2021 - DRAFT

REVIEW OF THE DESCHUTES BASIN GROUNDWATER MITIGATION PROGRAM

OREGON
WATER RESOURCES DEPARTMENT

5 YEAR REVIEW
STATE OF OREGON

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I. Executive Summary

Background: Surface water flows in the Deschutes River and many of its tributaries are protected with scenic waterway designations and/or instream water rights. In addition, there are hundreds of existing surface water diversions for various uses, including irrigation and municipal use. In the 1990's, a groundwater study completed by U.S. Geological Survey, in cooperation with the Oregon Water Resources Department (OWRD) and other partners, identified significant hydraulic connection between groundwater and surface water within the Deschutes Groundwater Study Area (DGWSA). This connection means that groundwater uses within the DGWSA impact streamflows and existing surface water rights at short timescales.

Deschutes Mitigation Program: The Deschutes Groundwater Mitigation Program (Mitigation Program) was established to provide a set of tools that applicants for new groundwater rights within the DGWSA can use to mitigate for their impacts on surface water flows in order to obtain new groundwater permits. This program allows for the development of new groundwater uses that would likely not otherwise be allowed by requiring the purchase of mitigation credits or implementation of a mitigation project. The Mitigation Program is authorized under Oregon Revised Statutes (ORS) 537.746 and 2005 Oregon Laws Chapter 669, as amended by 2011 Oregon Laws Chapter 694. The key goals of the Groundwater Mitigation Program are to:

- Maintain flows for State Scenic Waterways and senior water rights, including instream water rights;
- Facilitate restoration of flows in the middle reach of the Deschutes River and related tributaries; and
- Sustain existing water uses and accommodate growth through new groundwater development.

Report to the Legislature: ORS 540.155 directs OWRD to report to the Legislative Assembly every five years on the outcomes of the Mitigation Program. To improve reporting efficiency, OWRD has combined the Oregon Administrative Rules (OAR) 690-505 report and the ORS 540.155 legislative report into one report for the years 2015-2019.

In developing this report, OWRD is required to consider:

- Program impacts on other water users of the Deschutes River Basin;
- Potential timing of mitigation;
- Identification of zones of impact;
- Review of impacts on the headwaters of the Metolius River and other key reaches of the Metolius River system;
- Potential timing of federal, state and local storage improvements
- Other issues raised by stakeholders;
- Allocation cap status and whether the 200 CFS restriction should be modified;
- Mitigation activity;
- Identification of regulatory and statutory changes that may improve the Mitigation Program in order to address and mitigate injury to existing water rights and spring systems and to offset measurable reductions of scenic waterway flows;
- Zones of impact;
- Streamflow monitoring; and
- Effectiveness of mitigation projects and mitigation credits.

Feedback from Stakeholders: To evaluate the Mitigation Program and develop the report, OWRD solicited feedback on the Mitigation Program from over sixty Deschutes Basin stakeholders. The first solicitation was sent through email on July 16, 2020. All initial feedback received in response to this solicitation is included as Attachments 1-9 of this report.

The feedback received and concerns raised about the Mitigation Program related to the following topics:

- The allocation cap
- Zonal mitigation and impacts
- Water accounting and impacts of climate change
- Impacts to springs
- Impacts during the non-irrigation season (release of stored water instream)
- Permits issued prior to adoption of the mitigation rules
- Exempt wells

Conclusion and Next Steps: Generally, the Mitigation Program has worked well and met the key goals of the program. Through mitigation, the scenic waterway and instream water right flows have been maintained and, in some areas, have been improved. The benefits of the program are significant in some key areas where chronic low flows historically occurred, such as in the Deschutes River below Bend, Crooked River below Smith Rock, and Whychus Creek below the Three Sisters Irrigation District diversion.

OWRD continues to explore possible improvements to the Mitigation Program with the Oregon Department of Fish and Wildlife (ODFW) and the Oregon Department of Environmental Quality (DEQ), and with stakeholders. As discussed in the report, improvements can be made to the program. Broadly speaking, some specific actions to improve the Mitigation Program include:

- OWRD should partner with ODFW and DEQ to jointly secure funding for a study aimed at identifying impacts to springs and spring complexes located within the DGWSA and to better understand the sources of those impacts, including the degree to which the Mitigation Program may contribute to the impacts.
- OWRD should explore the feasibility of making changes to the administrative rules to require holders of existing groundwater permits that were issued after July 19, 1995, but before adoption of the Mitigation Program, to provide mitigation when seeking an extension of time on undeveloped portions of their permit(s).

OWRD staff intend to continue conversations with ODFW, DEQ, Tribes, and stakeholders on issues outlined above as well as other issues raised in the report as part of this evaluation to identify opportunities for improving the Mitigation Program.

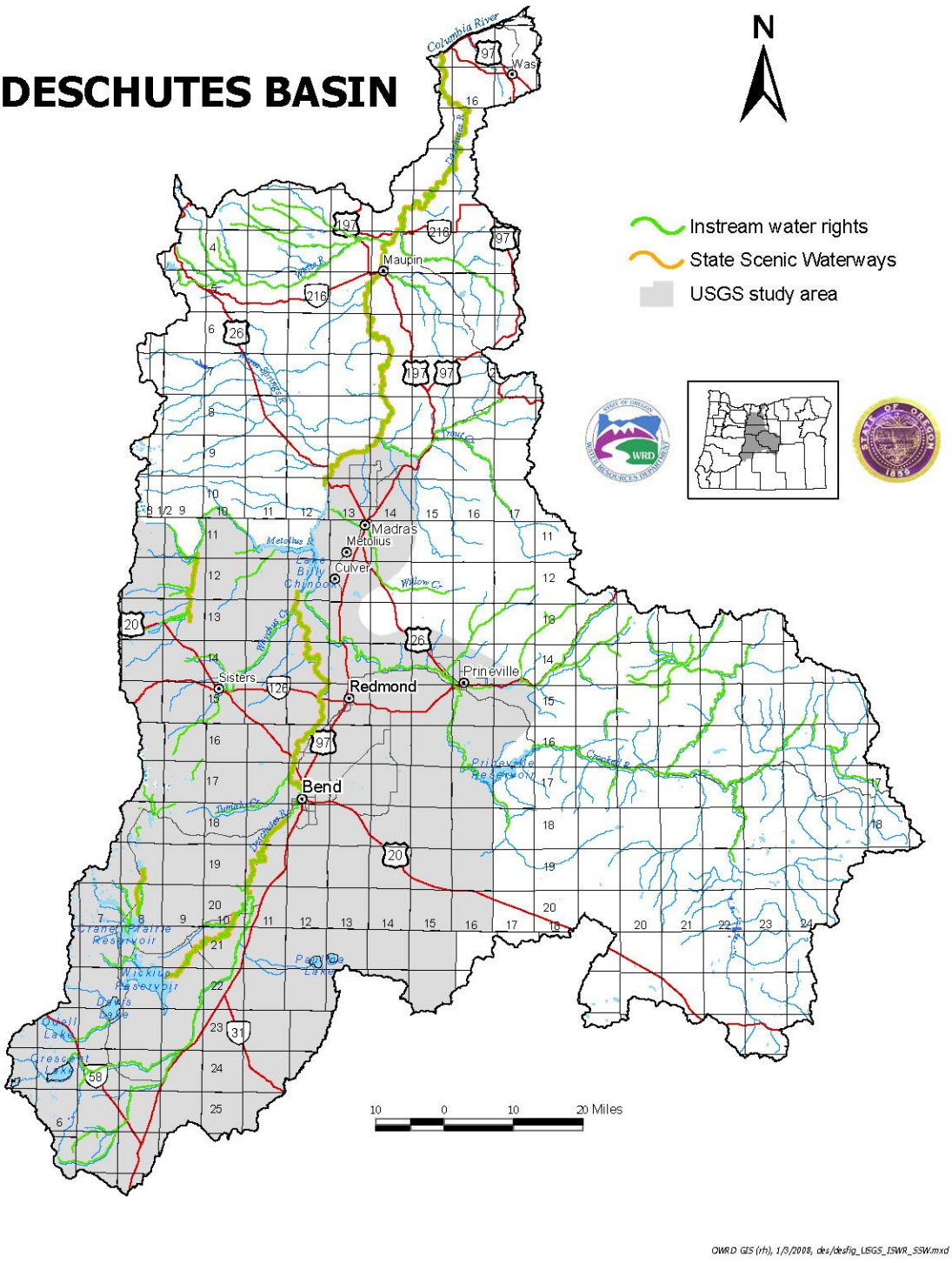

Figure 1: Deschutes Basin Groundwater Study Area

II. Introduction

A groundwater study of the Deschutes Basin above Lake Billy Chinook was conducted in the late 1990's by the U.S. Geological Survey (USGS) in cooperation with the Oregon Water Resources Department (OWRD) and Deschutes Basin partners. The groundwater study concluded that there is significant hydraulic connection between groundwater and surface water in the area now referred to as the Deschutes Groundwater Study Area (DGWSA) (Figure 1). This means that groundwater withdrawals within this area affect surface water flows in the Deschutes River and its tributaries within short timescales, and, as a result, OWRD must manage groundwater and surface water together.

Flows in the Deschutes River and many of its tributaries are somewhat protected by instream water rights; however, flows set by instream water rights are not always met due to the junior priority dates of most instream rights relative to out of stream water rights.

The Deschutes River is also a designated State Scenic Waterway. Consistent with the Oregon Revised Statute (ORS) 390.835 of the State Scenic Waterway Act new groundwater use permits located within or above a state designated scenic waterway can be issued only when they do not individually or cumulatively measurably reduce scenic waterway flows or when the effects are mitigated. Measurable reduction is either one percent of the average daily flows or one cubic foot per second (CFS), whichever is less. For the Deschutes River, the amount of measurable reduction allowed is one (1.0) CFS. The groundwater permits issued above the scenic waterway have met the threshold for a measurable reduction.

Since flows for instream water rights and scenic waterways are not always met and additional groundwater use would further reduce scenic waterway flows, OWRD may not approve new groundwater permits in the DGWSA unless the impact of the new withdrawal is mitigated with a similar amount of water being put instream.

The Deschutes Groundwater Mitigation Program (Mitigation Program) provides a set of tools that applicants for new groundwater permits within the DGWSA can use to establish mitigation and, thereby, obtain new permits from OWRD. This program is implemented under Oregon Administrative Rules (OAR) Chapter 690, Divisions 505, 521, and 522. The original rules were adopted in 2002. For purposes of to the Mitigation Program, Division 505 defines "mitigation" as "a means to moderate the impacts to surface water flows from a groundwater appropriation by obtaining mitigation credits or by providing for implementation of a mitigation project that results in mitigation water."

In 2005, Oregon Laws Chapter 669 affirmed that the primary administrative rules for the Mitigation Program (Divisions 505 and 521) satisfy the requirements relating to mitigation under the Scenic Waterway Act (ORS 390.805 to 390.925), Instream Water Right Act (ORS 537.332 to 537.360), and the Groundwater statutes (ORS 537.505 to 537.795), and authorized the program through January 2, 2014. In 2011, Oregon Laws Chapter 694 extended the program's sunset to January 2, 2029. ORS 540.155 requires reporting to the Legislative Assembly every five years on the outcomes of the Mitigation Program.

As discussed later in this report, the Mitigation Program has been successful in meeting the key goals of the program. Through mitigation, scenic waterway and instream water right flows have been maintained on a yearly basis and, in some chronic low-flow areas, have been improved. The benefits of

the program have been significant in some areas, such as in the Deschutes River below Bend, Crooked River below Smith Rock, and Whychus Creek below the Three Sisters Irrigation District diversion. As a result of the program, approximately 56 CFS of instream flow has been permanently restored to the Deschutes River and its tributaries.

The water management issues in the Deschutes Basin are complex – municipal, instream, irrigation, and recreation interests all have a stake in successful outcomes. OWRD's Mitigation Program is just one of the many efforts in the basin to address water imbalances. As outlined in this report, there are a variety of opportunities to improve the Mitigation Program. While OWRD intends to continue conversations with stakeholders to explore these opportunities for improvement, it also recognizes that many of the comments and concerns provided extend beyond the scope of what the Mitigation Program can accomplish and may be best addressed through other venues and initiatives, such as the Deschutes Basin Water Collaborative and efforts to develop and implement a basin-wide water management plan.

III. Reporting Requirements

The Department is required to develop a report on the Deschutes Mitigation Program annually under ORS 537.746 and OAR 690-505-0500(3) and to report to the Legislative Assembly every five years under ORS 540.155. In addition, the Department's OAR 690-505-0500(2) rules require reporting every five years to the Commission. To improve reporting efficiency, the Department has combined the OAR 690-505 Administrative and ORS 540.155 Legislative five-year reviews, resulting in a report on the years 2015-2019.

A. ORS 540.155 Legislative Review

ORS 540.155 directs OWRD to report to the Legislative Assembly every five years on outcomes of the Mitigation Program for the DGWSA.

The statute requires that the report include a summary of:

- Program impacts on other water users in the Deschutes River Basin;
- Potential timing of mitigation;
- Identification of zones of impact;
- Review of impacts on the headwaters of the Metolius River and other key reaches of the Metolius River system;
- Potential timing of federal, state and local storage improvements;
- Identification of regulatory and statutory changes that may improve the Mitigation Program in order to address and mitigate injury to existing water rights and spring systems and to offset measurable reductions of scenic waterway flows; and
- Other issues identified by stakeholders.

B. OAR 690-505 Administrative Review

OAR 690-505-0500(2), requires a five-year evaluation of the Deschutes Basin Groundwater Mitigation Rules and associated mitigation to determine whether the 200 CFS allocation cap restriction should be

modified through subsequent public rulemaking. It also requires evaluation of the effectiveness of mitigation projects and mitigation credits that involve time-limited instream transfers, instream leases and allocations of conserved water from canal lining and piping projects, as well as the general zones of impact identified by the Department.

The OAR 690-505 five-year review must address the following topics:

- Allocation cap status and whether the 200 CFS restriction should be modified;
- Mitigation activity;
- Zones of impact;
- Streamflow monitoring; and
- Effectiveness of mitigation projects and mitigation credits.

IV. Stakeholder Engagement and Process for Developing the Report

In development of this report, on July 16, 2020, OWRD solicited input from a variety of stakeholders via email on the Mitigation Program. These stakeholders included over sixty different state, federal, and county agencies, irrigation districts, watershed councils, cities, water companies, consultants, restoration partners and many others. Feedback was received from:

- Central Oregon Cities Organization; (Attachment 1)
- Oregon Department of Environmental Quality (DEQ); (Attachment 2)
- John Short, Bend, Oregon; (Attachment 3)
- Oregon Department of Fish and Wildlife (ODFW); (Attachment 4)
- Oregon Farm Bureau; (Attachment 5)
- Deschutes County Farm Bureau; (Attachment 5)
- Crook-Wheeler County Farm Bureau; (Attachment 5)
- Jefferson County Farm Bureau; (Attachment 5)
- Clyde Snow LLC on behalf of Shanda Asset Management, LLC; (Attachment 6)
- WaterWatch of Oregon; (Attachment 8) and
- Nunzie Gould, Bend, Oregon; (Attachment 9).

In addition, OWRD solicited input from the Confederated Tribes of Warm Springs (CTWS). In response, the CTWS provided feedback. (Attachment 7). The Tribal Council will be seeking a government-to-government consultation with OWRD.

OWRD developed this report using the feedback provided by the CTWS and stakeholders listed above, as well as technical and local staff input.

All initial feedback provided in response to this solicitation is included as Attachments 1-9 at the back of this report.

Next Steps for Report – This draft report is currently being sent out to Tribal and Stakeholders for solicitation of feedback on this report and will have a 30-day comment period. There will also be a second opportunity to comment on the second draft of the report.

V. Structure of the Mitigation Program

The Deschutes Groundwater Mitigation Program provides a set of tools that groundwater permit applicants can use to establish new groundwater uses within the DGWSA while mitigating impacts on surface water. The key goals of the Mitigation Program are to:

- Maintain flows for State Scenic Waterways and senior water rights, including instream water rights;
- Facilitate restoration of flows in the middle reach of the Deschutes River and related tributaries; and
- Sustain existing water uses and accommodate growth through new groundwater development.

