adaptive Management Measure WR-1.2 (Monitoring OSF Egg/Larvae Survival Along the Upper Deschutes River)

Adaptive Management Measure WR-1.2 was developed to be implemented if the Permittees proposed a decrease in flow ≥ 30 cfs when the flows at WICO are above 600 cfs during April. While flows were above 600 cfs during the last two weeks in April (Figure 4) there were no proposed or implemented reductions in flow. USFWS did not request monitoring OSF egg/larvae survival in Water Year 2024. The remaining hours allocated for Adaptive Management Measure WR-1.2 were utilized for habitat suitability analyses at East Slough.

Adaptive Management Measure WR-1.3 (Variable Flow Tool)

Development of the variable flow tool is required by year 10 of implementation.

Upper Deschutes Basin

Compliance and Implementation Monitoring

Arnold Irrigation District (AID), COID, Lone Pine Irrigation District (LPID), NUID, Tumalo Irrigation District (TID) and Swalley Irrigation District (SID) are jointly responsible for implementation and reporting on Conservation Measure UD-1.

Conservation Measure UD-1 (Upper Deschutes Basin Conservation Fund)

The DBHCP Permittees' contribution to the Upper Deschutes Basin Conservation Fund was posted on March 12, 2024, in the total amount of \$176,441 (Figure 7) sent to the Oregon Community Foundation. The Conservation Fund payment was adjusted by +17.838% based on the change in the CPI for all west urban consumers between 2020 and 2023. Inflation adjustments are based on the market basket values in December published by the U.S. Bureau of Labor Statistics (USBLS 2023).

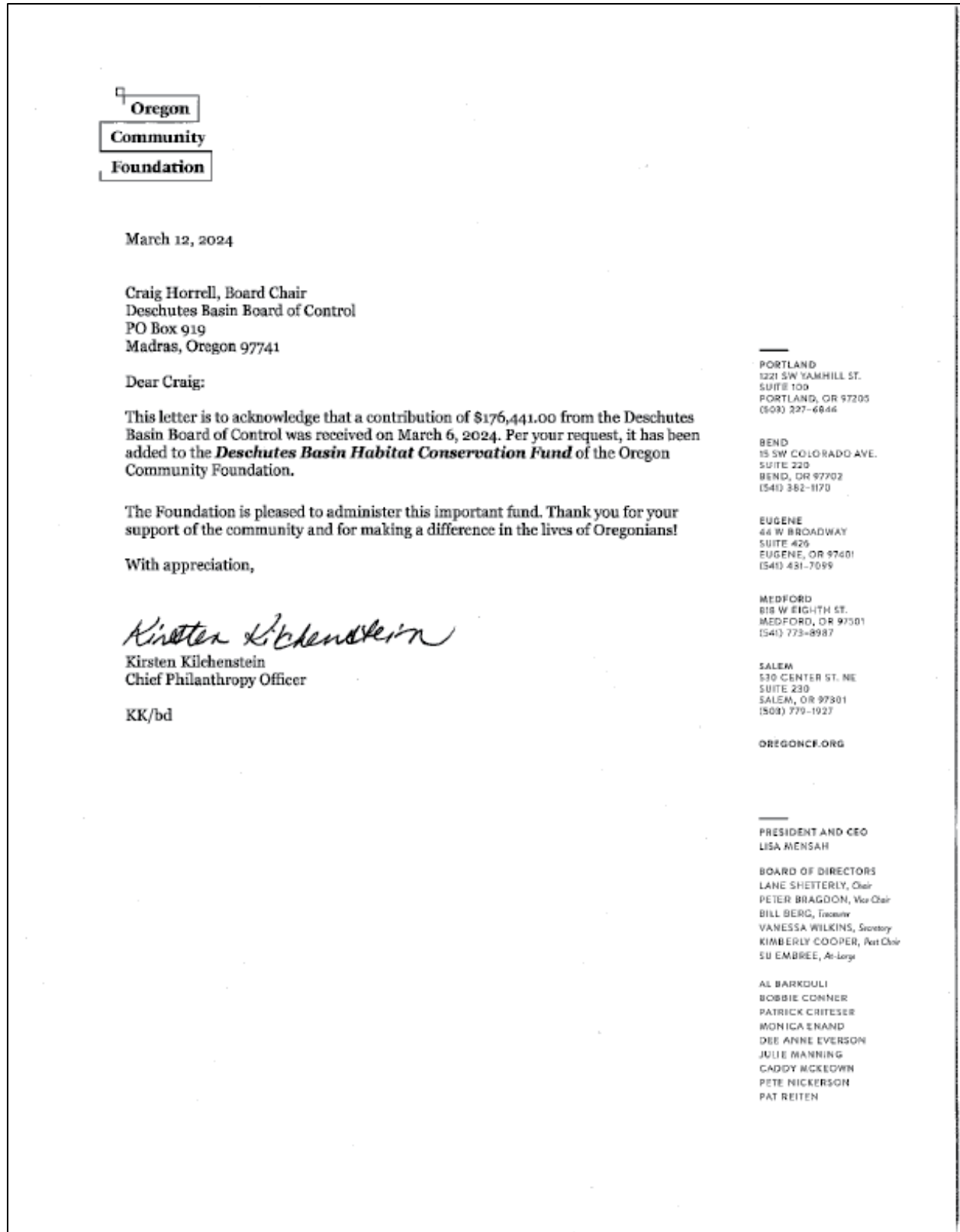


Figure 7. Payments from DBCHCP Permittees to the Upper Deschutes Conservation Fund.

Middle Deschutes River

Compliance and Implementation Monitoring

Three DBBC Districts (AID, COID and SID) 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 (± 25 cfs) at Hydromet Station DEBO (OWRD Gage 14070500) below Bend.

Conservation Measure DR-1 (Middle Deschutes River Flow Outside the Irrigation Season)

Conservation Measure DR-1 requires reporting on daily average flow data for the preceding November 1 through March 31 at Benham Falls and will identify all daily average flows less than the required 250 cfs and allowable deviation of 225 cfs during stock water runs.

All daily average flows in the Deschutes River below Bend (Hydromet Station DEBO) were within the allowable deviation of 225 cfs from November 1, 2023 through March 31, 2024, including periods when stock water runs were occurring. Therefore, all stock water runs in Water Year 2024 were in compliance with Conservation Measure DR-1. Flows in the Deschutes River below Bend, above Bend (Hydromet Station BENO), and in the four irrigation district diversions used for winter stock water runs covered by DBHCP Conservation Measure DR-1 (Arnold Diversion, Central Oregon Diversion, North Canal Diversion, and Swalley Diversion) are included in Attachment A: MidDeschutes_WY2024.xlsx of this report.

The gage at SWCO was erroneously measuring flows between 6 and 7 cfs during the reporting period. The recorded flows were not related to any stock run by Swalley as the Swalley diversion was shut down for the duration of winter due to heavy construction. Coincident with this period, the SWCO meter was being repaired for the erroneous measurements which occurred while the pipe was empty. The meter has since been repaired.

Crescent Creek and Little Deschutes River

Compliance and Implementation Monitoring

Tumalo Irrigation District (TID) implements, monitors, adaptively manages, and reports on covered activities at Crescent Lake Dam and Reservoir.

Conservation Measure CC-1 (Crescent Creek Flow Management: OSF storage)

The DBHCP Conservation Measure CC-1 specifies volumes of storage in Crescent Lake Reservoir to be made available for OSF conservation (OSF storage). Reporting for this measure includes the volume of water in Crescent Lake Reservoir available for OSF management (OSF storage) based on the reported storage volume on July 1 of the preceding calendar year and volume of water released from OSF storage during the preceding water year (October 1 – September 30).

The total storage volume in Crescent Lake Reservoir on July 1, 2023 was 17,425 acre-feet, resulting in 5,264 acre-feet of Crescent Lake storage to be made available for OSF conservation in Water Year 2024 (DBBC 2024). In mid-October 2023, TID reported that it was struggling to meet the 10 cfs minimum at CREO due to low water (Attachment C: Deschutes Coord Meeting Notes_20231019). USFWS did not call on the OSF water and directed TID to manage its storage and releases to ensure there would be water to maintain flow in Crescent Creek during the winter. Storage season releases from the reservoir enabled TID to maintain releases of 50 cfs or more from June 26 through September 19, which support OSF habitat in lower Crescent Creek and in the Little Deschutes River.

The total storage volume in Crescent Lake Reservoir on July 1, 2024 was 21,340 acre-feet, calculated as the three-day average storage volume between June 29 to July 1. In accordance with Conservation Measure CC-1, the July 1 total storage volume results in 5,264 acre-feet of Crescent Lake storage to be made available to USFWS for OSF conservation in Water Year 2025. Like the past three water years, it is possible that continued drought conditions and low storage volumes in the reservoir will preclude storage releases in 2025.

Conservation Measure CC-1 (Crescent Creek Flow Management)

The DBHCP Conservation Measure CC-1 specifies minimum flows and allowable ranges of deviation for flow in Crescent Creek during both irrigation and storage seasons. The DBHCP requires 10 cfs or more during the storage season (October 1 through June 30) with an allowable deviation of 9 cfs. In mid-October 2023, TID reported that it was struggling to meet the 10 cfs minimum at CREO due to low water (Attachment C: Deschutes Coord Meeting Notes_20231019). USFWS directed TID to manage its storage and releases to ensure there would be water to maintain flow in Crescent Creek during the winter. The low storage volume, combined with limited accessibility for maintenance during the winter resulted in instream flow minimums below 9 cfs for 127 days of Water Year 2024 (Attachment A:

CrescentLake_WY2024.xlsx, Figure 8). Like previous years, the pumps were set at 10 cfs but the low storage volume in Crescent Lake resulted in little to no head pressure available to maintain flow at or above 9 cfs. Further, the screens at the outlet are inaccessible for maintenance during winter conditions, allowing debris and ice to accumulate and potentially impact flows. Consequently, there was no action that could be taken by TID to adjust the flows at CREO during the winter.

During the irrigation season, as defined in the Conservation Measure CC-1 (July 1 through September 30), flows below Crescent Dam flow must remain at or above 50 cfs with an allowable deviation of 45 cfs. TID maintained releases of 45 cfs or more through the active irrigation season from mid-June through late-September. As in 2023, TID proceeded with an early ramp-down and transition to storage season, beginning on September 20. The rationale for this was to ensure water would be available for winter releases given the low storage volume. The early transition to storage season accounted for all flows below the irrigation season allowable deviation, which occurred from September 21 - 30. During two of those days, on September 28 and 29, the flow fell below the allowable deviation for storage season (9 cfs).

All reported daily average flows in Crescent Creek below Crescent Lake Dam (Hydromet Station CREO) for Water Year 2024 are included in Attachment A: CrescentLake_WY2024.xlsx. This file indicates any flow below the allowable deviations specified in CC-1 and explanations for such deviations.

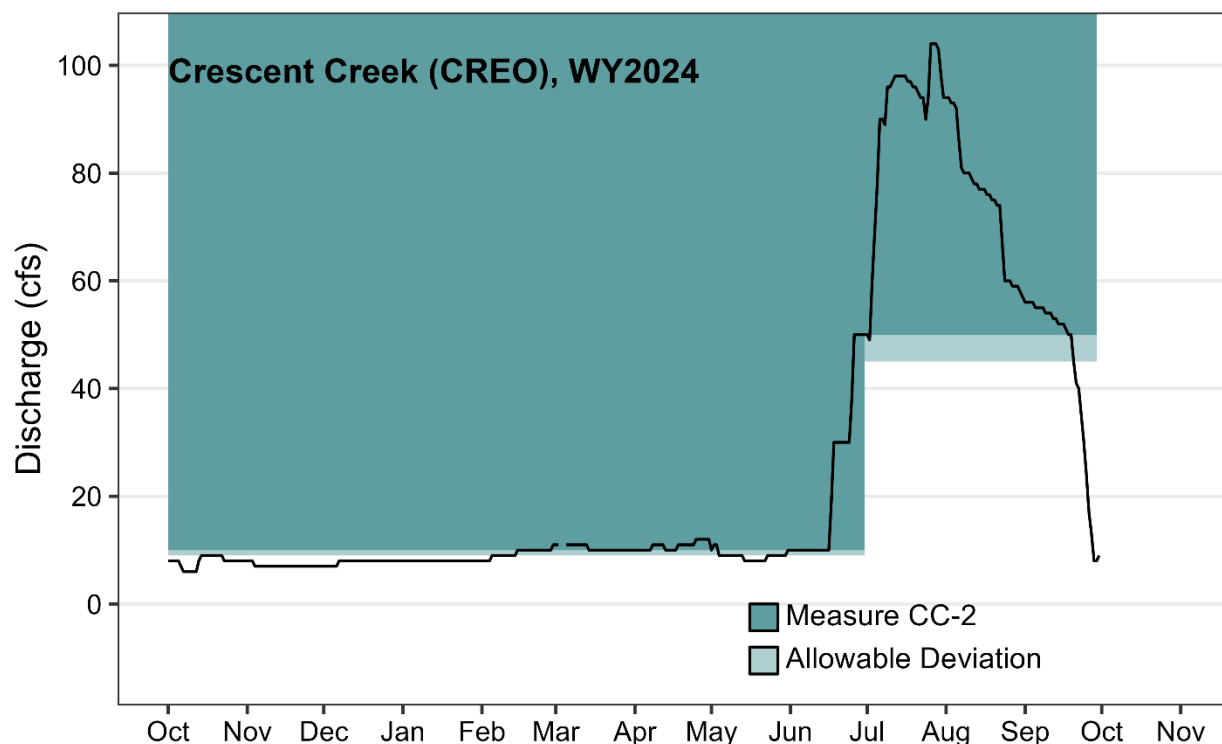


Figure 8. Discharge (cfs) in Crescent Creek below Crescent Lake.

Conservation Measure CC-1 (Maintenance of Gage Downstream of Big Marsh Creek)

The gage downstream of Big Marsh Creek (aka “Highway 58 gage”) was not instrumented with the capability to provide real-time data during Water Year 2024. However, continuous flow measurements were recorded during Water Year 2024 and are provided in Attachment A: CrescentLake_WY2024.xlsx and summarized in Figure 9. Flow data from the Highway 58 gage was sent to USFWS on monthly intervals between August and December in 2024.

Due to the gage’s reliance on a solar panel for power, it failed to record measurements during periods of heavy snow that covered the panel and subsequently drained the battery. Snow-related battery outages occurred on January 13 and from February 27 to March 02. Additionally, ice covering the surface of the stream during the winter and early spring resulted in numerous erroneous records. For example, during the second week in January ice covering the stream caused the gage to register a flow increase from 59 cfs to >800 cfs. Given the high-elevation location of the gage, the effects of snow and ice on the data and battery are unavoidable. However, data recorded outside periods of snow and ice should remain reliable.