The amount of new groundwater use that can be approved under the Mitigation Program is currently limited to a total of 200 CFS, often referred to as the allocation cap. Once the allocation cap limit is met, no additional permits can be issued without the Water Resources Commission modifying its rules and adjusting the cap.

Mitigation is provided through completion of a mitigation project. Generally, mitigation has been established by the conversion of existing consumptive use surface water rights to instream non-consumptive use. Mitigation established under the Mitigation Program is permanent or temporary in nature; therefore, OWRD must maintain an accounting record of new groundwater permits and associated mitigation with links between the groundwater permits and their source of mitigation.

Most mitigation for new groundwater use has come from the conversion of out-of-stream uses, such as irrigation, to instream use through a temporary instream lease or permanent instream transfer. Mitigation for a new groundwater permit must be provided for the life of that permit and subsequent water right certificate.

Overall, for each year the Mitigation Program has been in place, there has been sufficient mitigation water available to mitigate for groundwater permits issued under the program. However, in certain areas, sufficient supplies of mitigation water may not always be available to satisfy the mitigation needs of all pending groundwater use requests due to the location of the applications.

Stakeholder Comments: Feedback from Central Oregon Cities Organization expresses the importance of OWRD not losing sight of the goals of the Mitigation Program when reviewing the program and considering potential changes, and urges OWRD to be mindful of the fact that the program is to provide

for mitigation of impacts to scenic waterway flows and senior water rights, while allowing additional qualifying appropriations of groundwater.

OWRD Response: OWRD concurs with the importance of keeping the goals of the Mitigation Program a primary focus. One way OWRD strives to achieve these goals is through implementation of its administrative rules (OAR Chapter 690, Divisions 505, 521 and 522) which:

- Require mitigation for all new groundwater permits in the DGWSA;
- Identify tools for providing mitigation water through either a mitigation project or by obtaining mitigation credits from an established mitigation project;
- Establish a system of mitigation credits which may be used to mitigate for new groundwater permits;
- Provide the process to establish mitigation banks; and
- Provide for adaptive management through annual evaluations and review of the Mitigation Program every five years.

VI. Allocation Cap Status

Since adoption of the Mitigation Program rules in September 2002 and through the end of 2019, OWRD had issued 121 new groundwater permits with associated mitigation, totaling 154.41 CFS of water. In addition to the 154.41 CFS allocated, there was 7.53 CFS in pending applications with approved final orders (i.e., awaiting mitigation; permit not yet issued) and approximately 17.98 CFS associated with additional pending applications. If all applications pending as of December 31, 2019, were to move forward as proposed, there would be approximately 20.08 CFS left under the 200 CFS allocation cap (see Figure 2).

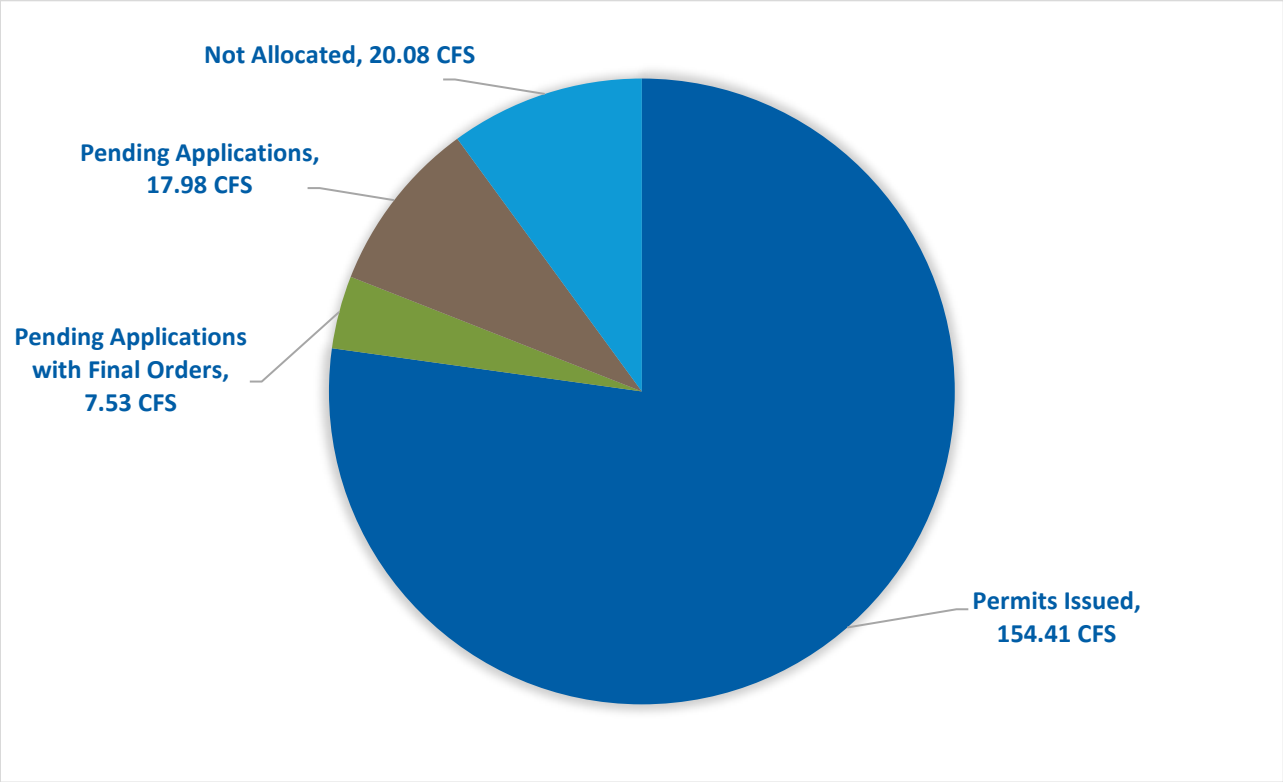

Figure 2: Potential Distribution of Mitigation Under the 200 CFS Allocation Cap as of the End of 2019

Figure 3 shows the different types of uses for approved groundwater permits that obtained mitigation under the program; the majority being irrigation, quasi-municipal and municipal uses. This figure also shows the number of applications that were submitted by type of use.

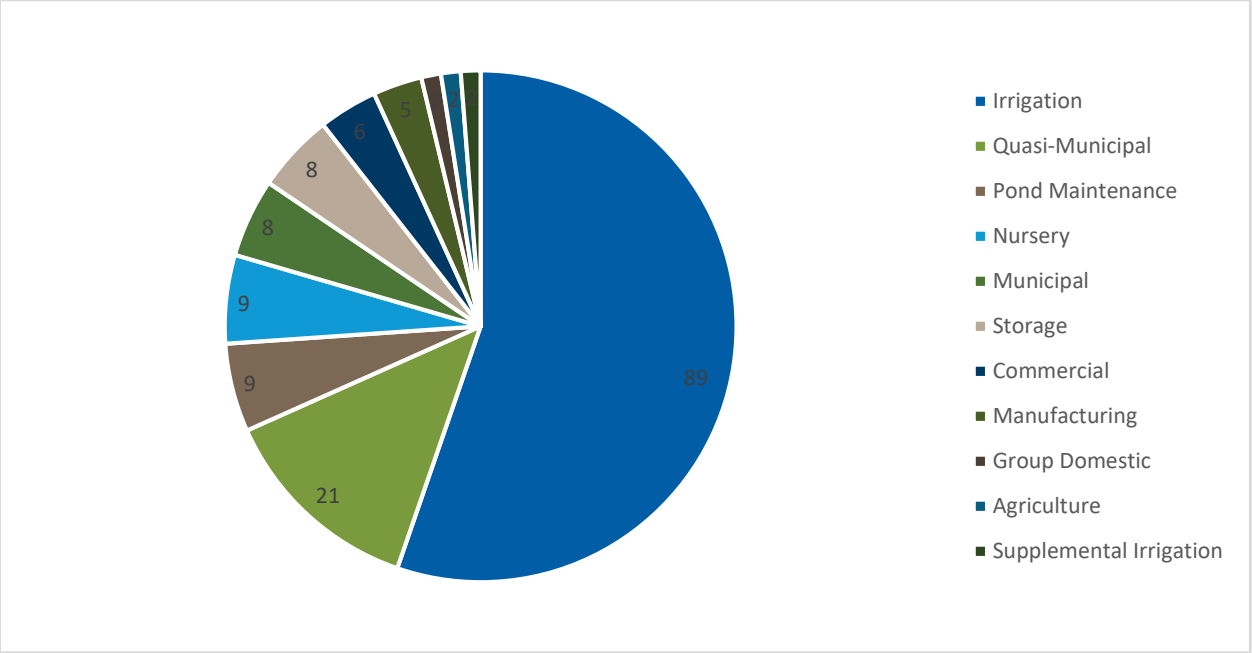

Figure 3: Types of Uses for Permits Issued that Required Mitigation & Number of Applications Submitted by Type of Use

Figure 4 shows the different types of uses of pending groundwater applications requiring mitigation; the majority being irrigation. This figure also shows the number of pending applications by type of use.

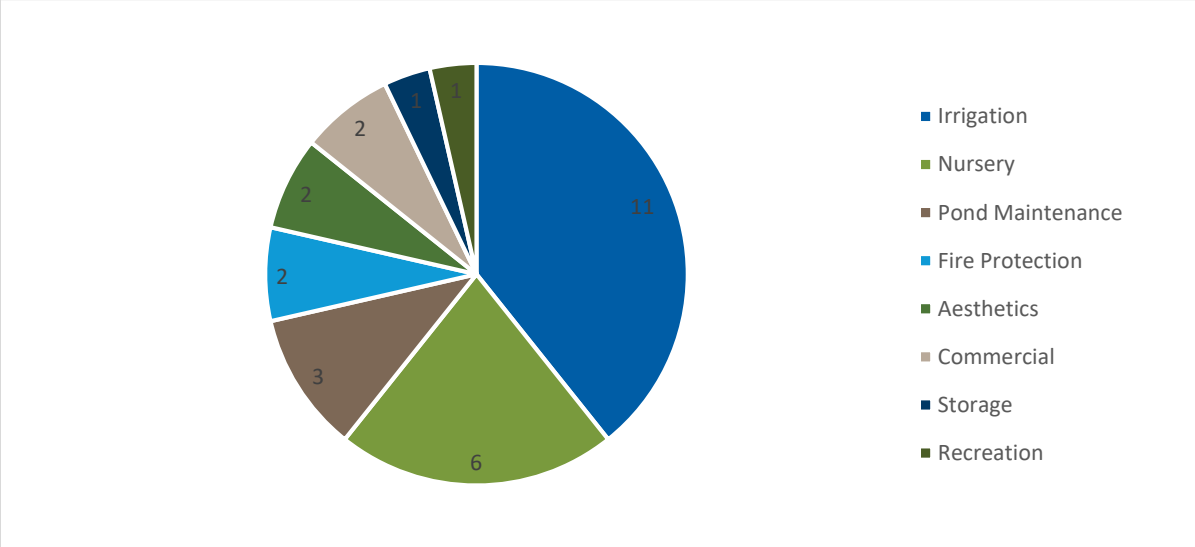

Figure 4: Types of Uses for Applications Pending at the End of 2019 Requiring Mitigation & Number of Pending Applications by Type of Use

Stakeholder Comments: ODFW, DEQ, WaterWatch of Oregon and an individual commenter (Nunzie Gould), have suggested that the 200 CFS allocation cap should not be raised at this time. ODFW

identified that until such time as issues associated with groundwater impacts outside of the irrigation season can be addressed, the cap should not be adjusted. WaterWatch of Oregon further suggested that all issues should be resolved before consideration of raising the allocation cap. Central Oregon Cities Organization has suggested that the allocation cap be discussed very soon.

OWRD Response: OWRD does not anticipate an immediate need to change the 200 CFS allocation cap; however, OWRD would like to explore the issue of modification of the allocation cap in the next few years. The allocation cap has been in place under the Mitigation Program for over 19 years. Assuming all applications and final orders pending as of December 31, 2019, move forward as proposed, there will still be approximately 20.08 CFS left under the 200 CFS allocation cap. Once the cap limit is met, no additional permits can be issued without the Water Resources Commission modifying its rules and adjusting the cap. OWRD would like to explore the issue of modification of the allocation cap in the next few years.

VII. Program Impacts on Other Water Users of the Deschutes River Basin

A. Overview of the Basin and Water Rights

Much of the mainstem Deschutes River and its tributaries are protected by scenic waterway designations and instream water rights. There are also hundreds of existing surface water rights on the Deschutes River and its tributaries for out of stream uses, such as irrigation and municipal uses.

The Deschutes Basin contains numerous small agricultural communities as well as some of the fastest growing cities in the state. While the economy in some areas has shifted toward service industries and tourism, farming and ranching remain important. Land use in the Deschutes Basin is characterized by numerous smaller, privately held parcels alongside larger areas owned and managed by federal, state and tribal agencies.

The Basin's economy relies heavily upon abundant, clean water. Surface water is fully appropriated resulting in an increased reliance on groundwater as a source for future appropriation. Groundwater users include municipalities, irrigation districts, commercial developments, industry, homeowners' associations, other private water providers and landowners, and water right permit exempt users.

B. Injury to Other Water Rights

OWRD does not have evidence or information suggesting that the mitigation program has resulted in injury to surface water rights, as evaluated on an annual basis. Injury occurs when one or more existing water rights, including instream water rights, are unable to use the quantity of water to which they are legally entitled as a result of a change in use by another existing water right or a new use. The Department cannot approve a mitigation project if it results in injury.

The Water Resources Commission's rules governing mitigation in the DGWSA are intended to assure that new groundwater appropriations do not result in a measurable reduction in scenic waterway flows or injury to senior water rights, including instream water rights. OAR 690-505-0630 states that if a

groundwater applicant satisfies the required mitigation obligations, OWRD may conclude that the proposed use will not substantially interfere with surface water rights, including instream water rights.

C. Property and Water Right Value

The Mitigation Program has created a potential market for some surface water rights, which may increase the value of those rights – although the Department has not undertaken a formal study. No formal analysis of the effect of the mitigation program on property values has been conducted or commissioned by OWRD. Groundwater users needing to provide mitigation can either complete their own mitigation project or obtain mitigation credits from a mitigation credit holder – an individual or entity that has completed a mitigation project. Surface water rights have either been leased for instream use through the Deschutes River Conservancy (DRC) Mitigation Bank, or transferred permanently to instream use by individuals or entities needing mitigation for a new groundwater use or wanting to establish mitigation credits that can later be sold to groundwater users needing mitigation.

Stakeholder Comments: Comments from Oregon Farm Bureau, Deschutes County Farm Bureau, Crook and Wheeler County Farm Bureau, and Jefferson County Farm Bureau expressed concern related to removal of water rights from farmland as the cities look to irrigation water as a source to provide mitigation for municipal growth. They expressed concerns over reduced availability of irrigated farmland along with reductions in the value of farmland.

Department Response: Figure 5 shows the annual trend of irrigated acreage converted (both temporarily and permanently) to instream use for mitigation purposes from irrigation districts as compared to the overall total number of irrigated acres with water rights converted to instream use for mitigation purposes. However, it is also important to note that the majority of new groundwater rights have been issued for irrigation purposes, allowing for new irrigated acres to be developed. Without the program there would not be a venue to issue new groundwater rights in the Deschutes Groundwater Study Area.