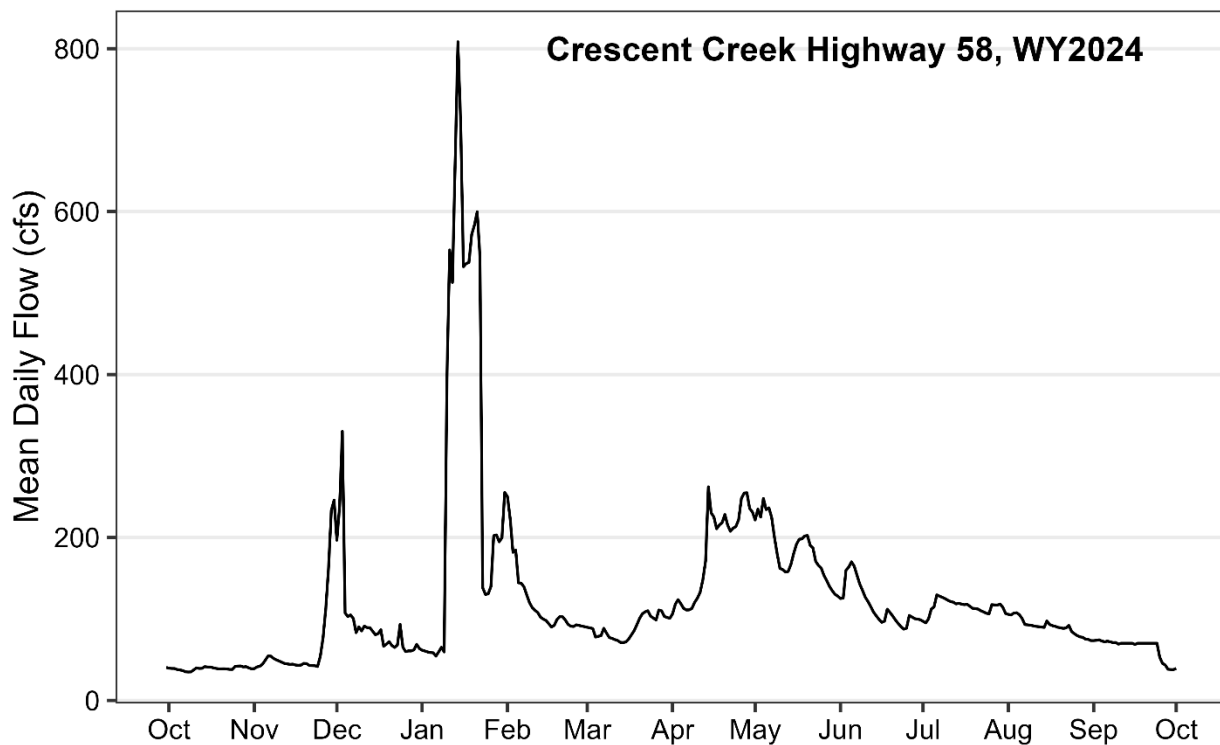


Figure 9. Mean daily flow in Crescent Creek downstream of Big Marsh Creek during Water Year 2024.

Conservation Measure CC-1 (Breeding Surveys in Crescent Creek)

Permittees funded two qualified biologists to conduct OSF egg mass counts at Crescent Creek and Little Deschutes River breeding sites during Water Year 2024. The total hours that were funded to support field data collection and data processing are shown in Table 1..

OSF egg masses were surveyed at three long-term monitoring sites on Crescent Creek (RM 1.74, RM 21.9, and RM 22.8) and three sites on the Little Deschutes River (High School Sloughs, Leona Park, and Rosland Park). Count data was collected by the Permittee-funded biologists and uploaded directly to USFWS via Survey123 for incorporation into the USFWS regional database. These data are summarized in detail within the 2024 egg mass survey report submitted to USFWS with this annual report (Blackman 2024).

Conservation Measure CC-1 (Stranding Surveys in Crescent Creek)

Starting in Year 1 (2021) and repeating every 3 years for the term of the DBHCP, TID is required to fund qualified biologists to check known OSF breeding sites along Crescent Creek and Little Deschutes River for rearing OSF in May/June (early rearing period) to determine if stranding is occurring. In 2023, Permittee-funded biologists monitored for stranding and reported results directly to USFWS. This task will be required again in 2027.

Conservation Measure CC-1 (Habitat Suitability Crescent Creek)

Starting in Year 1 and repeating every 5 years for the term of the DBHCP, TID will provide funding for two qualified biologists for up to 40 hours each (or up to 80 hours total for one biologist) to conduct OSF habitat suitability analyses at up to three sites selected by USFWS along Crescent Creek and/or Little Deschutes River. The analyses may include, but are not limited to, determining surface water elevations relative to flood plains, monitoring vegetation (including presence of invasive reed canarygrass), monitoring bullfrogs, and conducting drone flights. Methodology will vary by site and will be developed in coordination with USFWS.

Through consultation with USFWS in 2021, the Year 1 analysis was deferred to Year 2 (DBBC 2022). In 2022, the Casey Tract, an 86.5-acre parcel along the Little Deschutes River, was selected for monitoring by USFWS to meet the Permittees' requirements for conducting habitat suitability analyses under both DBHCP Sections 7.2.2.1 (Conservation Measure WR-1) and 7.2.5 (Conservation Measure CC-1). The results from that assessment were reported in DBBC (2023) and Blackman et al. (2022). This Conservation Measure is conducted on 5-year intervals and will be required again in 2026.

Conservation Measure CC-2 (Crescent Dam Ramping Rates)

Conservation Measure CC-2 specifies that TID will not increase the flow below Crescent Dam (as measured at OWRD Gage 14060000) more than 30 (± 2) cfs per 24-hour period or decrease the flow more than 20 (± 2) cfs per 48-hour period, except under emergency conditions.

The ramping rate below Crescent Dam was within the required ranges of allowable deviation specified in Conservation Measure CC-2 throughout Water Year 2024 (Attachment A: CrescentLake_WY2024.xlsx).

Conservation Measure CC-3 (Crescent Lake Reservoir Irrigation Release Season)

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

TID notified the USFWS that it intended to end the irrigation season and begin ramping down on September 20, 2024 (Attachment B: CC_20240916). The ramp down and transition to storage season occurred September 20 – 27 and was completed by September 28.

Whychus Creek Diversion

Compliance and Implementation Monitoring

Three Sisters Irrigation District (TSID) implements, monitors, adaptively manages, and reports on covered activities at Whychus Creek Diversion.

Conservation Measure WC-1 (Whychus Creek Instream Flows: Permanent Instream Water Rights)

Conservation Measure WC-1 requires reporting of all permanent instream transfers of TSID irrigation rights completed during the previous calendar year, along with any other senior downstream water right transfers TSID would be required to pass.

There were no permanent instream transfers of TSID irrigation rights completed during the 2024 calendar year.

Conservation Measure WC-1 (Whychus Creek Instream Flows: Whychus Creek and TSID Diversion)

Conservation Measure WC-1 requires TSID to pass specified amounts of water at its primary diversion that are determined by the proportionality calculator developed by TSID and the Deschutes River Conservancy (DRC). Compliance with this Conservation Measure was evaluated using instream flow minimums determined by the DRC.

During Water Year 2023, an alternate proportionality calculator was developed by the DRC and MHE and approved by USFWS to improve the transparency and availability of instream flow calculations. This application was designed to provide daily instream flow minimums based on the active permanent and temporary leases. However, the DRC did not utilize the new calculator in 2024 and instead used its previous method, “Quickcheck” spreadsheets. Those spreadsheets contained instream flow minimums that were subsequently approved by USFWS throughout the 2024 water year. As a result, compliance with Conservation Measure WC-1 was evaluated using the “Quickcheck” instream flow minimums.

As with previous years, data was not available for OWRD Gages 14076001 and 14076010 to use for diversion management in Water Year 2024. Instantaneous flow data in Whychus Creek above and below the TSID diversion were available throughout the year from OWRD Gages 14075000 and 14076020, respectively, and were used to guide diversions in compliance with the DBHCP. Hourly flow data from Gages 14075000 and 14076020 are provided in Attachment A: WhychusCreek_WY2024.xlsx, submitted with this report.

Flows below the TSID diversion fell below 23 cfs on 42 instances (hours) during Water Year 2024. All those instances occurred in October 2023 and September 2024. In total, hourly flows below TSID’s main diversion were below the DRC instream minimum 3.0% of the total hours in

Water Year 2024. The complete dates TSID was diverting, explanations/reasons for any deviations from Measure WC-1, and any remedial actions identified by the Services and implemented by TSID are in Attachment A: WhychusCreek_WY2024.xlsx.

Per Conservation Measure WC-1, a digital file containing the raw 15-minute data from OWRD Gages 14075000 and 14076020 was also submitted with this report (Attachment A: WhychusCreekRaw_WY2024.xlsx). The processed data for those same days (preliminary, provisional, or published) were not available from OWRD on September 30. We note that both raw 15-minute data and hourly data from these gages are missing flow values on some dates. For dates with missing hourly data, compliance was evaluated using the mean daily flows published by OWRD.

Conservation Measure WC-1 (Whychus Creek Instream Flows: Flow and Temperature at Camp Polk Road)

Daily average flow and daily maximum water temperature data in Whychus Creek at Camp Polk Road (OWRD Gage 14076100) during Water Year 2024 are provided in supplemental materials, Attachment A: Whychus_CampPolk_WY2024.xlsx.

Changed and Unforeseen Circumstances WC-1 (Change in the Status of Whychus Creek DBHCP Section 9.10)

Water temperature in Whychus Creek is monitored by the Upper Deschutes Watershed Council (UDWC). Hourly water temperatures in Whychus Creek near RM 6.0 for the period April 02 - October 15, 2024, are provided in Attachment A: Whychus_TempData_006-00_UDWC.xlsx. This file was created by the UDWC and includes monitoring locations, hourly temperature data, and the DEQ QA/QC audits for the data. Both temperature data loggers that were deployed met the DEQ criteria and will be added to the water quality monitoring data available on the UDWC's website (Mork 2023). The 7DADM was calculated from both loggers and reported in Attachment A: WhychusRM6_Temp_WY2024.xlsx.

Conservation Measure WC-2 (Whychus Creek Temporary Instream Leasing)

TSID made a financial contribution to the Deschutes River Conservancy on February 22, 2024, in the amount of \$7,070.29 for the Temporary Instream Leasing Fund program. Instream leasing documentation and payment to the Deschutes River Conservancy are provided in Attachment E.

The TSID leases, IL-1974, 2037 and 2040 contributed up to 9.26 cfs, and a total measured 1,338.61 AF instream in Whychus Creek during the 2024 irrigation season. Documentation of the leases are provided in Attachment E: TSID_InstreamLeasing2024.pdf and TSIDLeaseExhB_2024.pdf.

Conservation Measure WC-3 (Whychus Creek Diversion Fish Screens and Fish Passage)

TSID is required to schedule one full day each calendar year for the Services to conduct annual inspection of the Whychus Creek diversion and associated fish screens. Every 5 years, beginning in Year 5 (2025) of the DBHCP, TSID will schedule a detailed evaluation of the Whychus Creek diversion and fish screens to be conducted by a qualified professional with appropriate fish screen and fish passage expertise who will provide visual examination of the facilities for damage and/or deterioration and measure water depth and velocity to verify the facilities are meeting their original design specifications.

USFWS conducted the annual fish screen inspection on May 22, 2024, and determined that all DBHCP requirements were met (Attachment B: TSID_20240523.pdf).

Conservation Measure WC-4 (Piping of Patron Laterals)

TSID must report to the Services the miles of patron laterals that were piped and the associated reductions in seepage losses during the preceding calendar year.

In 2024, TSID piped a one-mile section of the Cloverdale Ditch. Completion of this work was included as part of an application for the allocation of conserved water with OWRD (application CW-137). As a result, conserved water in the amount of 0.33 cfs was issued by OWRD as a new instream water right April 22, 2024.

Conservation Measure WC-5 (Whychus Creek Diversion Ramping Rate)

Conservation Measure WC-5 specifies 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 is between 30 and 50 cfs, the amount of water being diverted will not be increased or decreased more than 10 cfs/hour.

As with Conservation Measure WC-1, TSID was unable to rely on OWRD Gages 14076001 and 14076010 for diversion management in 2024 and no data is available from either gage for the preceding water year (October 1 through September 30). Instantaneous flow data in Whychus Creek above and below the TSID diversion were available throughout the year from OWRD Gages 14075000 and 14076020, respectively, and were used to guide diversions in compliance with this conservation measure.

Ramping rates were evaluated from average hourly flow data at OWRD Gages 14076020 and 14075000 and reported in Attachment A: WhychusCreek_WY2024.xlsx. There were eight days during Water Year 2024 when ramping rates exceeded 10 cfs for one hour of the day while flows below the TSID diversion were between 30 cfs and 50 cfs. There were 11 instances (hours) when ramping rates exceeded 5 cfs while flows below the TSID diversion were < 30 cfs; almost all instances occurred in October 2023.

Conservation Measure WC-6 (Whychus Creek Habitat Conservation Fund)

TSID will provide documentation to the Services of the District's direct financial and in-kind contributions to the Whychus Creek Habitat Conservation Fund during the preceding calendar year. These contributions will total \$10,000 (adjusted annually for inflation), which amounts to \$11,783 in 2024. Under prior agreement with USFWS, TSID may use a two-year rolling average of its direct financial and in-kind contributions to meet the requirements for Conservation Measure WC-6, acknowledging that in-kind work is often opportunistic.

TSID provided in-kind riparian channel restoration activity in 2023 that was focused on the cleanup and restoration of the Plainview project. This work included \$33,052.50 in labor, \$15,477.50 in equipment, and \$16,447.08 in materials and rentals, totaling \$64,977.08. In 2024, in-kind riparian channel restoration work near Camp Polk included 8 hours of labor and 14 hours of equipment rental to move boulders with a financial value of \$1,410. The total contribution for 2023 – 2024 was \$66,387.08 with an average contribution amounting to \$33,193.54 per year. The value of in-kind work was calculated using the equipment rental and labor costs, paid by TSID. Rates for labor are provided in Attachment E: UDWC_TSID_rates.xlsx and staff weekly timecards and equipment rental invoices are provided in Attachment E: TSID_InKind.pdf.

Conservation Measure WC-7 (Plainview Dam Removal)

Removal of the Plainview Dam and restoration of the associated reach of Whychus Creek was completed in October 2021.

Crooked River Subbasin

Compliance and Implementation Monitoring

Ochoco Irrigation District (OID), NUID and the City of Prineville implement, monitor and adaptively manage various aspects of the Crooked River diversions including flow conditions in the Crooked River, Ochoco Creek, and McKay Creek; temporary instream flow leasing and permanent water rights transfers; and screening activities that occur at OID patron diversions. Specific compliance and implementation monitoring and reporting to be conducted in the Crooked River basin can be found in Chapter 7 of the DBHCP.

Table 7-1. DBHCP flow monitoring requirements for the Crooked River subbasin.

Water Body	Location	Data to be Collected
<i>Crooked River (RM 70.0)</i>	<i>OWRD Gage 14080500 (Hydromet Station PRVO)</i>	<i>Daily average flow</i>
<i>Crooked River (RM 56.5)</i>	<i>Manual staff gage downstream of Crooked River Diversion</i>	<i>Flow at time of change in diversion rate</i>
<i>Crooked River (RM 48.0)</i>	<i>OWRD Gage 14081500 (Hydromet Station CAPO)</i>	<i>Daily average flow</i>
<i>Ochoco Creek (RM 11.2)</i>	<i>OWRD Gage 14085300 (Hydromet Station OCHO)</i>	<i>Hourly average flow</i>
<i>Ochoco Creek (RM 10.2)</i>	<i>Manual staff gage at Red Granary Diversion</i>	<i>Flow at time of change in diversion rate</i>
<i>Ochoco Creek (RM 9.4)</i>	<i>Recording gage with telemetry downstream of Golf Course Dam</i>	<i>Hourly average flow</i>
<i>Ochoco Creek (RM 7.5)</i>	<i>Manual staff gage at Breese Dam</i>	<i>Flow at time of change in diversion rate</i>
<i>Ochoco Creek (RM 5.1)</i>	<i>Recording gage with telemetry at Crooked River Diversion Spill</i>	<i>Hourly average flow</i>
<i>Ochoco Creek (RM 4.7)</i>	<i>Manual staff gage at Ryegrass Diversion</i>	<i>Flow at time of change in diversion rate</i>
<i>McKay Creek (RM 5.8)</i>	<i>Manual staff gage at Jones Dam</i>	<i>Flow at time of change in diversion rate</i>
<i>McKay Creek (RM 3.2)</i>	<i>Manual staff gage at Reynolds Siphon</i>	<i>Flow at time of change in diversion rate</i>
<i>McKay Creek (RM 1.3)</i>	<i>Recording gage with telemetry at Cook Inverted Weir</i>	<i>Daily average flow</i>
<i>McKay Creek (RM 0.6)</i>	<i>Manual staff gage at Smith Inverted Weir</i>	<i>Flow at time of change in diversion rate</i>