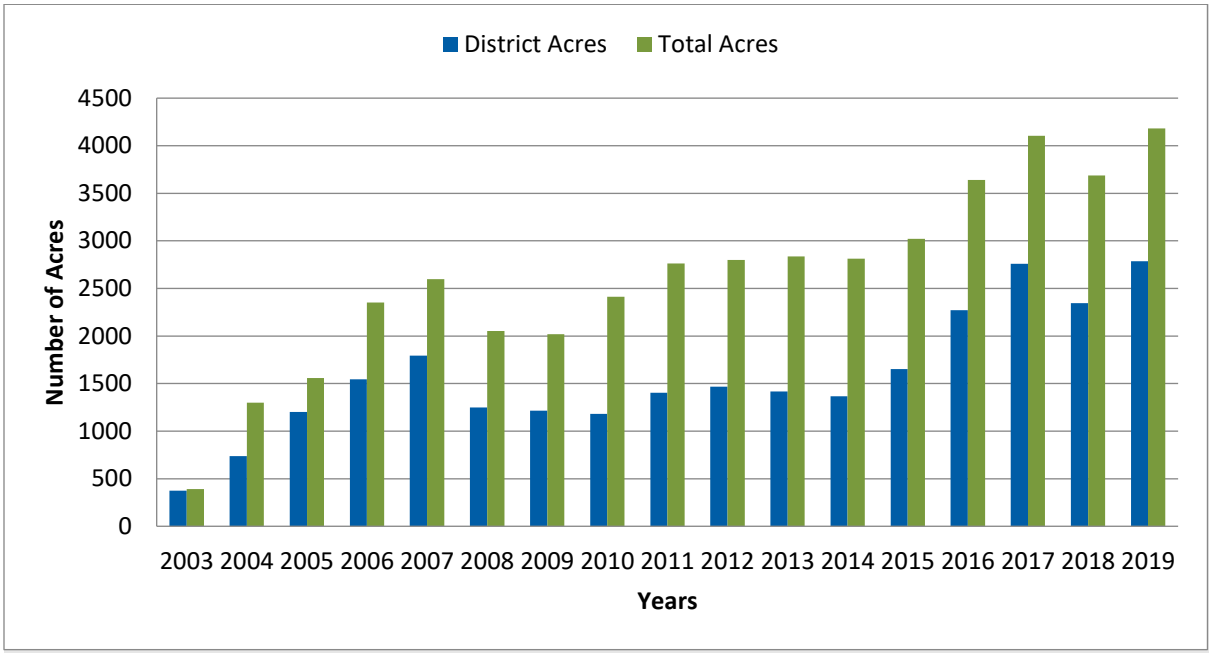

Figure 5: Irrigated Acres with Water Rights Converted to Instream Use for Mitigation - Irrigation District Acres in Comparison to All Acres

D. Cities and Other Water Providers

The cities of Bend, Prineville, Sisters, LaPine, Madras, Maupin, Redmond, Metolius, and Culver are within the DGWSA. There are also several private quasi-municipal water providers, including Terrebonne Domestic Water District, Avion Water Company, and Deschutes Valley Water District to name a few. Aside from water savings realized through implementation of water conservation measures, the cities' and water providers' primary water source for new and continued development in the DGWSA is groundwater. Without the Mitigation Program, municipal water providers (both public and private), may not be able to meet growing water demands.

For the majority of the cities and private water providers issued groundwater permits under the Mitigation Program, mitigation is being provided incrementally over a period of time as the water use is developed. In general, to obtain a groundwater permit, mitigation must be in place before the permit may be issued. However, municipal and quasi-municipal permit applicants may request to provide mitigation incrementally under an incremental development plan, which is on file with OWRD and may be modified upon request, provided they prepare and submit a Water Management and Conservation Plan to OWRD within 2 to 3 years of permit issuance. They are allowed to match the amount of mitigation provided to the rate of growth and need under the permit. Date ranges under plans currently on file with OWRD range from the smallest at 5 years to the longest at 50 years. Most are in the range of 20 to 30 years.

Figure 6 shows a comparison between the amount of water these water users are authorized to use at full permit development, the amount of water they were able to use based on how much mitigation they provided through 2019, and the amount of water they actually used during 2019. Overall,

throughout the years, the entities with incremental development plans have provided more mitigation than was needed to mitigate for their actual water use. As of the end of 2019, there were 20 permits with incremental development plans.

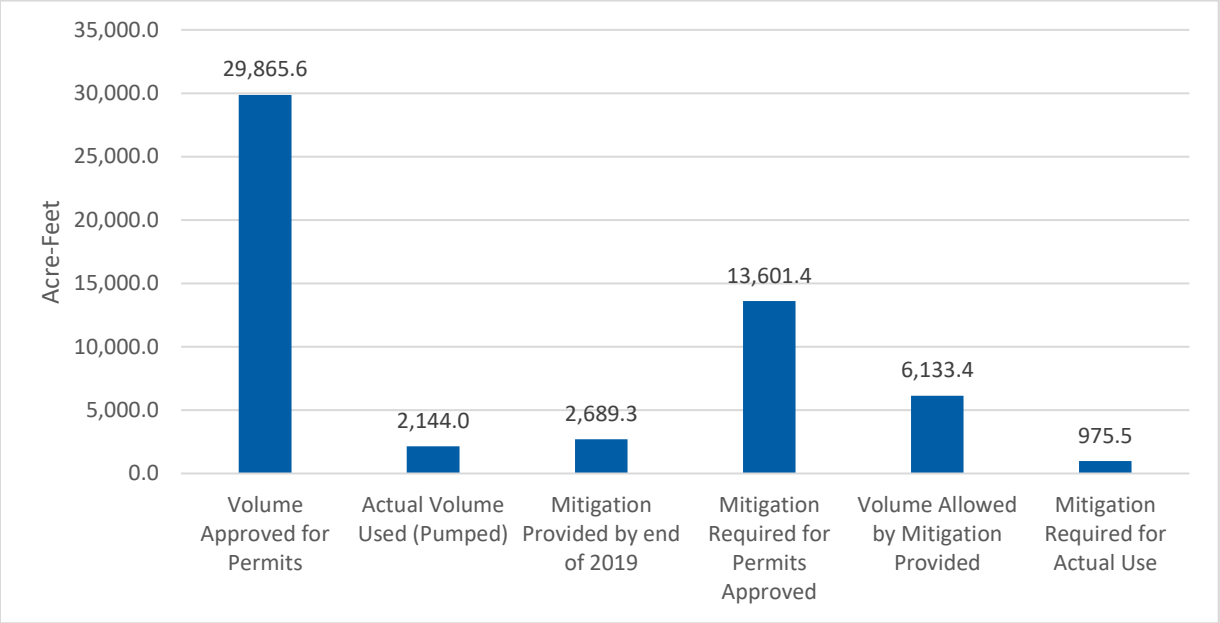

Figure 6 -Incremental Development Permits at End of 2019: Volume Approved, Required Mitigation, Mitigation Provided, and Actual Volume Used

E. Irrigation Districts

A large percentage of the mitigation water established temporarily on an annual basis and permanently in the DGWSA originates from water rights held by irrigation districts. Figures 7 and 8 show the amount of mitigation (in acre-feet) originating from irrigation districts as compared to the total amount of mitigation generated for use in the DGWSA.

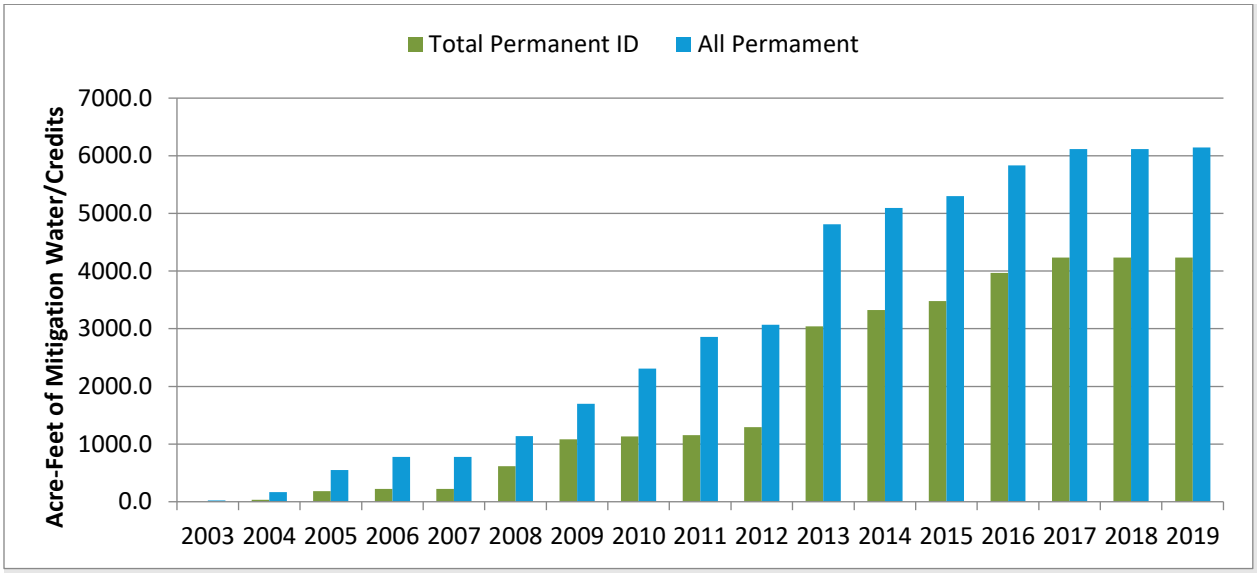

Figure 7: Permanent (Cumulative) Mitigation in Acre-Feet Provided by Irrigation District (ID) Versus All Permanent (Cumulative) Mitigation

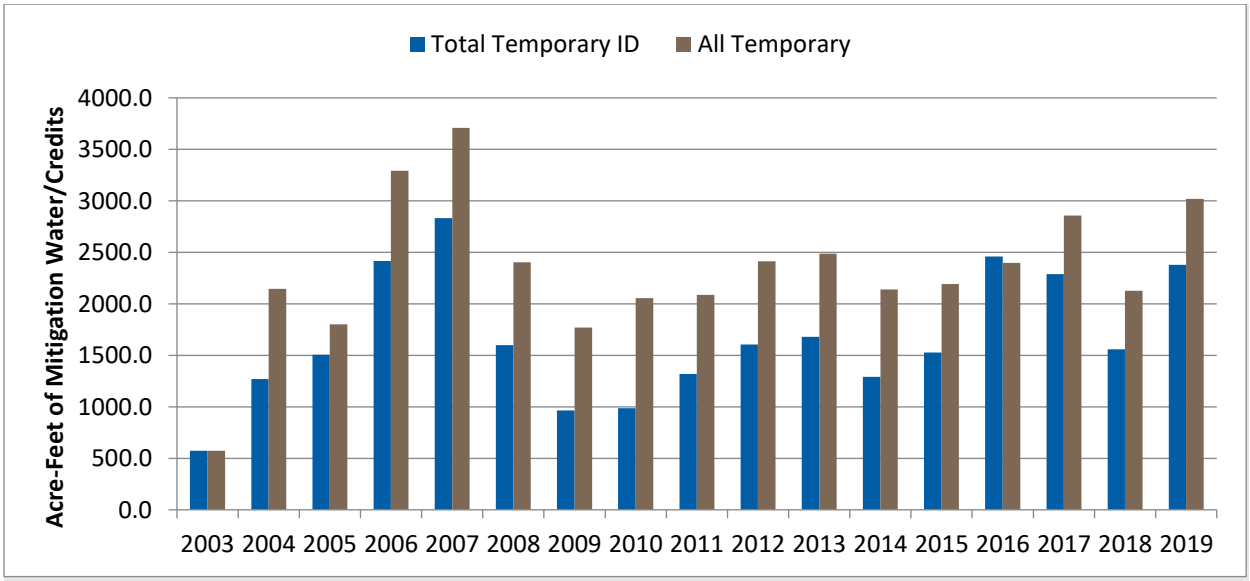

Figure 8: Temporary Annual Mitigation in Acre-Feet Provided by Irrigation District (ID) Versus All Temporary Annual Mitigation

A. Deschutes River Scenic Waterway, Instream Flows, and Fish and Wildlife Habitat

Most of the Deschutes River is a State Scenic Waterway. Under the State Scenic Waterway Act, the highest and best uses of the waters of the Deschutes River are recreation, fish and wildlife uses. In addition, the Deschutes River Basin above Pelton Round-Butte was once home to native runs of summer steelhead, Chinook salmon, sockeye salmon, and Pacific lamprey. Efforts have been underway to reestablish anadromous fish runs in the Upper Deschutes River sub-basin. Over the past decade, many organizations and agencies have been working in the Deschutes River Basin to restore natural streamflows and to improve water quality and aquatic habitat in the river and its main tributaries.

In 1998, when OWRD first initiated a process to address impacts of groundwater use on streamflows in the Deschutes Basin, summer flows in the Deschutes River during the irrigation season below Bend were often around 30 CFS. In the years leading up to the Mitigation Program, the irrigation districts, which divert water at or above the City of Bend, agreed to leave a minimum of 30 CFS in the Deschutes River. Photo 1 of the Deschutes River, below Bend, was taken in 2002 with flows at approximately 40 CFS.

Photo 1: Deschutes River below Bend in 2002 (Summer)

The Mitigation Program rules were adopted by the Water Resource Commission in September 2002. Currently, the minimum summer flows in the Deschutes River below Bend are around 130 CFS due, in part, to the mitigation program as well as other restoration efforts undertaken by basin partners. Since its inception, the Mitigation Program has helped restore and maintain flows in the Deschutes River and its tributaries. By the end of 2019, approximately 84 CFS was protected instream by permanent and temporary mitigation projects in the Deschutes River and its tributaries. Of that 84 CFS, approximately

56 CFS was established through permanent mitigation projects (instream transfers) and the rest were temporary mitigation projects (instream leases) (Figure 9).

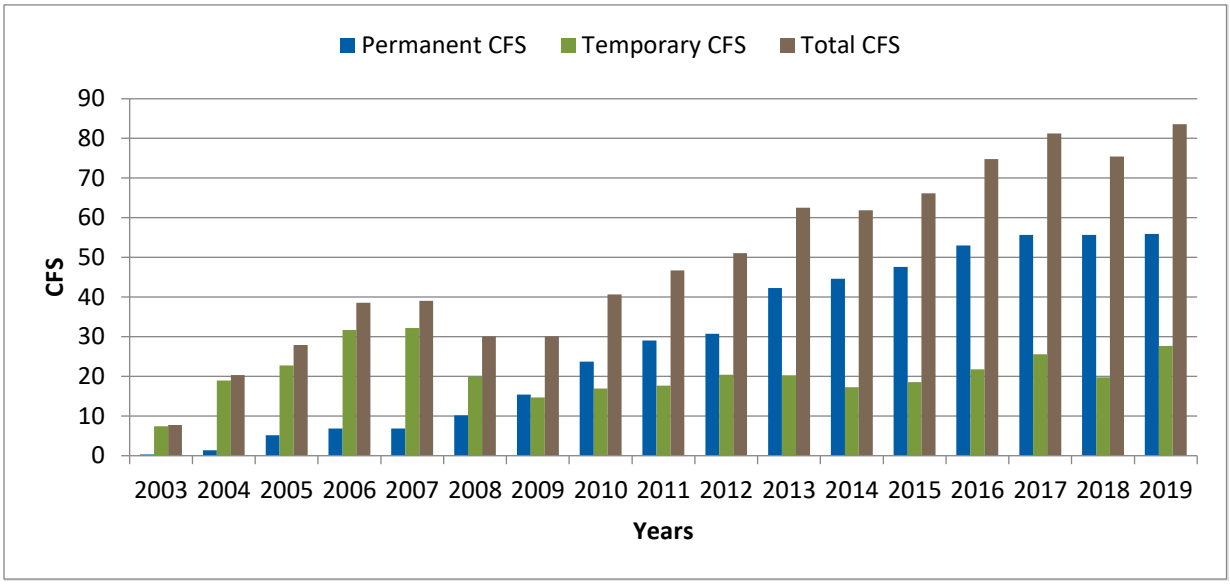

Figure 9: Quantity in CFS of Permanent (Cumulative) and Temporary (Annual) Water Protected Instream Resulting from the Mitigation Program through 2019

The primary source of mitigation has been the conversion of surface water irrigation rights to instream water rights, resulting in water being protected instream during the irrigation season. The beneficial uses of these new instream water rights, in addition to mitigation, are recreation, fish and wildlife habitat, and pollution abatement.

It is important to note that the Mitigation Program is not the only source of additional flows in the Deschutes River and its tributaries. There are many different organizations and agencies that are working to restore streamflows in the Deschutes Basin. A goal for flow restoration of the mainstem Deschutes River is to reach 250 CFS in protected instream flows, which is the amount requested in a protested instream water right application filed in 1996 by the Oregon Department of Fish and Wildlife. Additional flows in the Deschutes River, especially below Bend, have created opportunities for recreation where some activities were not previously possible during the summer months. Recreational activities, such as river floating, are now improved in reaches of the river that did not previously have sufficient streamflows to support these activities. Recreational fishing has also improved as a result of the additional flows.