Conservation Measure CR-1 (Crooked River Flow Downstream of Bowman Dam)

Conservation Measure CR-1 specifies that OID will provide live flow and/or storage from its account, as needed. This will enable Reclamation to maintain a daily average flow of 50 cfs $\pm 10\%$ allowable deviation at OWRD Gage 14080500 below Bowman Dam (Hydromet Station PRVO) outside the active irrigation season. The typical irrigation season is mid-April to mid-October, but actual dates can vary.

Daily average flow was above 50 cfs at Hydromet Station PRVO for the entire 2024 water year (Figure 10). Flow data for the water year is reported in Attachment A:

CrookedR_CR1_WY2024.xlsx, submitted with this report. The Services (USFWS and NMFS) jointly proposed an annual release schedule for the uncontracted (fish and wildlife) storage account and contracted City of Prineville groundwater mitigation account for the period between July 26, 2023 and April 14, 2024 per the Crooked River Collaborative Water Security and Jobs Act of 2014 (Attachment B: CR_FlowRecommendation_20230731.pdf). The recommended instream flows were: 60 cfs from October 1 – 14, 2023 and 100 cfs from October 15, 2023 – April 14, 2024. From October 1-16, releases from Bowman Dam remained above 60 cfs (range 61 – 165 cfs), and ramping toward 100 cfs began October 16. From October 17 – April 14, releases from Bowman Dam remained above 100 cfs.

In its draft recommendation for the 2024 irrigation season, USFWS advised mitigation storage releases between June 10 to October 11, 2024 of 20 cfs and an additional 40 cfs from uncontracted storage after NUID ends its call for irrigation releases for the period between August 16 – October 11, 2024 (Attachment B: CR_FlowRecommendation_20240726.pdf). This was intended to result in total instream flow at CAPO to be approximately 60 cfs. From August 16 – October 11, 2024 releases from Bowman Dam, as measured by discharge at PRVO, were greater than 60 cfs.

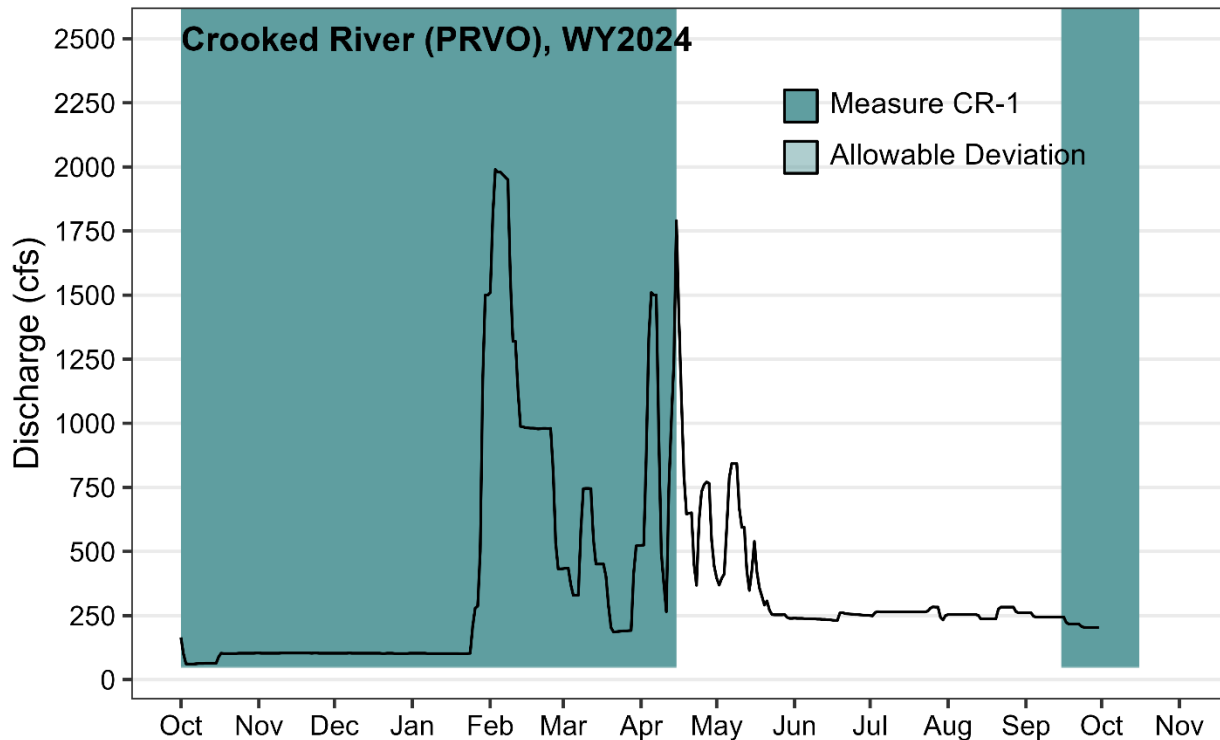


Figure 10. Crooked River discharge below Bowman Dam (OWRD Gage 14080500).

Conservation Measure CR-2 (Ochoco Creek Flow: OID Contributions to Ochoco Creek Flow)

Conservation Measure CR-2 specifies OID will contribute to flow in Ochoco Creek by releasing water from the Ochoco Main Canal downstream of Ochoco Reservoir. Seasonal contributions of 3 or 5 cfs as specified in the DBHCP are 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. OID contributions are not made if OID requires 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.

During the 2024 water year, sufficient storage was available in Ochoco Reservoir to contribute the required hourly flows per measure CR-2 (Figure 11). Flow at OCHO fell below the allowable deviation of 2.7 cfs for several hours on October 1, 2023 as OID began converting flows between the irrigation and non-irrigation season. The momentary drop was reported to USFWS via email. For all other dates, reservoir volumes were sufficient and OID met the requirements of Conservation Measure CR-2.

In accordance with monitoring and reporting requirements for Measure CR-2, average hourly flows at OCHO (OWRD Gage 14085300) and daily flows for river mile (RM) 4.7 are provided in Attachment A: CrookedR_CR2_WY2024.xlsx.