State Agency and Stakeholder Comments: While streamflows have improved during the summer months from the conversion of surface water irrigation rights to instream water rights, ODFW has expressed concern about the Mitigation Program's impacts on fish and other aquatic organisms' habitat during the portions of the year outside of the summer months and irrigation season, specifically through reduced streamflows. They have also identified that portions of the DGWSA are also home to the recently Endangered Species Act (ESA) listed Oregon spotted frog. According to ODFW, improvements to winter flows in the Upper Deschutes, below Wickiup Reservoir and on Crescent Creek, a tributary of the Little Deschutes River, are essential to the survival of the Oregon spotted frog and freshwater spring habitats

in the upper basin. Instream flows provided under the Mitigation Program generally originate from seasonal uses, such as irrigation, and have instream periods between April 1 and October 31 which match the season of the originating use. ODFW expressed concern that new groundwater uses ultimately have a distributed impact (reduction) on streamflows over the entire year and that mitigation water (instream transfers from irrigation) is only provided during a portion of the year.

DEQ and WaterWatch expressed similar concerns related to when mitigation water is protected instream and when impacts are occurring. Impacts of additional groundwater use, especially for municipal and quasi-municipal uses, are expected to be distributed throughout the year whereas mitigation is mostly provided during the irrigation season.

OWRD Response: While new groundwater use may take anywhere from a few weeks to several decades to fully affect surface water flows depending on proximity to surface water and hydrogeologic conditions, the impact on surface water flows will eventually be fully realized as a decrease in streamflow over the course of the year (see Potential Timing of Mitigation section below for further details).

From the beginning of the Deschutes Mitigation Program, it was determined that the program should be structured in such a way so that it was a manageable system for OWRD to track and maintain. OWRD considered the goals of the Mitigation Program, the Deschutes Groundwater Mitigation Flow Model, and the base period flows (1996-1995) and created sub-zones and consumptive use coefficients to keep the Deschutes Mitigation Program manageable. Seasonal uses were allowed to generate credits that can then be purchased to mitigate for year-round uses. OWRD will need to work with ODFW, DEQ and stakeholders to address this challenging issue.

VIII. Potential Timing of Mitigation

As structured, mitigation water/credits (instream transfers and leases) are generally targeted to enhance streamflow and offset new groundwater use during the irrigation season, which is also the time period in which many stream reaches throughout the basin suffer from low flows and water quality issues that are detrimental to aquatic life. For example, streamflow for the Deschutes River below Bend has seen an increase in *median* summer streamflow from historic levels of around 35 CFS (1971-2000) to values of over 130 CFS in recent years resulting from, in part, instream transfers and leases associated with the Mitigation Program. Presently, the summer streamflow below Bend is managed according to instream water rights resulting from the Mitigation Program and flow restoration work by the Deschutes River Conservancy in partnership with the irrigation districts of Central Oregon. In summary, mitigation credits have primarily increased streamflow during the summer.

In contrast, the effects of new groundwater pumping results in decreases in groundwater discharge to streams, generally spread over a longer time period than just the irrigation season. The full impact on surface water may not be realized for several years (Gannett and others, 2001; Gannett and Lite, 2007; Gannett and others, 2017). Given the need to simplify the Mitigation Program and create a structure for management, additional groundwater pumping represented as mitigation debits is assumed to produce a decrease in groundwater discharge to streams and streamflow within the determined zone of impact in a manner that is uniformly distributed over the year. This takes into account the fact that pumping impacts tend to be spread out over a longer period of time.

As a result of the structure, mitigation debits are debited from streamflow uniformly over the course of the year, whereas mitigation credits are added to streamflow during the period in which the water is put instream. This means that seasonally credits and debits may not be equal, but that on an annual basis the program balances the quantity of debits and credits in each mitigation zone. The end result is that the mitigation program has resulted in increases in streamflow during the irrigation season; however, outside of the irrigation season, when streamflows are not augmented by mitigation water, the mitigation program will result in reduced streamflows just as if groundwater permits were issued without a mitigation program.

Stakeholder Comments: As noted in the previous section, several stakeholders have expressed concerns related to the timing of mitigation and impacts of new groundwater use on surface water flows.

OWRD Response: See discussion above and Department response in the prior section. OWRD will need to work with ODFW, DEQ and stakeholders to address this challenging issue in the future.

IX. Identification of Zones of Impact

Part of mitigating for a proposed groundwater permit necessitates determining where the mitigation must be provided in order to protect scenic waterway flows and senior water rights downstream of the proposed point(s) of appropriation (i.e., well locations). The Mitigation Program rules (OAR Chapter 690, Division 505) divide the required location of mitigation into two areas – (1) in a general zone of impact, and (2) in a local zone of impact. Mitigation under the Mitigation Program is water that is legally protected instream and benefits the zone of impact in which a groundwater permit applicant is required to provide mitigation.

Groundwater users with permits issued under the mitigation program are required to provide mitigation within the appropriate zone of impact in the DGWSA identified by OWRD.

Below is a description of the zones of impact and the way that OWRD determines which zone(s) of impact will be affected by the proposed new use of groundwater.

A. General Zone of Impact

For mitigation in the General Zone of Impact (see Figure 10), the concept is that proposed wells in the general zone are developing water in the “regional aquifer” and their groundwater pumping impacts are on the regional groundwater discharge area near the confluences of the Deschutes, Crooked and Metolius Rivers. Within this confluence area, groundwater discharges to surface water mostly through large, discrete spring complexes.

Groundwater applicants identified by OWRD as needing to provide mitigation in the General Zone are required to provide mitigation that benefits streamflows in the lower reaches and confluence area of the Deschutes, Metolius, and Crooked Rivers. Instream flows for mitigation must originate upstream from the Madras Gage, located approximately at River Mile 100.1 on the mainstem Deschutes River. The Madras Gage is located at the lower end of the spring system discharging into the mainstem

Deschutes River. By providing mitigation upstream from this point, mitigation is targeted to offset any reduction in spring discharge from groundwater pumping.

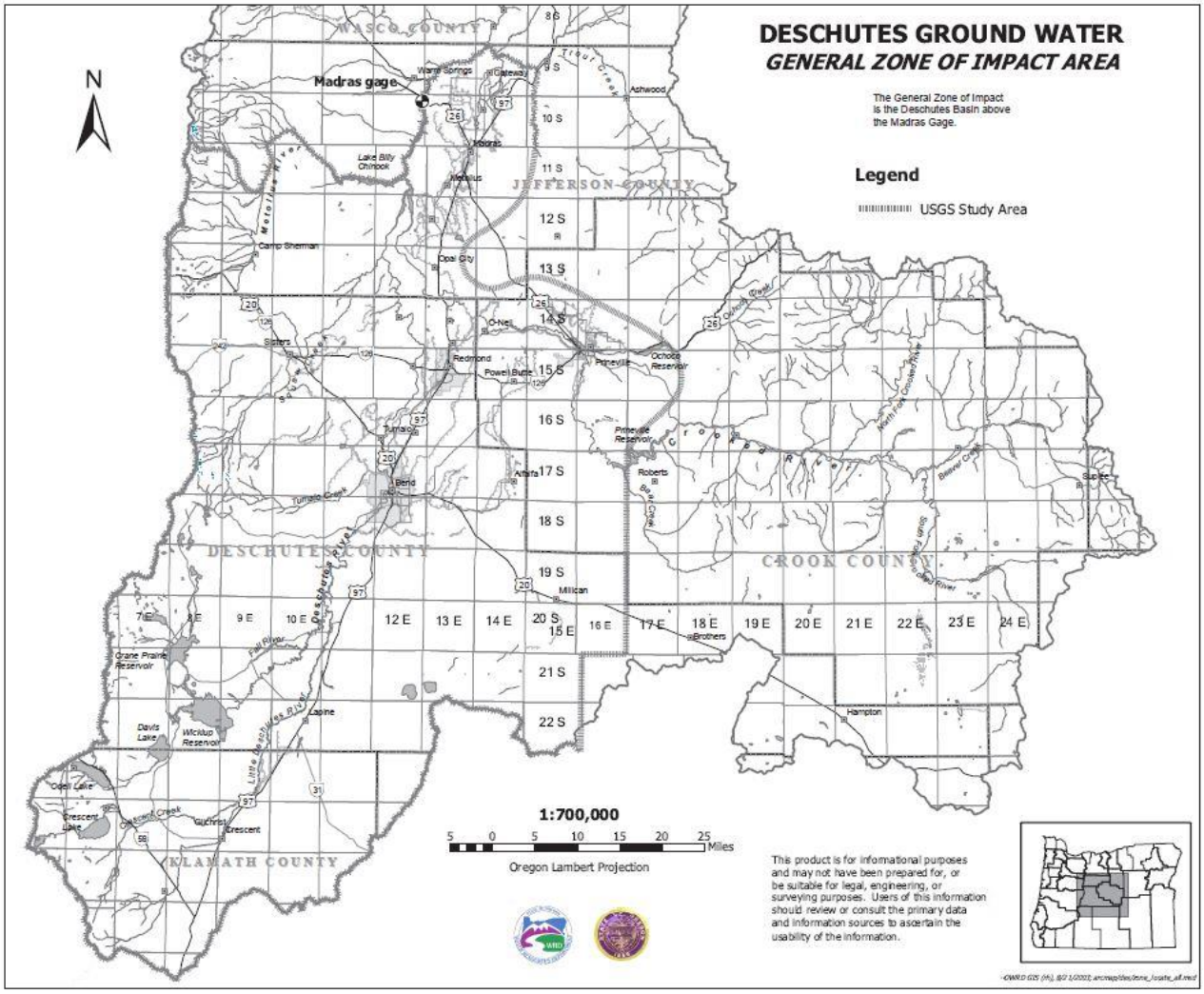

Figure 10: General Zone of Impact Map

B. Local Zones of Impact

For proposed wells determined by OWRD to have a localized impact on surface water, mitigation must be provided in a local zone of impact. The local zones of impact were identified and developed by OWRD as part of implementation of the Mitigation Program beginning in 2002. The goal in developing the local zones of impact was to target mitigation in the sub-basin and above (upstream of) stream reaches where impacts on streamflows by groundwater pumping would occur and where instream flows were not being met. Instream flows considered in the development of the zones of impact were flows established by State Scenic Waterway designation, instream water right applications filed by a state agency, including ODFW, and/or conversion of minimum perennial streamflows to instream water rights.

In development of the local zones of impact, consideration was given to:

- Locations where instream flows (instream water rights and/or scenic waterway flows) were not being met;
- Sub-basin boundaries as identified by surface water divides;
- General groundwater flow information and specific identification of where stream reaches receive large amounts of groundwater discharge.

The lower boundary (the point above which mitigation would need to be provided) for each zone of impact was identified by either of two means:

1. The lower boundary of the zone being below the lowest groundwater discharge area, or
2. The lower boundary of the zone being a point within a groundwater discharge area where instream flows are not met upstream from that point.

The local zones of impact identified by OWRD included Whychus Creek, Crooked River, Little Deschutes River, and the Metolius River sub-basin areas. The local zones also include the stretches of the Deschutes River above River Mile 125 (referred to as the Middle Deschutes) and above River Mile 185 (referred to as the Upper Deschutes).

A discussion of each local zone of impact is included below.

Middle Deschutes: The Middle Deschutes Zone of Impact (Figure 11) encompasses the area of the Deschutes River and tributaries above River Mile 125, two miles upstream of the Whychus Creek confluence. Groundwater permit applications found to have an impact on surface water flows in this zone must provide mitigation that benefits instream flows within the Deschutes River and have instream reaches beginning upstream of River Mile 125.

Instream flows in this section of the Deschutes River are established by State Scenic Waterway designation and an instream water right application (IS-70695) filed by the Oregon Department of Fish and Wildlife (ODFW). Scenic Waterway instream flows range from 250 CFS to 500 CFS. Proposed instream flows associated with instream water right application IS-70695 are 250 CFS.

From approximately River Mile 138 downstream to River Mile 125, the river can gain over 170 CFS from groundwater discharge. Downstream from River Mile 125, instream flows, scenic waterway and instream water right applications are generally met. In contrast, instream flows are generally not met between River Mile 125 and River Mile 138. River mile 125 was selected as the lower boundary of this zone to target mitigation into this stretch of the Deschutes River, as a result mitigation projects are required to establish instream flows within a reach of the Deschutes River that is vulnerable to groundwater interference and where proposed instream flows are not satisfied. Mitigation projects (instream transfers and instream leases) developed in the Middle Deschutes Zone have resulted in instream flows that are protected in the Deschutes River in reaches that extend through River Mile 125 and downstream to Lake Billy Chinook (at approximately River Mile 120).

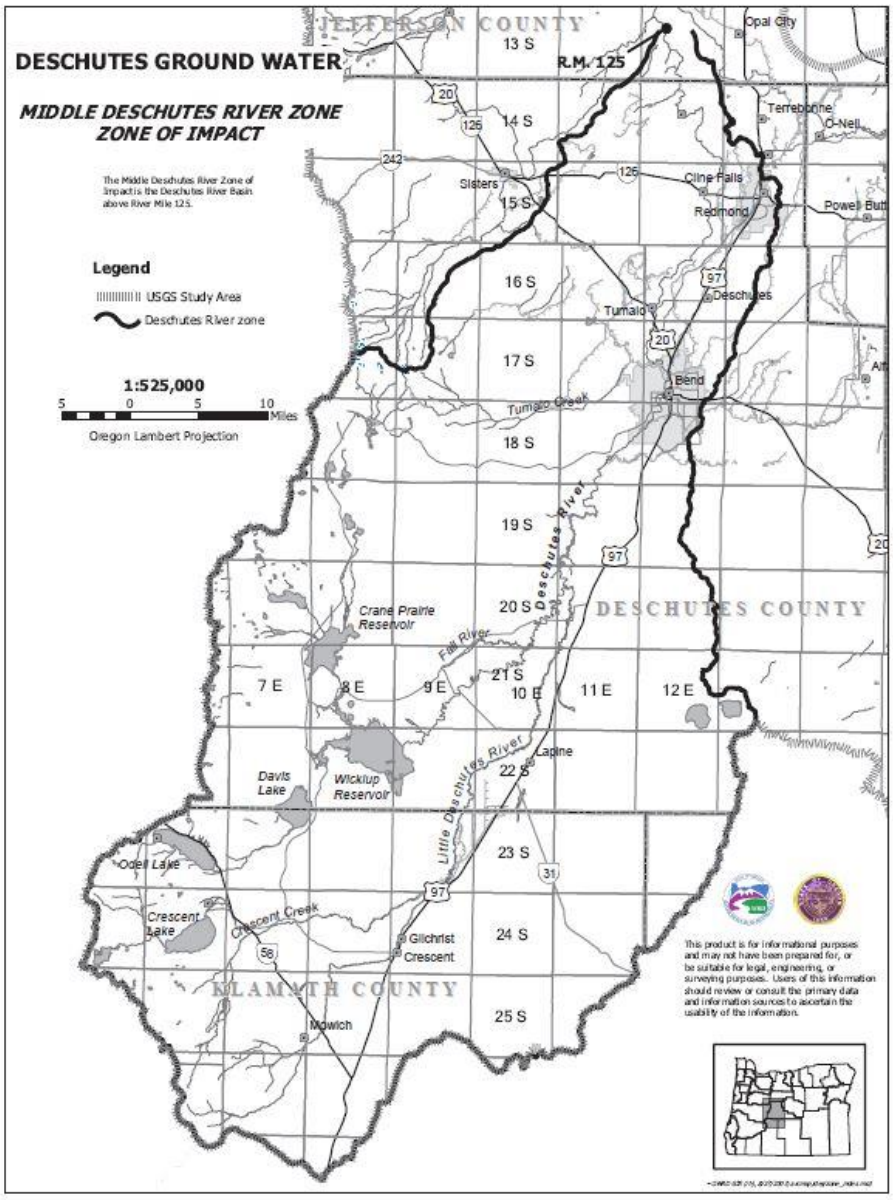

Figure 11: Middle Deschutes Zone of Impact Map

Whychus Creek: The Whychus Creek Zone of Impact (Figure 12) encompasses the area of the Whychus Creek sub-basin above River Mile 16 on Whychus Creek near Hinkle Butte. Groundwater permit applications found to have an impact on surface water flows in this zone must provide mitigation that benefits instream flows in Whychus Creek beginning upstream from River Mile 16. River Mile 16 is just downstream of a set of springs on the east side of McKinney Butte and is downstream of where the groundwater level become significantly deeper than surface water elevations of Whychus Creek, implying surface water is disconnected from groundwater downstream of this point.

Instream flows in this section of Whychus Creek were established under an instream water right application (IS-70753) filed by ODFW and authorized under Instream Certificate 73223. Instream flows range from 33 CFS to 50 CFS.

Instream flows upstream from River Mile 16 that continue downstream to the Alder Springs area are generally not met. However, groundwater use in this zone does not likely interfere with surface water flows in Whychus Creek between River Mile 16 and Alder Springs (River Mile 1.5) because groundwater levels are generally below surface water elevations. Groundwater use outside of this zone can impact flows in the groundwater discharge area at Alder Springs but flows in Whychus Creek in that area are sufficient to meet instream needs.

By using River Mile 16 as the lower boundary of the Whychus Creek Zone of Impact, new instream flows established by a mitigation project may be targeted to begin in or upstream of a section of Whychus Creek that is vulnerable to groundwater interference and where instream flow requirements are not being met. Mitigation projects (instream leases and instream transfers) that have been used to establish mitigation in the Whychus Creek Zone of Impact result in instream flows that begin upstream from River Mile 16 and, at a minimum, extend to the mouth of Whychus Creek, which includes the Alder Springs area.

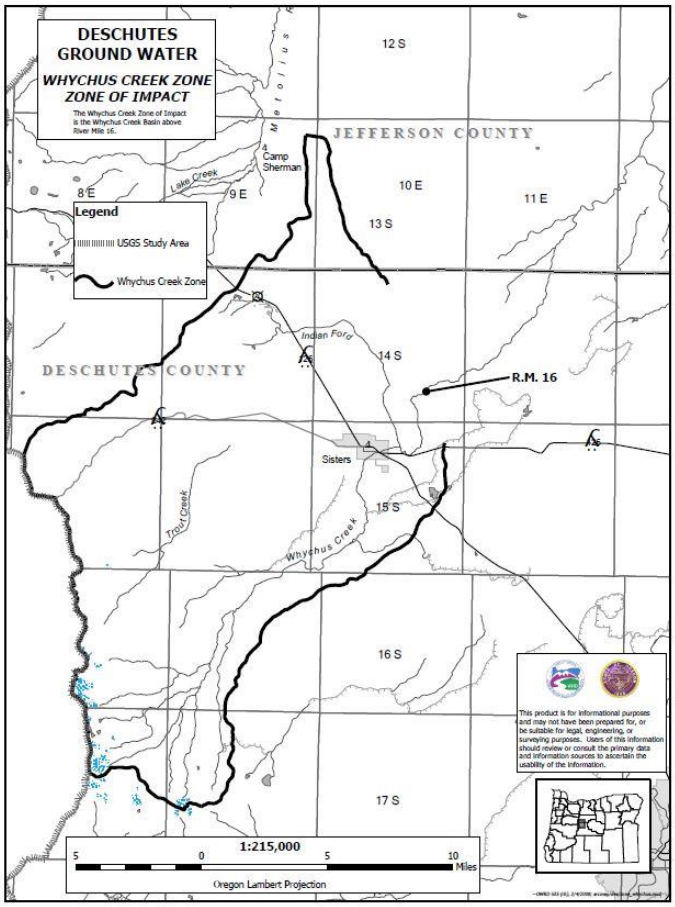

Figure 12: Whychus Creek Zone of Impact Map

Crooked River: The Crooked River Zone of Impact (Figure 13) encompasses the Crooked River sub-basin above River Mile 13.8 at Osborne Canyon on the Crooked River. Groundwater permit applicants found to have an impact on surface water flows in the Crooked River must provide mitigation that benefits instream flows in the Crooked River with instream reaches beginning upstream of River Mile 13.8.

The Crooked River from approximately River Mile 21 to the mouth (River Mile 0) is strongly influenced by regional groundwater discharge to surface water flows. In the stretch of the river between River Mile 6.7 (Opal Springs) and River Mile 13.8 (Osborne Canyon), the river can gain as much as 1000 CFS. There is a protested instream water right on the Lower Crooked River from Bowman Dam at River Mile 71 to the Crooked River arm of Lake Billy Chinook at River Mile 6. The protested instream flows under this application (IS-70354) filed by ODFW range from 75 CFS to 255 CFS. These protested instream flows are generally not met upstream of River Mile 13.8 but are generally met downstream of that point.

By using River Mile 13.8 as the lower boundary of the Crooked River Zone of Impact, mitigation projects are required to establish instream flows within a reach of the Crooked River that is vulnerable to groundwater interference and where protested instream flows are not satisfied. Mitigation projects (instream transfers and instream leases) developed in the Crooked River Zone have resulted in instream flows that are protected in the Crooked River in reaches that extend through River Mile 13.8 and downstream into the Crooked River arm of Lake Billy Chinook (at approximately River Mile 6).

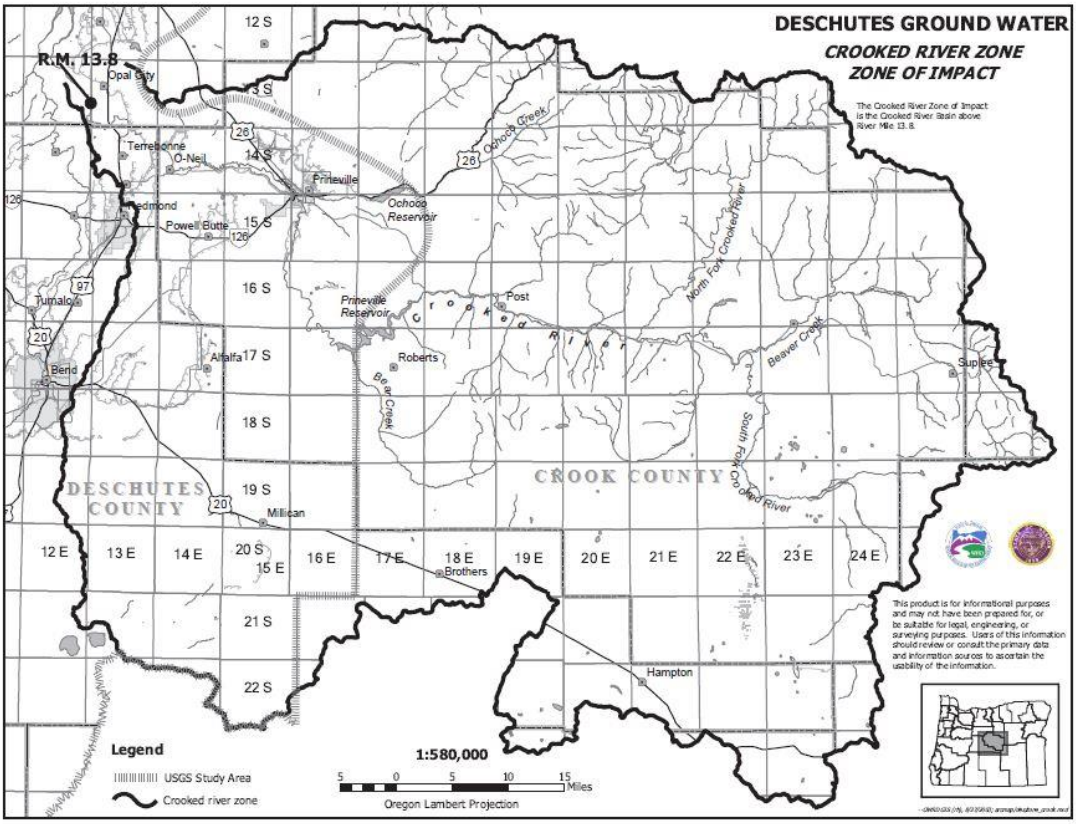

Figure 13: Crooked River Zone of Impact Map

Little Deschutes River: The Little Deschutes River Zone of Impact (Figure 14) encompasses the Little Deschutes River sub-basin above the mouth of the Little Deschutes River. Groundwater permit applicants found to impact surface water flows in this zone must provide mitigation that benefits instream flows in the Little Deschutes River beginning upstream from the mouth of the river.

The mainstem of the Little Deschutes River and several of its tributaries in the upper reaches are vulnerable to interference by groundwater use. The groundwater discharge reach on the Little Deschutes River extends from the confluence with Crescent Creek at approximately River Mile 54 downstream to the mouth of the Little Deschutes River.

In this section of the Little Deschutes River, instream flows are established by an instream water right application (IS-70757) filed by ODFW and authorized under Instream Certificate 73226. Instream flows under Certificate 73226 range from 74.5 CFS to 240 CFS. These instream flows are not met in the Little Deschutes River within the groundwater discharge area extending down to the mouth of the Little Deschutes River.

By using the mouth of the Little Deschutes River as the lower boundary of the Little Deschutes Zone of Impact, mitigation projects are required to establish instream flows within or above a reach of the Little Deschutes River that is vulnerable to groundwater interference and where instream flows are not being met. Mitigation projects (instream transfers and instream leases) developed in the Little Deschutes Zone have resulted in instream flows that begin within or upstream of the groundwater discharge area on the Little Deschutes River and extend at least to the mouth of the Little Deschutes River.

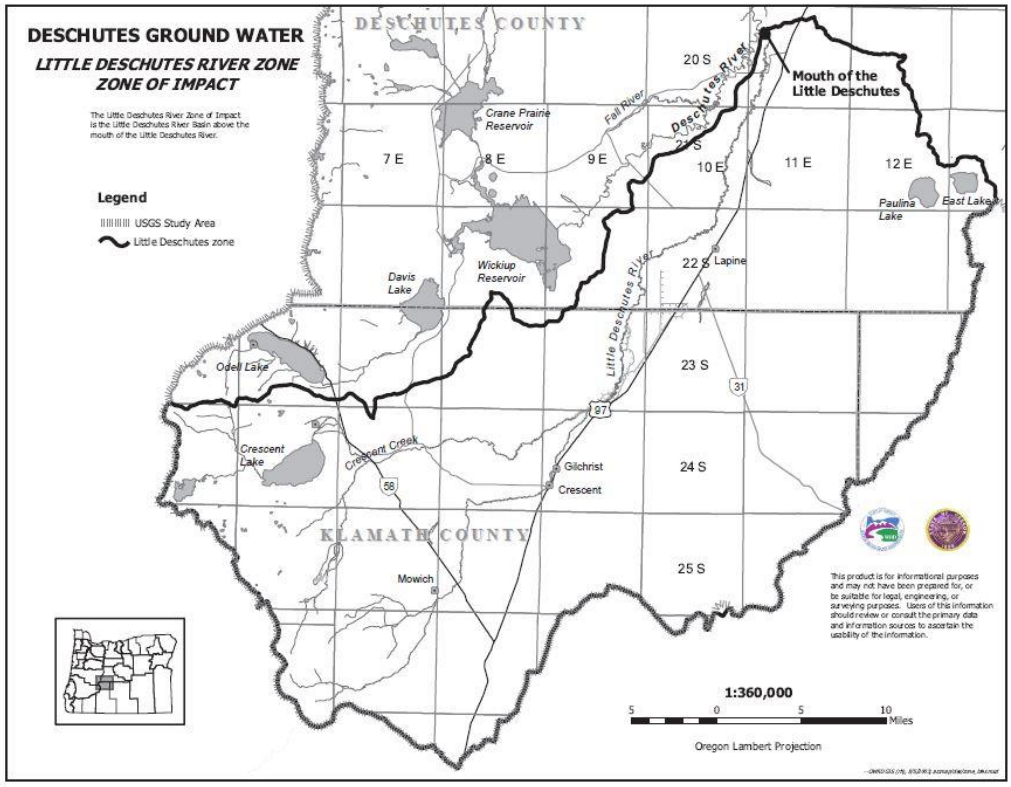

Figure 14: Little Deschutes River Zone of Impact Map

Upper Deschutes: The Upper Deschutes Zone of Impact (Figure 15) encompasses the Deschutes River sub-basin above River Mile 185. Groundwater permit applicants found to impact surface water flows in this section of the Deschutes River must provide mitigation that benefits flows with instream reaches beginning upstream from River Mile 185.

River Mile 185 is located on the mainstem Deschutes River a few miles downstream from its confluence with Spring River near Sunriver. Flows in a significant portion of the Deschutes River above River Mile 185 are influenced by groundwater discharge and thus vulnerable to interference by new groundwater use. River Mile 185 marks the approximate location where groundwater no longer appears to provide significant contributions to surface water flows.

Instream flows upstream from River Mile 185 are established by scenic waterway designation and conversions of minimum perennial streamflows to instream use. Scenic waterway instream flows range from 400 CFS to 500 CFS. Instream flows based upon minimum perennial streamflows range from 300 CFS (upstream from the confluence with the Little Deschutes River) to 400 CFS (downstream, between the confluence with the Little Deschutes River and the confluence with Spring River). These instream flows are not met in the Deschutes River upstream of River Mile 185. Nor are they met downstream from this point. However, as discussed above, the Deschutes River downstream from River Mile 185 is not significantly influenced by groundwater discharge and groundwater use will not likely affect flows in the Deschutes River downstream from River Mile 185 until the area of groundwater discharge in the Middle Deschutes Zone of Impact.

By using River Mile 185 as the lower boundary of the Upper Deschutes Zone of Impact, new instream flows established under a mitigation project may be targeted into a reach of the Deschutes River that is both vulnerable to groundwater use and where instream flows are not being met.

Mitigation projects for this zone have originated in the Little Deschutes Zone of Impact. The mouth of the Little Deschutes is located a few miles upstream from River Mile 185 on the mainstem Deschutes River. Mitigation projects (instream leases and instream transfers) with instream flows protected in instream reaches that extend past the mouth of the Little Deschutes and into the mainstem Deschutes River protect instream flows on the mainstem Deschutes in the Upper Deschutes Zone of Impact, downstream past River Mile 185 and down to Lake Billy Chinook at approximately River Mile 120.