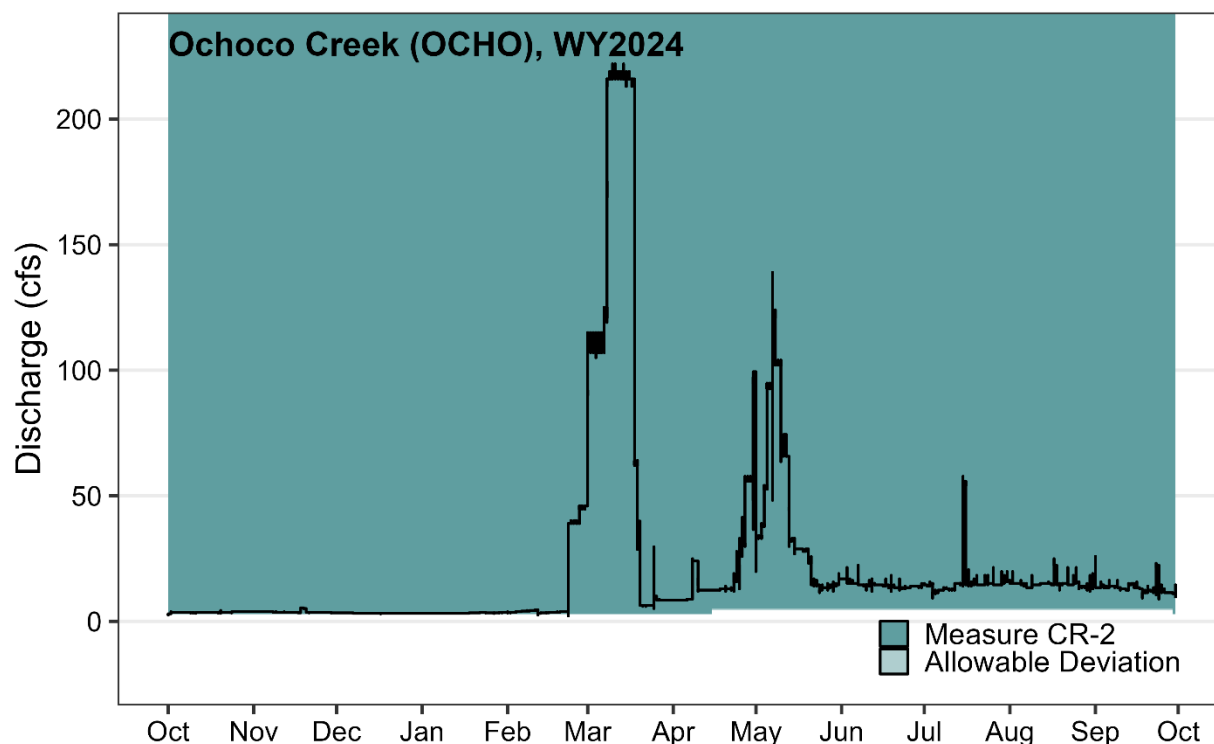


Figure 11. Ochoco Creek hourly discharge below Ochoco Dam (OWRD Gage 14085300).

Conservation Measure CR-2 (Flow Monitoring)

CR-2 specifies that OID monitor and report stream flow at specified diversion and return sites within the Ochoco Creek subbasin. In addition to Hydromet stations within the basin, stream flow is monitored at manual staff gages that were established in coordination with Oregon Water Resources Department (OWRD) in January 2021. It was understood that OWRD would collect flow measurements for rating those gages, however, OWRD has since been unable to revisit sites and update rating curves. In lieu of OWRD rating curves, OID revisited all the manual staff gage sites in 2023 and provided updated rating curves (MHE 2023).

During Water Year 2024, OID was unable to maintain and re-rate all Ochoco sites due to resource limitations, logistical constraints of maintaining specific gage locations (e.g., flooding), and the overall practicality of monitoring all the manual staff gage sites. Given these challenges, OID developed a flow monitoring plan (Attachment D: 2024 Crooked River Monitoring Plan) describing the rationale for the inclusion and exclusion of select gage sites. In coordination with USFWS (Attachment C: Coord Meeting Notes Final_20240620; Attachment D: Response to USFWS Comments_20240516), OID selectively monitored Ochoco Creek at RM 9.4 and RM 4.7 to confirm that flow measurements still fell on the 2023 rating curves developed for those sites (Figure 12; Figure 13). Given the excellent fit of the 2024 measurements to the 2023 rating curves, gage heights and telemetry recorded during the 2024 irrigation season were used to estimate flows at RM 4.7 and RM 9.4 (respectively); estimated flows are reported in Attachment

A: CrookedR_CR2_WY2024.xlsx. There were no recorded instream flows at RM 4.7 and RM 9.4 that fell below the allowable deviations for active irrigation and non-irrigation seasons.

Flows are calculated only for the range of values that fall within the 2023 rating curves. High flows were not measured when developing these rating curves because safety concerns prevent measuring flows when the stream is at flood stage. However, gage height values recorded above the limits of the current rating curves have flows that exceed the maximums shown in Figure 12, but are not estimated (*see* Attachment A: CrookedR_CR2_WY2024.xlsx).

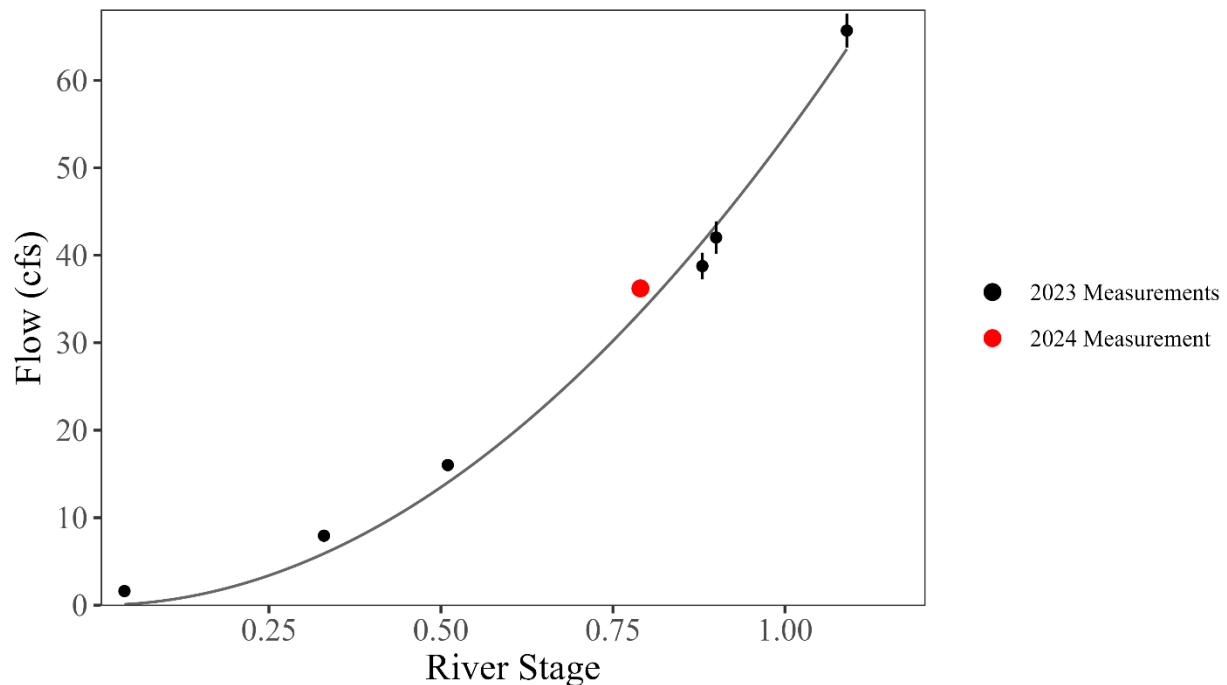


Figure 12. Ochoco Creek rating curve at river mile 4.7 with flow measurements from 2023 and 2024.