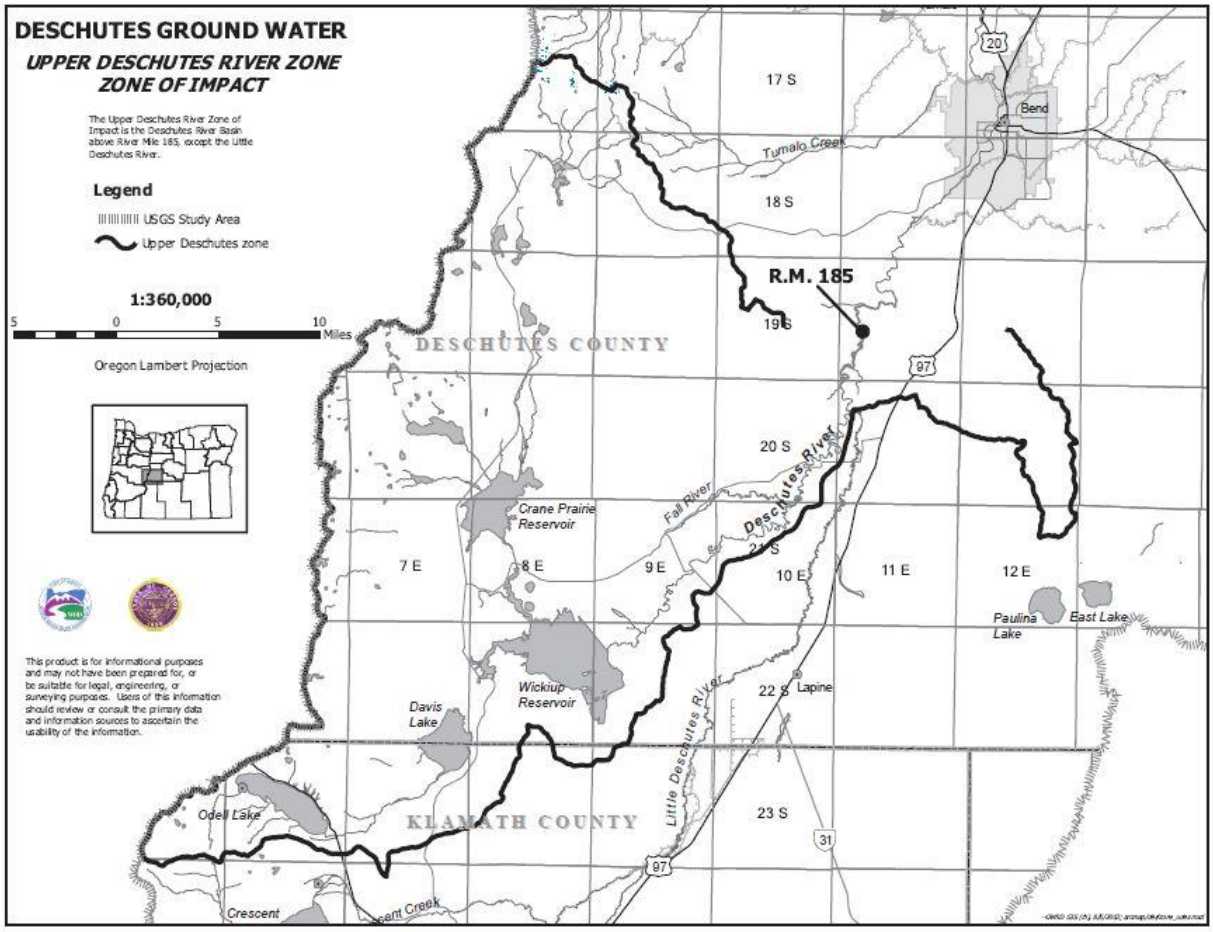

Figure 15: Upper Deschutes River Zone of Impact Map

Metolius River: The Metolius River Zone of Impact (Figure 16) encompasses the Metolius River sub-basin upstream from River Mile 28 on the Metolius River. Groundwater permit applicants needing to provide mitigation within this zone are required to provide mitigation that originates upstream from River Mile 28 to target mitigation into the reach of the Metolius River that is affected by groundwater use.

River Mile 28 is located at the confluence between the Metolius River and Jefferson Creek. This is the lowest point in the Metolius River sub-basin where there is significant groundwater discharge to surface water flows. Upstream from River Mile 28, streamflows in the Metolius River and many of its tributaries are heavily influenced by groundwater discharge and are vulnerable to interference by groundwater use. Downstream from River Mile 28, streamflows do not appear to be vulnerable to interference by groundwater use.

The Metolius River is a designated State Scenic Waterway with instream flows ranging from 250 CFS to 350 CFS. The Metolius River and several of its tributaries also have instream water rights. Instream flows, including scenic waterway flows, are met in the Metolius River sub-basin.

One mitigation project has been established in this zone of impact for the one permit that has been approved within this zone of impact. The mitigation project originated in the Metolius River zone of impact. The instream reach protects flows in the South Fork of Lake Creek within the Metolius River Zone of Impact. The mitigation project concluded that the closest likely downgradient groundwater discharge area is the lower reaches of Lake Creek and tributary springs to the Metolius River.

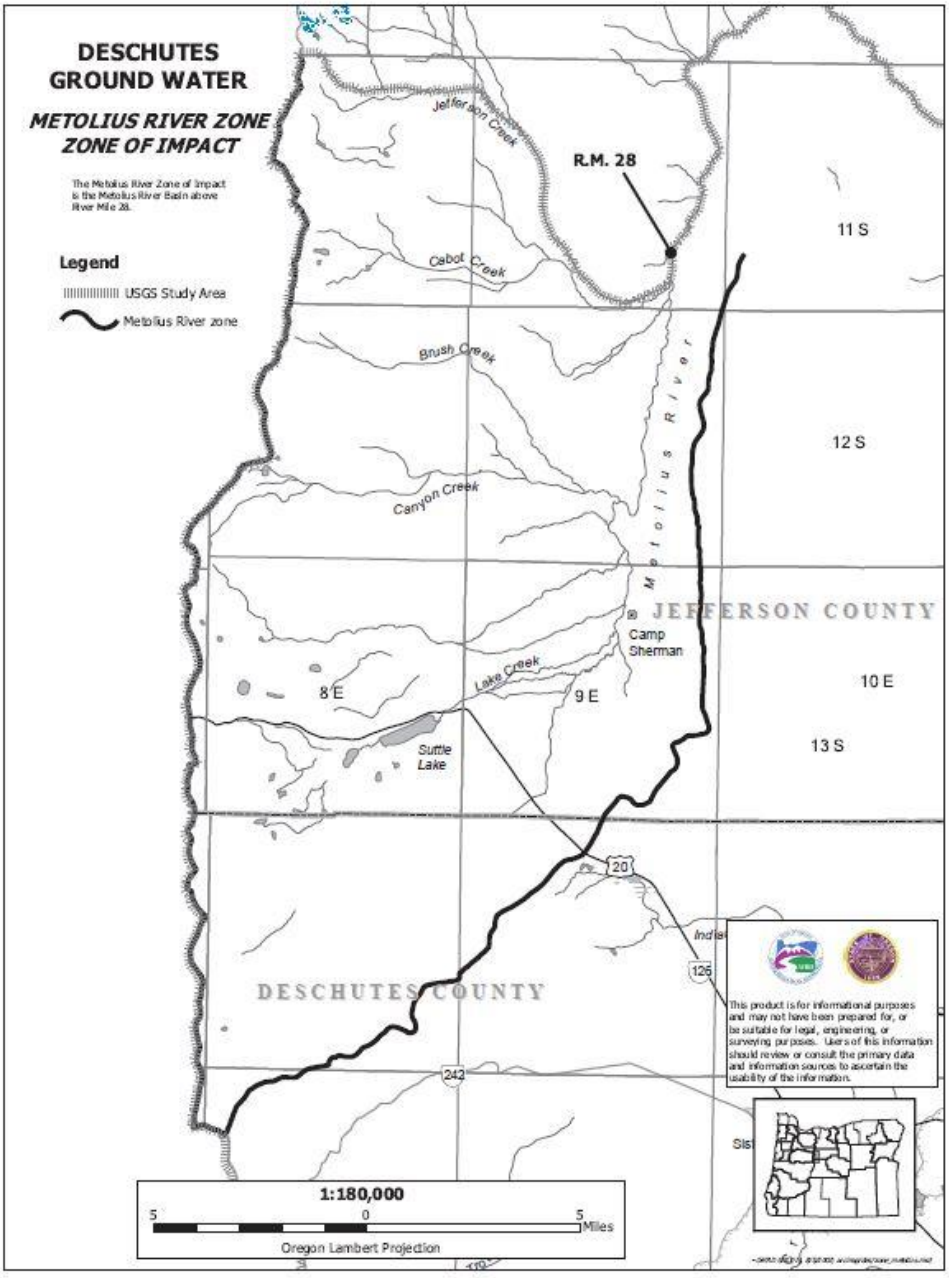

Figure 16: Metolius River Zone of Impact Map

C. Zone of Impact Identification for Groundwater Permit Applications

Stakeholder Comments: ODFW, DEQ, WaterWatch, and an individual commenter (Nunzie Gould) have all commented on the process in which OWRD identifies the zone of impact for the mitigation program. WaterWatch suggests that OWRD only requires mitigation in the "primary" zone of impact which raises significate resource concerns and suggests that mitigation should be provided in all impacted zones.

ODFW stated that allowing mitigation for groundwater impacts to occur away from the point of impact but within a larger "zone of impact" results in localized impacts to stream and the fish and wildlife they support; particularly for the general zone of impact. ODFW stated that mitigation under the program should directly offset the impact by being located upstream of the impacted reach consistent with the program goals to provide for new groundwater uses while maintaining scenic waterway and instream water right flows in the basin.

DEQ states that streamflows in the upper portions of the basin are more susceptible to diminishment under the program. They purport that groundwater flow paths are shorter, which means that the impacts of increased groundwater withdrawals on streamflow are likely to show up sooner. DEQ also noted that mitigation credits may come from anywhere within the zone of mitigation, which means the mitigation credits near the mouth can be used to offset a withdrawal near the headwaters and recommends that mitigation projects be sited upgradient from the groundwater withdrawals. They suggest groundwater withdrawals with direct, local impacts to streams, as determined by OWRD groundwater section, should be mitigated by projects upstream of the diminished reach.

Nunzie Gould commented that it is important that the zone of impact should be used for place of mitigation, not the zone of withdrawal and not a general zone of impact.

Department Response: From the beginning of the Mitigation Program, it was determined that the program must be structured in such a way so that it was a manageable system for OWRD to track and maintain over time. Part of that structure was the identification of different zones of impact within the basin discussed in more detail above and below.

OWRD identifies a single zone of impact for each groundwater permit application. This is based upon the understanding that the intent under the rules was to have 100% of the mitigation in the general (regional) zone of impact or 100% in a localized zone of impact.

When OWRD was initially implementing the Mitigation Program, considerable thought was given to using the best information available without making the review process overly complex. Using a conceptual approach, OWRD reviews a proposed groundwater permit based on the well's proximity to groundwater discharge areas, its construction, hydraulic properties of the target aquifer, and general groundwater flow direction to determine whether the proposed use will have a localized impact to surface water. If the well will have a localized impact on surface water, OWRD finds that 100% of the mitigation must occur in the local zone of impact. Put another way, if OWRD determines that a proposed well will have a localized impact, OWRD does not further analyze the point of appropriation to determine whether the proposed appropriation will also affect the aquifer in the general zone of

impact. This approach allows for the use of locally applicable data and sound hydrologic principles. This methodology has been used since the implementation of the Mitigation Program.

In general, when a well is pumped, the effects of groundwater pumping, being removal of water from the aquifer, and lowering of the water level around the well, spreads in all directions forming a cone of depression (see Figure 17). The effect spreads out radially from the well, with the magnitude and geometry varying according to the local geology of the groundwater system. The cone of depression continues to grow until sufficient groundwater flow is intercepted to supply the pumping. Once the cone of depression stabilizes, the discharge of groundwater from the well must be offset by diminished discharge of groundwater to springs, streams, and wetlands elsewhere, or by increased flow to the aquifer system from other boundaries.

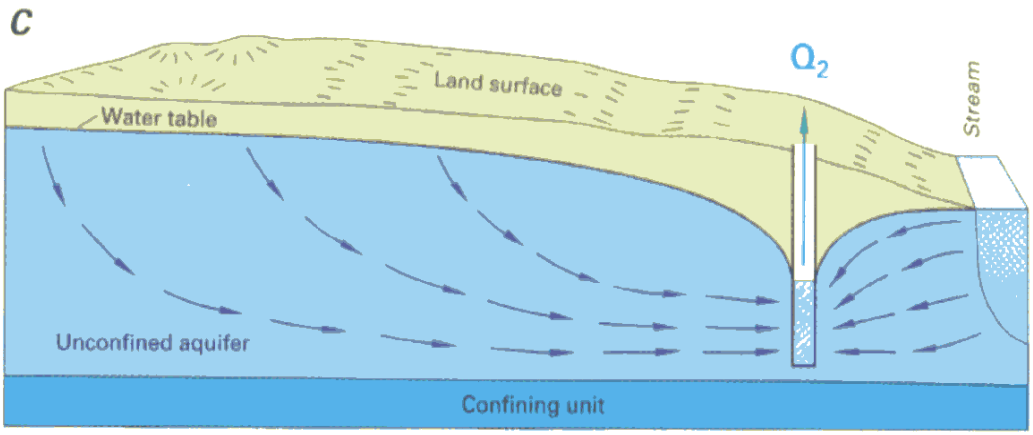

Figure 17: Cone of Depression

OWRD does not quantify and compare impacts to one zone or another in its zone of impact determination when it assesses new groundwater applications in the DGWSA and does not use the Deschutes groundwater flow model when it assesses applications. Instead, OWRD relies on the conceptual approach initially described in this section and has consistently used this approach since implementation of the Mitigation Program.

Single Zone of Impact: Using the conceptual approach, as described above, OWRD identifies a single zone of impact for each groundwater permit application.

The goal of identifying a local zone of impact is to target mitigation in and upstream of areas impacted by groundwater use. Mitigation for each local zone of impact is targeted to be either 1) Upstream from the bottom of the lowest established groundwater discharge area in the zone, or 2) Upstream from the point where instream requirements are not met within the lowest established groundwater discharge area. OWRD is then able to require mitigation that originates upstream of affected areas that are vulnerable to impacts by groundwater use and where additional streamflows are needed.

D. Zone of Impact Identification for Mitigation Projects

Mitigation for groundwater permit applications is provided by mitigation projects. A mitigation project is a completed project that results in mitigation water. Mitigation water is water that can be legally protected instream. One acre-foot of mitigation water is equal to one mitigation credit.

Groundwater permit applicants may either complete their own mitigation project or obtain mitigation credits from an individual or entity, known as a mitigation credit holder, who has already completed a mitigation project. The mitigation water/credits must be located in the same zone of impact as that impacted by the groundwater permit application. When OWRD evaluates a mitigation project, it will identify the zone of impact in which any mitigation water generated by the project may be used.

Mitigation projects establish mitigation water within at least one zone of impact and may establish mitigation in more than one zone. For mitigation projects that establish mitigation in more than one zone of impact, the instream reach extends through more than one zone of impact. For example, a mitigation project that results in protected flows with an instream reach beginning in the Little Deschutes River and extending into the mainstem Deschutes River downstream to Lake Billy Chinook, would protect flows in the Little Deschutes Zone, the Upper Deschutes Zone, the Middle Deschutes Zone and into the General Zone of Impact.

When determining the appropriate zone of impact for use of mitigation water from a mitigation project, OWRD considers:

- The reach in which or point at which water may be protected instream; and
- Whether the project would provide a benefit to streamflow within the DGWSA and into the zone or zones of impact. For example, a project to establish mitigation in the Crooked River Zone of Impact that is located above Prineville Reservoir, on the Crooked River, outside of the DGWSA would have to demonstrate how water could be protected through the reservoir and down into the reach on the Crooked River affected by groundwater use.

Mitigation Projects are reviewed by OWRD under the Mitigation Program Rules (Division 505 and Division 521) and they must also be reviewed under their originating process rules, currently being OAR Chapter 690, Division 77 for establishment of Instream Water Rights. By rule, an instream water right (established by instream transfer, instream lease, and allocation of conserved water) may be protected within a reach from a point on the source stream (generally, the original point of diversion) to the mouth of the source stream. Water may be protected past the mouth of the source stream only if the quantity to be protected instream is a measurable portion of the receiving stream (OAR 690-077-0015(8)).

Many mitigation projects originating on tributaries to the Deschutes River are not measurable portions of the receiving stream, primarily the Deschutes River, and are only protected to the mouth of their source stream. As instream quantities have increased (combination of restoration and mitigation flows), newer mitigation projects may be protected past the mouth of the source stream. For example, additional instream water rights established on Whychus Creek are now measurable and protectable into the mainstem Deschutes River. However, projects originating in the Crooked River are not yet measurable into the mainstem Deschutes River.

Instream uses from Mitigation Projects that are protected instream in the mainstem Deschutes River generally terminate at Lake Billy Chinook. In the Lake Billy Chinook area, there is a large area of groundwater discharge to surface water flows. A portion of surface water diverted for out of stream uses upstream from Lake Billy Chinook seeps into the groundwater system and returns to the surface water system as subsurface return flows.

Under Division 77, OWRD is required to consider return flows as part of the establishment of the instream use to prevent injury to other water rights. If return flows are identified, OWRD is required to account for those return flows at an instream point downstream from the original diversion point or at the point of diversion itself, if the return flows don't occur at a definite point (See OAR 690-077-0075(2)(b)(B) and (2)(c)(A)).

In general, subsurface return flows from uses occurring upstream from Lake Billy Chinook return to the Deschutes River at or above the Madras Gage and become surface water flows that are then available to downstream water rights. The Madras gage is located at approximately River Mile 100.1 and at the bottom of the regional groundwater discharge area (spring system). The amount of water that may be protected instream downstream from the Madras Gage is generally the consumptive portion of the originating use. It is this consumptive portion that is also being used as mitigation of groundwater uses under the Mitigation Program. To date, mitigation has been the conversion of an existing consumptive surface water use to instream use in favor of a new consumptive groundwater use.