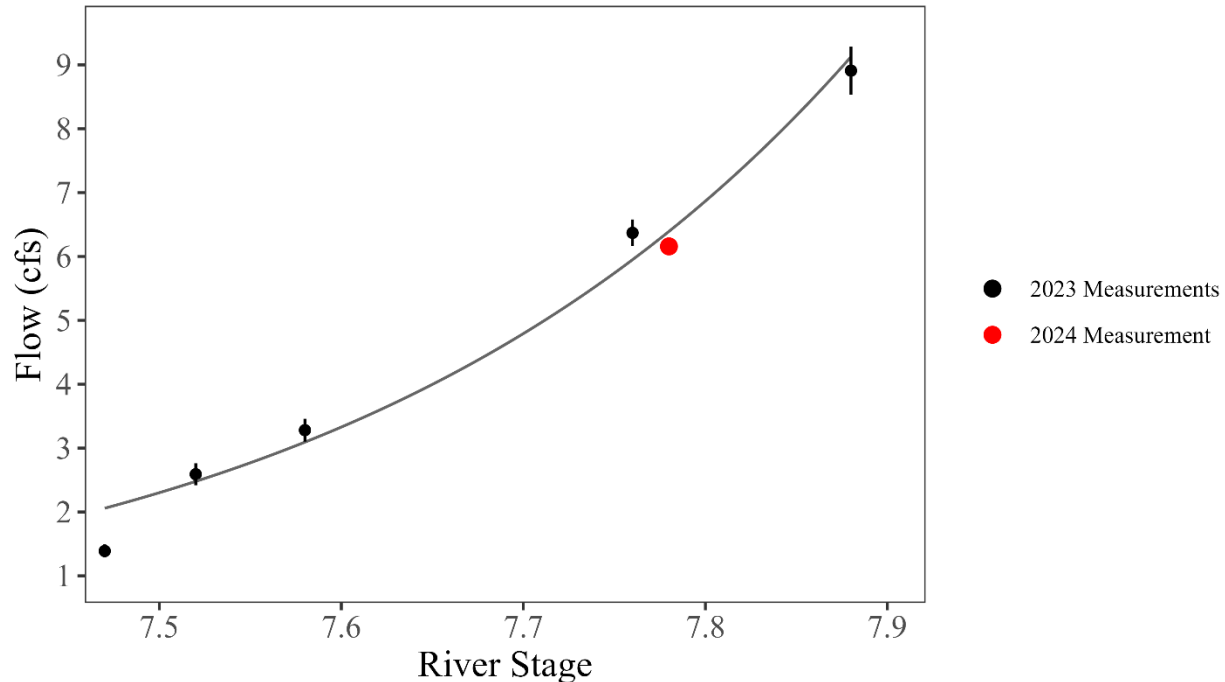


Figure 13. Ochoco Creek rating curve at river mile 9.4 with flow measurements from 2023 and 2024.

Conservation Measure CR-2 (Ochoco Creek Flow: Temporary Instream Leasing and Permanent Water Right Transfers)

CR-2 requires reporting on temporary instream leases and permanent water right transfers of Crooked River and Ochoco Creek irrigation rights during the preceding calendar year. Reporting will identify the quantity of water covered by each temporary or permanent transfer, and the fate of that water (timing and rate of bypass at Bowman Dam or Ochoco Dam). For transfers of OID patron water rights, the report will also identify whether any of the water was temporarily stored by OID.

OID worked with the Deschutes River Conservancy (DRC) to implement the Short-term Instream Leasing Program, which resulted in protected instream flows in Ochoco Creek and the Crooked River (Attachment E: [OID_Leasing.pdf](#)) as summarized below:

1. Certificate 82246
 - a. Flow of 1.156 cfs from April 15 – October 15, 2024 was placed instream by OID from POD (Ochoco Feed Canal) to the mouth of Ochoco Creek.
 - b. Flow of 1.04 cfs from April 15 – October 15, 2024 was placed instream by OID from the mouth of Ochoco Creek to Lake Billy Chinook.
2. Certificate 82248
 - a. Flow of 0.74 cfs from April 15 – October 15, 2024 was placed instream by OID from POD (Ochoco Feed Canal) to the mouth of Ochoco Creek.

- b. Flow of 0.67 cfs from April 15 – October 15, 2024 was placed instream by OID from the mouth of Ochoco Creek to Lake Billy Chinook

No permanent instream transfers of OID water occurred in 2024.

Conservation Measure CR-3 (McKay Creek Flow: McKay Switch)

Conservation Measure CR-3 specifies OID will report on the status of the McKay Creek water switch including the amount of McKay Creek irrigation water that was transferred instream during the preceding year and the total amount of water transferred to date through the McKay Creek switch. In Water Year 2024, OID and the DRC, its partner in the effort, have made significant progress in raising funds for construction of the McKay Switch Project. In June, an additional \$7.5 million dollars was made available under a grant by the Oregon Water Resources Commission. OID completed the first phase of the project in April, which included construction of a new Crooked River Pump Station #1. OID and the City of Prineville are partnering on the construction of the Iron Horse pipeline which is needed to convey water to the lands involved with the McKay switch. A construction contract was awarded in summer 2024 and work began shortly after. Pipeline construction is expected to be complete for the start of irrigation season in April of 2025. The second new pump station, Crooked River Pump Station #2, will initiate construction in 2025 and will be completed by April of 2026. Final designs on McKay Pump Station and Pipeline are expected by February of 2025 with an anticipated request for proposals as early as April of 2025.

Conservation Measure CR-3 (McKay Creek Flow)

Flow monitoring and reporting is required at four locations on McKay Creek (Table 3) and daily minimum instream flows in McKay Creek are required during the active irrigation season at Jones Dam (RM 5.8), Reynolds Siphon (RM 3.2), and Cook Inverted Weir (RM 1.3). The minimum flows will shift after the full implementation of the McKay switch, which is currently in progress. In 2021, staff gages were installed at the required locations on McKay Creek, based on the recommendation of OWRD. However, OWRD has not revisited those sites to update rating curves.

In lieu of OWRD rating curves, OID contracted Mt. Hood Environmental (MHE) to develop rating curves for staff gages with flow monitoring requirements under Conservation Measure CR-3 during the 2023 water year. In McKay Creek, a rating curve was established for Jones Dam (MHE 2023) to estimate discharge and evaluate compliance. Due to high-flow events during the spring, staff gages were lost on Smith Weir, Norms Weir (formerly the Cook Inverted Weir), and Reynolds Siphon. Consequently, discharge measurements were not possible at those locations and high flow events prevented the re-installation of those sites in 2024. In coordination with USFWS (Attachment C: Coord Meeting Notes Final_20240620; Attachment D: Response to USFWS Comments_20240516), OID selectively monitored McKay Creek at RM 5.8 to confirm that flow measurements still fell on the 2023 rating curve (Figure 14). Given the excellent fit of the 2024 measurement to the 2023 rating curve, gage heights recorded during the 2024 irrigation

season were used to estimated flows at Jones Dam. Between April 24, 2024 and September 30, 2024 the flow below Jones Dam was estimated to be above the 2.0 cfs instream minimum during all stage height measurements (Attachment A: CrookedR_CR3_WY2024.xlsx).

Given the ongoing gaging issues in McKay Creek, USFWS has indicated that it will provide suggestions for monitoring in Water Year 2025 (Attachment C: Deschutes Coord Meeting Notes_20241017).

Table 3. Minimum instream flows and reporting for McKay Creek during the active irrigation season.

Stream Reach	Before McKay Switch	After McKay Switch	Reporting REQ
Jones Dam (RM 5.8)	2.0 cfs (1.8 cfs)	Equal to flow immediately upstream of Jones Dam, to a maximum of 11.2 cfs	Flow at time of change in diversion rate; deviations from instream minimum
Reynolds Siphon (RM 3.2)	3.0 cfs (1.7 cfs)	Equal to flow immediately upstream of Jones Dam, to a maximum of 12.2 cfs	Flow at time of change in diversion rate; deviations from instream minimum
Inverted Weir (RM 1.3)	5.0 cfs (4.5 cfs)	Equal to flow immediately upstream of Jones Dam, to a maximum of 14.2 cfs	Daily average flow; deviations from instream minimum
Smith Weir (RM 0.6)	NA	NA	Flow at time of change in diversion rate