Given that instream flows in the Lower Deschutes River would be limited to the consumptive portion of the originating water right and that water is being used as mitigation, there would be no added benefit to instream flows in the lower Deschutes River resulting from mitigation. In addition, utilization of these flows for both mitigation and instream use could be considered as enlargement by expanding the original use from one to two uses occurring at the same time with the same water. By administrative rule, OWRD is not allowed to authorize a change to a water right through its instream transfer and instream lease processes that would result in enlargement (OAR 690-380-4010, OAR 690-077-0075 and OAR 690-077-0077).

The Deschutes Groundwater Mitigation Program administrative rules in OAR Chapter 690, Division 505 and Division 521 were affirmed under House Bill 3494 (Oregon Laws 2005, Chapter 669) as satisfying the requirements related to mitigation under the Scenic Waterway Act, the Instream Water Right Act (ORS 537.332 to 537.360) and Groundwater statutes (ORS 537.505 to 537.795). The zone of impact under current definitions in Division 505 is defined as:

> "General Zone of Impact" means anywhere above the Madras Gage on the Lower Deschutes River or, for wells determined by the Department to have a localized impact on surface water, anywhere within the impacted subbasin of the Deschutes River including the Metolius, Squaw Creek (*now known as Whychus Creek*), Little Deschutes, and Crooked River subbasins as identified by the Department. OAR 690-505-0605(5).

Mitigation then must be provided within the general zone of impact identified by OWRD (OAR 690-505-0610(4)).

OWRD's implementation of the zone of impact and mitigation requirements appear to be consistent with current administrative rules authorized by Oregon Laws 2005, Chapter 669 and Oregon Laws 2011,

Chapter 694. Mitigation is being provided within the zone of impact identified by OWRD for each groundwater permit/certificate issued consistent with the Mitigation Program rules. As noted, instream leases and instream transfers have been the primary source of mitigation projects under the Mitigation Program. In its review of mitigation projects, OWRD must also review those projects under their authorizing statutes and rules, and any limitations contained therein. For instream leases and instream transfers, applications are processed and reviewed under ORS 537.348 and OAR Chapter 690, Division 77.

X. Review of Impacts on the Headwaters of the Metolius River and Other Key Reaches of the Metolius River System

OWRD has been actively engaged in programs to measure and evaluate impacts to the Metolius River. Instrumentation and monitoring streamflow and groundwater levels are paramount to understanding variations in the natural system. Complex interactions between groundwater pumping and impacts on surface water resources are best understood using numerical techniques that also account for natural climate variability.

In October 2007, OWRD staff re-established a stream gaging station just downstream of Camp Sherman near the Allingham Campground to generate a continuous streamflow record. In addition, OWRD staff have conducted seepage measurements and identified key reaches of groundwater inflow to the mainstem Metolius River. OWRD is also conducting quarterly streamflow measurements near the headwater springs to assess streamflow variations over time in that area.

OWRD staff continue to monitor groundwater levels at a well near Allingham and are working with landowners to secure permission to install and instrument dedicated observation wells to assess long-term groundwater level changes in the Metolius area.

Stakeholder Comments: Stakeholders raised concern with regard to other spring systems in the DGWSA. ODFW suggested that OWRD implement a program to monitor key spring complexes to determine ecological impacts to springs resulting from groundwater pumping.

Department Response: ODFW, DEQ, and OWRD have discussed cooperatively combining efforts to obtain funding for a study aimed at identifying impacts to the springs within the DGWSA, and to understand whether any impacts are the direct result of the mitigation program.

XI. Potential Timing of Federal, State and Local Storage Improvements

There are several existing storage projects in the Deschutes Basin. As of the writing of this report, there have been no new federal, state, or local storage developments that include the mitigation program. However, the United States (U.S.) Congress recently passed legislation to change how water stored in the existing Prineville Reservoir may be allocated. Prineville Reservoir is authorized under Water Right Certificate 57612 to store up to 155,000 Acre-Feet (AF) for irrigation purposes from the Crooked River, a tributary of the Deschutes River. This reservoir is owned and operated by the U.S. Department of Interior, Bureau of Reclamation. In December of 2014, the U.S. Congress passed the Crooked River

Collaborative Water Security and Jobs Act of 2014, which became public law on December 18, 2014. Under this Act, up to 5,100 AF of water stored in Prineville Reservoir may be used to establish mitigation for groundwater use by the City of Prineville consistent with Oregon Law. The Act also identified that a portion of the water stored in Prineville Reservoir may be used for instream flow enhancement. Stakeholders have been managing releases consistent with the federal legislation including the 5,100 AF of mitigation water for the City of Prineville. Mitigation Project MP-222 (Water Right Application S-88402) incorporated these changes to the storage right and a new water right certificate 94149 was issued to reflect the new uses.

XII. Identification of Regulatory and Statutory Changes that may Improve the Program in Order to Address and Mitigate Injury to Existing Water Rights and Spring Systems and to Offset Measurable Reductions of Scenic Waterway Flows

A. Impacts to Local Springs

Stakeholder Comments: Several comments were submitted about the impact to the local springs with the current and future of groundwater pumping.

WaterWatch commented that the program does not include protections for water quality and/or spring flows. As groundwater pumping, the programs impact on cold water springs is of increased concern.

ODFW, DEQ, and an individual commenter (Nunzie Gould) expressed concerns with the localized impacts of groundwater pumping on local springs.

ODFW commented that springs provide very important cold water inputs and over time continued and increased groundwater withdrawal for agricultural, residential, and municipal needs will further affect springs. Furthermore, impacts to springs from current and future groundwater withdrawals are exacerbated by the increasing trend to convert area irrigation canals to piped delivery systems. While this is positive in generating conserved water for instream flow, it also eliminates seepage which recharges the aquifer and contributes to spring discharge of cold water. The result is an exchange of cold spring water for warmer water upstream. Any future shift for conserved water projects that return flow to the upper Deschutes to benefit the spotted frog during the winter months will add further stress on the middle Deschutes and lower Crooked River in the valuable spring recharge areas. Cold water refugia could likely become critical to long-term persistence of many fish species and should be considered in water management decisions and when assessing effectiveness of the program.

OWRD Response: OWRD has been working with ODFW and DEQ over the past couple years to discuss the impacts to local springs. The agencies plan to cooperatively combine efforts to obtain funding for a study aimed at identifying impacts to the springs within the DGWSA, and to understand whether any impacts are the direct result of the mitigation program.

B. Pre-Mitigation Program Permits (7J permits):

The term "7J" refers to a condition included in certain groundwater right permits and certificates that were issued by OWRD within or above a State Scenic Waterway after the Scenic Waterway Act was amended on July 19, 1995. Under the amended Scenic Waterway Act, OWRD may issue new groundwater permits provided that OWRD can make a finding that the use will not measurably reduce scenic waterway flows. If OWRD is unable to determine that the proposed use will measurably reduce scenic waterway flows, a new permit may be conditioned to allow for regulation of the use should it be later determined to measurably reduce scenic waterway flows.

From 1995 to 1998, OWRD issued 187 groundwater permits that originally totaled approximately 182 CFS with the scenic waterway condition allowing for regulation if the use(s) were determined to measurably reduce scenic waterway flows.

In 1998, when an ongoing groundwater study with U.S. Geological Survey was substantially complete, technical information became available to demonstrate that new groundwater use in the Deschutes Basin would measurably reduce scenic waterway flows. OWRD determined that new groundwater permits could only be issued if mitigation was provided. At that time, OWRD put pending groundwater permit applications on hold and convened the Deschutes Steering Committee to help develop a mitigation plan for the Deschutes Basin.

The Deschutes Basin Groundwater Mitigation Program was developed to enable applicants to obtain new groundwater permits by providing mitigation. The Mitigation rules also provided an opportunity for groundwater permit, or subsequent certificate holders, issued prior to the adoption of the Mitigation Program rules, to mitigate for their impacts on surface water flows to avoid any future regulation for reductions to scenic waterway flows, consistent with their permit (condition 7J).

Stakeholder Comments: WaterWatch of Oregon identified in their feedback to OWRD an ongoing concern that not all permit holders that should be mitigating are required to provide mitigation. WaterWatch is specifically concerned with those groundwater permits issued prior to the adoption of the Mitigation Program and conditioned to allow for regulation of the groundwater use should the use be found to measurably reduce scenic waterway flows (condition 7J).

OWRD Response: Of the 187 permits issued that include the 7J condition, 72 permits have been certificated and 37 permits have been cancelled. Some of the remaining permits, for which certificates have not yet been issued, may not yet be fully developed and may require extensions of time but there are also 63 claim of beneficial use reports that have been submitted and are awaiting certificate issuance. Figure 18 shows the number of permits by status, and Figure 19 shows the total cubic feet per second (CFS) associated for each status action. One option that OWRD is considering is whether mitigation should be required for "7j" permit holders seeking extensions of time for the undeveloped portion of their permits.

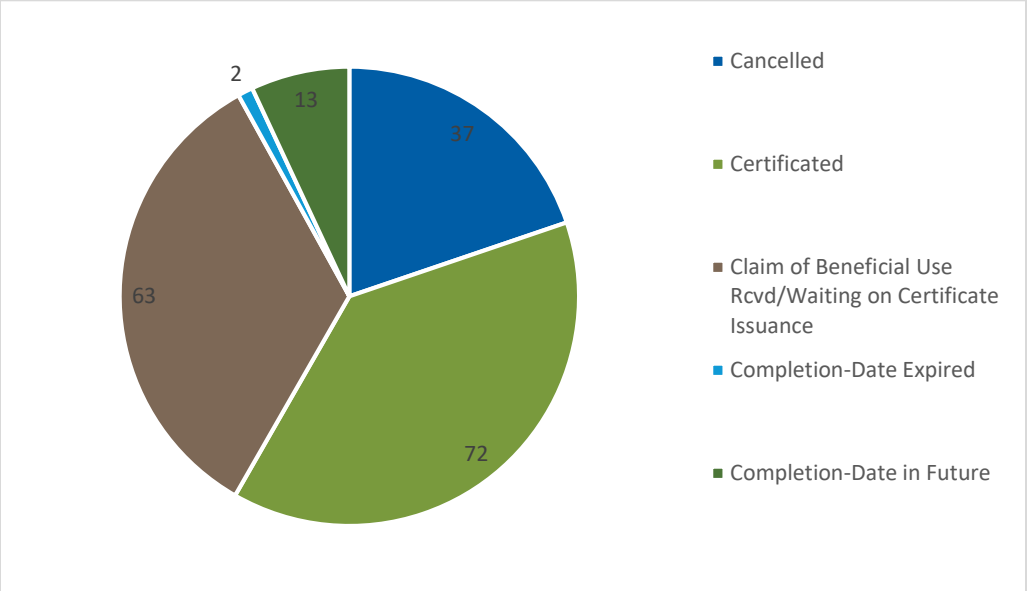

Figure 18: Number of 7J Pre-Mitigation Program Permits & Status

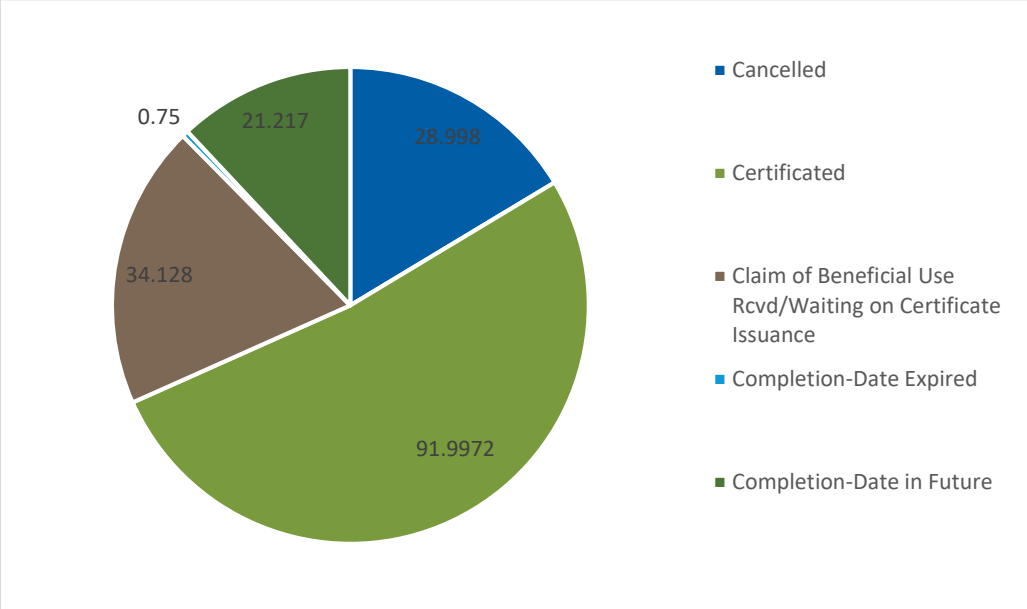

Figure 19: Total CFS of Each Status of 7J Pre-Mitigation Program Permits

C. Require Mitigation for Undeveloped Permits when Extension of Time is Requested:

As previously identified (see discussion of Pre-Mitigation Program Permits (7J permits)), there were approximately 187 groundwater permits issued by OWRD within what is now the Deschutes Groundwater Study Area (DGWSA) after the Scenic Waterway Act was amended in 1995 which contain the "7J" condition that allows for regulation should the groundwater use later be found to cause a measurable reduction in scenic waterway flows.

The Scenic Waterway Act also identified that this requirement would be applied to groundwater permits issued after July 19, 1995. Further, groundwater permits are only subject to those scenic waterway flows in effect as of the priority date of the permit. The Deschutes Scenic Waterway flows were established and adopted by the Water Resources Commission on April 19, 1991. Of the 187 groundwater permits issued after July 19, 1995, 7 appear to have priority dates prior to April 19, 1991, and are not subject to the provisions under the Scenic Waterway Act but may have been conditioned to allow for regulation of the use similar to other permits issued after July 19, 1995, for scenic waterway flows.

Stakeholder Comments: Lack of mitigation requirements associated with the permits issued with the "7J" condition was one of the issues identified by a few stakeholders, including WaterWatch of Oregon.

Department Response: Under the existing Mitigation Program rules, these permit holders are not required to provide mitigation but are provided an opportunity under the Mitigation Program to provide mitigation to avoid any future regulation for scenic waterway flows.

Of the permits issued after July 19, 1995, 72 have been issued certificates by OWRD and were developed to the extent claimed and/or identified by OWRD. Some of the associated groundwater uses were developed for less than what had originally been requested.

Another 37 of the original permits issued after the scenic waterway act was amended have been cancelled.

The remaining portion of the 187 permits issued after July 19, 1995, being 15, may not be fully developed and may need extensions of time to complete development of the groundwater use. OWRD may grant extensions of time consistent with the criteria under OAR Chapter 690, Division 315 (Water Right Permit Extension of Time). As stated in the above section, one option that OWRD is considering is whether mitigation should be required for "7j" permit holders seeking extensions of time for the undeveloped portion of their permits.

XIII. Mitigation and Streamflow Monitoring

To monitor the impact of new groundwater permits and mitigation on scenic waterway flows and instream water right flows, the Department developed a streamflow modeling program. The model was constructed using a base-period of flows from 1966 to 1995 at selected gaging stations around the basin. This base-period represents streamflows during a period of time after the dams in the basin were constructed and before the Scenic Waterway Act was amended to include consideration of groundwater impacts. The model applies the effect of the estimated hydrologic impact of mitigation credits and debits to this historical flow data.

It should be noted that the model is designed to reflect the theoretical, steady-state response of streamflow to mitigation-related activities only. In some cases, the actual hydrologic response to mitigation activities, such as new groundwater pumping, may take years or decades to be reflected as changes in actual streamflow. In addition, climate variability and the resulting natural response in streamflow generally mask the actual streamflow response to mitigation activities at most locations. The model does not account for other activities affecting streamflow outside of the mitigation program, such as other canal piping/lining (conserved water projects) instream transfers, riparian enhancement

activities completed for restoration purposes only, or water management changes such as those related to higher winter releases designed to protect the ESA-listed spotted frog.