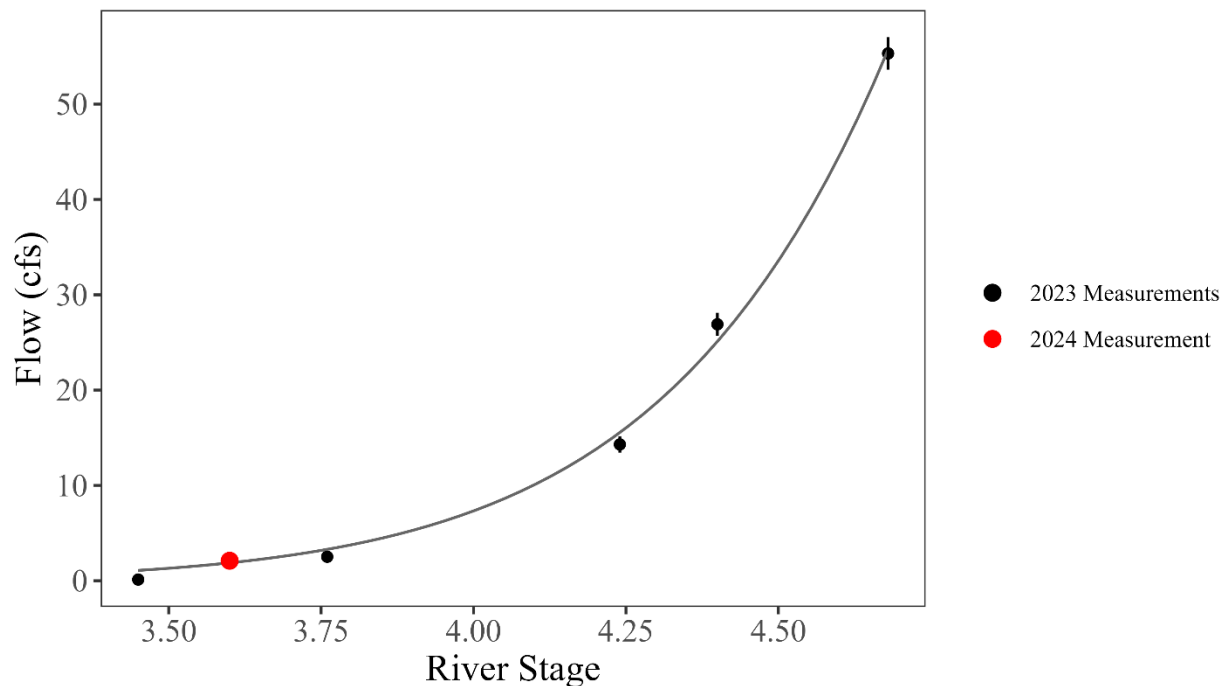


Figure 14. McKay Creek rating curve at river mile 5.8 with flow measurements from 2023 and 2024.

Conservation Measure CR-4 (Crooked River Conservation Fund)

The DBHCP Permittees' payment, adjusted for inflation, to the Crooked River Conservation Fund was issued in February 2024. Confirmation of payment to the DRC in the amount of \$9,427.05 was received by the DBBC on February 22, 2024 (Attachment E).

Conservation Measure CR-5 (Screening of Diversion Structures: District Diversions)

OID and NUID are required to maintain and operate fish screens to prevent the entrainment of juvenile salmonids on all District-controlled diversions accessible to covered fish species. The DBHCP also specifies that OID will schedule one full day each year for USFWS to inspect OID's diversions and fish screens. On February 6, 2024, USFWS completed its inspection of OID's diversions. No issues were identified during the inspection and no further action was required. As requested by the Services, below is a list of screens to be inspected in 2025:

- Main Crooked River diversion
- Red Granary (located at RM 10.2) on Ochoco Creek
- Ryegrass (located at RM 4.7) on Ochoco Creek

Conservation Measure CR-5 (Screening of Diversion Structures: Patron Diversions)

OID is required to provide the Services with a report on the screening of patron diversions during the preceding calendar year (for year 2-6 only). The report will identify the screening account balance as of December 31, all account activity (deposits and withdrawals), and all screens funded through the account.

During calendar year 2024, OID contributed a total of \$5,000 to the screening account. Combined with the prior year's balance of \$5,000 the screening account had \$10,000 available for implementing screening projects. Using the \$10,000 balance, the Crooked River Watershed Council (CRWC) partnered with OID to purchase and install new screens on the Huston Property (Attachment E: OID_ScreeningAccount.pdf). The \$10,000 contribution is targeted for use in the design, purchase and installation of a new point of delivery for Ochoco Lumber Company in Ochoco Creek. The work is in the early stages of design with a target implementation date before 2025. As of December 31, 2024, the account balance for the screening account is \$0.

Conservation Measure CR-6 (Crooked River Flow Downstream of the Crooked River Pumps)

Conservation Measure CR-6 requires that NUID report to NMFS and USFWS by email within 48 hours whenever the flow measured at OWRD Gage 14087300 falls below the required level specified in Conservation Measure CR-6 concurrent with NUID pumping of stored water. This measure specifies that flow requirements downstream of NUID's pumps are based on the declaration of a "Dry" or "Non-dry" year by OWRD or BOR in March of the current Water Year. Additionally, 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.

Water Year 2024 was declared a “Non-dry year”. The complete rationale for this determination is documented in Attachment B: “CR_20240325.pdf” and was based on:

1. The contents of Prineville Reservoir on March 24, 2024, was greater than the 50% exceedance level of the contents on March 31 based on all data from the prior 30 years (131,021 AF in 2005).
2. The flow out of Bowman Dam in the spring of 2024 fluctuated between 103 cfs and 1,970 cfs, exceeding the 75 cfs required for a dry-year determination. Further, none of the releases from Prineville Reservoir in March fulfilled irrigation demands for downstream users.
3. Basin parameters such as SWE, average precipitation, and current snowpack were all average or above average.

CR-6 specifies reporting flows, the number of pumps in operation, and the estimated daily average rate of diversion (cfs) when flows fell below the required level. These metrics are provided in Attachment A: CrookedR_CR6_WY2024.xlsx and summarized as follows:

- May 29, 30, and 31 the mean daily flow at CRSO was below the required 95 cfs.
- June 1, 6-9, 12, 22, 23, and 26-30, the mean daily flow at CRSO was below the required 86 cfs.
- July 3,4, and 9-11, the mean daily flow at CRSO was below the required 61 cfs.
- October 9 and 10, mean daily flow at CRSO was below the required 151 cfs.

Equipment has been installed at the Crooked River Pumps to automate the diversion rate. However, when the pump station is flooded, the equipment’s hardware must be recalibrated, which can take weeks to perform. In 2024, there were numerous data gaps caused by communication glitches in the equipment, which affect real-time data recording and tracking. During period when continuous real-time data was unavailable, NUID kept manual records of the pump and diversion data, which is reported in Attachment A: CrookedR_CR6_WY2024.xlsx. NIUD is addressing this data tracking issue and aims to resolve it in 2025.

Conservation Measure CR-7 (Crooked River Downstream Fish Migration Pulse Flows)

Conservation Measure 7 specifies that OID and NUID will not divert water from the Crooked River that is part of a spring fish migration pulse flow from uncontracted Prineville Reservoir as provided for by Reclamation.

Based on the 2023/2024 annual flow recommendation issued by USFWS and NMFS, storage quantities available for release as instream flows to benefit fish and wildlife were (1) 60,095 AF of uncontracted storage and (2) 4,902 AF of Prineville groundwater mitigation storage; totaling 64,997 AF. These storage amounts are lower than those available during previous years of full reservoir fill due to Reclamation’s accounting for reservoir storages losses from sedimentation and evaporation; those losses are being applied to storage accounts. USFWS indicated that those storage quantities could be used to supplement Storage Season flows and/or provide water for ‘pulse flows’ to assist spring Chinook and steelhead smolts migrating out of the Crooked River

system in late winter/early spring of 2024. It was also noted that pulse flow releases would consider the best available real-time information on river conditions, smolt out-planting dates, and other habitat and climate conditions at the time.

High snowpack resulted in a rapid refilling of Prineville Reservoir storage throughout the winter and spring in 2024, requiring numerous flood control releases to be made at Bowman Dam (Figure 10). The flood control operations during April and May were contemporaneous with a portion of the downstream migration period of steelhead smolts, which typically occurs from April to mid-June. Those flood control spills were not done in coordination with ODFW's annual smolt releases in the Crooked River and NUID did not divert water during these operations.

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