The seasonal changes in percent of time the water right instream flow requirements (ISFR) are met at each evaluation site follows the seasonal impacts in terms of absolute streamflow. During the non-irrigation season, the impact to the percent of time the ISFR is met is generally negative, while the percent of the impact during the irrigation season is predominantly positive. The relative change in percent of time the ISFR is met varies by month and site, depending on how close the historical flows were to the ISFR prior to the mitigation program. If the historical flows were close to the ISFR for a given evaluation site, then a small change in flows can relate to a relatively large change in percent of time the ISFR is met. The opposite is true if the historical flows differed greatly from the ISFR.

The Department has also noted small negative changes in streamflow on an annual basis at certain evaluation points. (Figure 20) This is in part due to the resolution of the model. The baseline condition of streams in the model is determined from streamflows measured during water years 1966 to 1995. The only model inputs are the groundwater permit debits and mitigation credits. Because the model relies on a base period and not current streamflows, the only changes reflected in the model are from those debit and credit inputs, not current reservoir operations or other conditions such as climate change.

Another consideration is related to how groundwater permits, and mitigation projects are entered into the streamflow model. The model assumes full use by groundwater permit holders. However, not all permit holders are required to provide their full amount of mitigation before the permit is issued. In the case of municipal and quasi-municipal permit holders, they have the option of providing mitigation incrementally to match the development of the permit over time. The amount of mitigation provided and entered into the streamflow model is currently less than what all permits issued under the mitigation program will need at full use levels. However, these users are providing more mitigation than required at current use levels.

The Department will continue to evaluate streamflow model results on an annual basis to determine whether streamflows continue to be met on an equivalent or more frequent basis.

Annual Change in % of time instream					
Gage	2015	2016	2017	2018	2019
Deschutes River at Mouth	0.06	0.05	0.08	0.13	0.18
Deschutes River below Pelton Dam	0.69	0.75	0.81	1.00	1.10
Metolius River at Lake Billy Chinook	0.00	0.00	0.00	0.00	0.00
Deschutes River at Lake Billy Chinook	0.65	0.63	0.63	0.64	0.68
Deschutes River at Lower Bridge (Downstream of Bend)	-0.10	-0.24	-0.21	-0.20	0.02
Deschutes River above diversion dam at Bend	0.06	-0.11	-0.11	-0.09	-0.04
Deschutes River at Benham Falls	-0.14	-0.26	-0.26	-0.26	-0.12
Little Deschutes River at mouth	-0.04	-0.49	-0.49	-0.49	-0.17
Deschutes River above Little Deschutes River	0.00	0.00	0.00	0.00	0.00

Figure 20: Annual CFS Change in % of time Instream at Identified Gages

XIV. Other Issues Identified by Stakeholders

Some stakeholders identified that there were a number of outstanding issues in the Deschutes Program. This section contains the additional issues identified by stakeholders.

A. Need for more permanent mitigation, monitoring and compliance:

Stakeholder Comments: Several stakeholders raised issues associated with use of temporary mitigation credits (instream leases). One commenter was uncertain how temporary mitigation could be used for a new groundwater permit considering that mitigation must be provided for the life of that groundwater use. In recent years, OWRD has consistently identified a few permit holders that have failed to continue providing mitigation when the original mitigation source has been temporary based on instream leases. Stakeholders suggested that coordination with Mitigation Program partners is needed to provide a larger supply of permanent mitigation water. In addition, a clearly defined process needs to be established to address permit holders that fail to provide mitigation on an annual basis. One stakeholder also asked how often mitigation activities are monitored and regulated when mitigation is not occurring.

OWRD Response: In general, the source of mitigation provided by a groundwater permit applicant may be permanent, temporary, or a combination of both. Instream leases are one of the identified sources

of mitigation under OAR 690-521-0300(1)(b); however, this temporary mitigation (instream lease based mitigation) may only be established through a Mitigation Bank chartered by the Oregon Water Resources Commission. To date, temporary mitigation has been available from the DRC Mitigation Bank, which primarily brokers temporary mitigation credits issued by OWRD. Some permit holders that have used temporary mitigation in the past failed to continue providing that mitigation. The DRC Mitigation Bank diligently attempts to contact any permit holder that does not appear to be on track with obtaining annual mitigation from the Bank. By rule and by permit condition, every groundwater user with a permit issued under the Deschutes Groundwater Mitigation Program is required to maintain mitigation for the life of the groundwater use. Ultimately, the permit holder is responsible for maintaining any temporary mitigation being used annually with the DRC Mitigation Bank.

Since groundwater permit holders using temporary mitigation credits need to obtain mitigation credits on an annual basis, there is the risk of groundwater users failing to maintain the required mitigation. Under the Mitigation Program, when a permit holder fails to maintain their source of mitigation, OWRD is required, under OAR 690-505-0620, to regulate the use, deny any permit extension request, and possibly cancel the permit.

This issue was first identified in 2007. Figure 21 below shows the number of delinquent permits by year. Several of the permit holders did not have mitigation in place for a year or two and then continued providing annual mitigation. Others without mitigation have been cancelled either voluntarily or by OWRD under statutory authority to cancel permits.

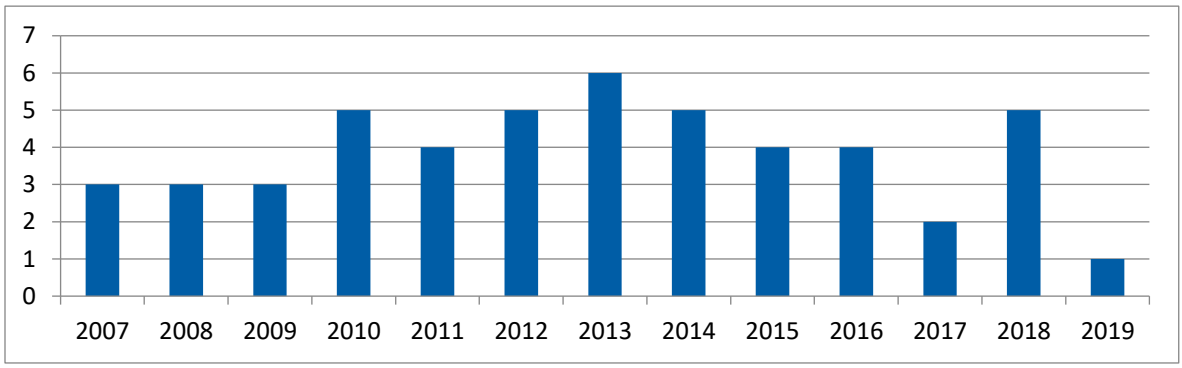

Figure 21: Delinquent Number of Permits by Year

Given that there are a few permits without mitigation on an annual basis, OWRD determined that a robust and clear process for addressing permits without mitigation was needed. OWRD worked with local staff and the DRC Mitigation Bank to develop an active process that includes regulation and compliance actions up to and including permit cancellation if necessary.

Through evaluation of this issue, OWRD identified a need to review its ability to cancel permits under current rules and statutes. Under OAR 690-505-0620(1)(f) and (3), OWRD may pursue cancellation if mitigation is not maintained. However, the primary statutes utilized by OWRD for cancellation of permits do not allow for cancellation for failure to meet this type of permit condition. Previously, OWRD has relied upon ORS 537.410, under which a permit may be cancelled for failure to commence or complete construction or to properly apply water to beneficial use. OWRD has also relied upon

cancellation of a permit under ORS 537.260 for failure to submit a claim of beneficial use by the deadline specified in the permit. To cancel permits without mitigation, OWRD has primarily relied upon ORS 537.260 to cancel those permits when they later fail to submit a claim of beneficial use report. However, by relying on this statute, one or more years may pass without mitigation before a permit is cancelled. Therefore, OWRD has since determined that it is better to use the authority provided under ORS 537.720, which allows the cancellation of a permit for willful violation of any provision of the permit.

In response to comments on this issue and to begin addressing permits without mitigation more proactively, OWRD began notifying permit holders who have failed to provide mitigation. In 2016, OWRD initiated contact with each permit holder that had not yet provided mitigation for the 2016 calendar year. In its written correspondence, OWRD identified that unless mitigation was provided by a specified deadline, OWRD would initiate cancellation of the permit under ORS 537.720.

In 2018, five (5) delinquent permits were identified. Of those 5 delinquent permits, two (2) obtained the necessary mitigation, while three (3) failed to do so and were cancelled by OWRD.

Stakeholder Comment: Another issue raised by stakeholders is the reliability of temporary mitigation. The amount of mitigation available annually from temporary mitigation sources (instream leases) may vary from year to year. In addition, there are some areas of the DGWSA where mitigation, both temporary and permanent, is not as readily available. Given that mitigation has originated from conversion of existing surface water rights to instream use (instream transfer and instream lease), the DRC Mitigation Bank identified that there may not be sufficient surface water rights in a few zones of impact to be used as mitigation.

As part of their feedback to OWRD throughout the years, the DRC Mitigation Bank asked what happens if temporary mitigation is available in a Zone of Impact one year but not the next.

Department Response: In regard to the DRC question, OWRD anticipates that it would work with the DRC Mitigation Bank to see if mitigation could be secured and, if unavailable, regulation of groundwater uses without mitigation may be necessary. OWRD will continue to pursue this issue with the DRC Mitigation Bank.

One responsibility of the DRC Mitigation Bank is to help prevent a lack of mitigation by maintaining a reserve of mitigation credits. For every temporary mitigation credit assigned to a groundwater permit, the Bank is required to maintain another similar credit in reserve.

In general, the amount of temporary mitigation provided through instream leases has exceeded the amount of mitigation needed for those permit holders using this as their primary source of mitigation (Figure 22). Should the supply of mitigation provided by instream leases decrease and/or additional permit holders fail to provide the needed mitigation, OWRD may need to reevaluate how instream leases are used for mitigation purposes.

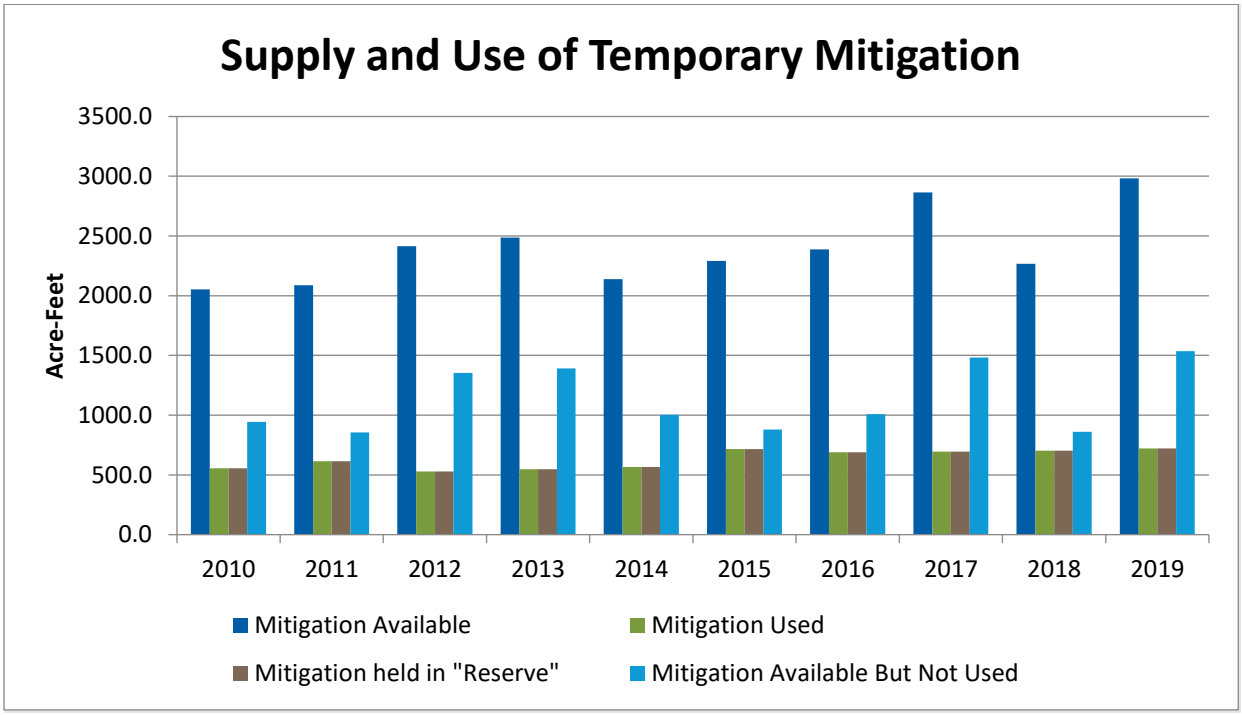

Figure 22: Supply and Use of Temporary Mitigation

As the Mitigation Program has grown from year to year, the amount of permanent mitigation has also grown and has surpassed the amount of temporary mitigation. Preferably, those using temporary mitigation credits would convert to permanent mitigation over time.

In the first twelve years of the Mitigation Program, instream leases represented 62% of the total volume of mitigation water (in acre-feet) established under the program each year (2003 through 2014). However, from 2015 through 2019, instream leases have averaged approximately 31% of the total volume of mitigation water established under the program. The amount of mitigation water established through permanent instream transfers has increased annually, lowering the ratio between instream leases and instream transfers. By the end of the first twelve years (2014), the amount of mitigation water established through instream transfers was 5097.0 AF. In 2019, 6142.3 AF of cumulative mitigation water was established through permanent instream transfers (Figure 23).

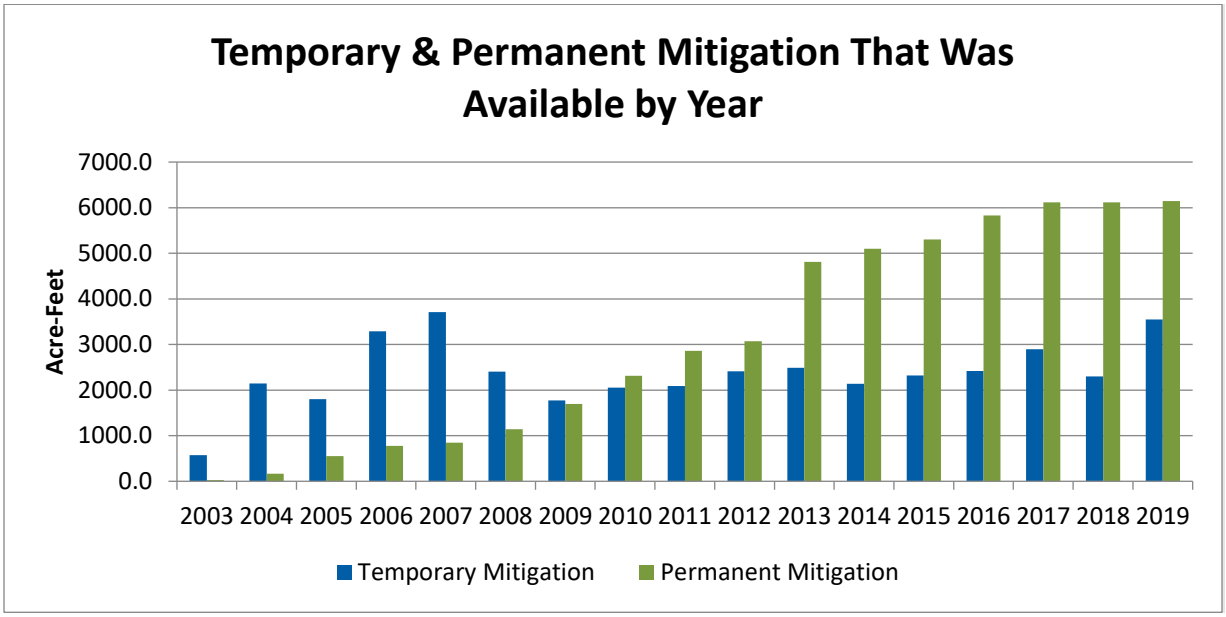

Figure 23: Amount of Mitigation Available by Year & by Type

The establishment of permanent mitigation credits has increased from year to year under the Mitigation Program (Figure 24). However, during the years 2017-2019 it tapered off. There still remains some permanent mitigation credits unused from year to year. The majority of the credits available are located in the general and middle Deschutes zone of impact (Figure 25).

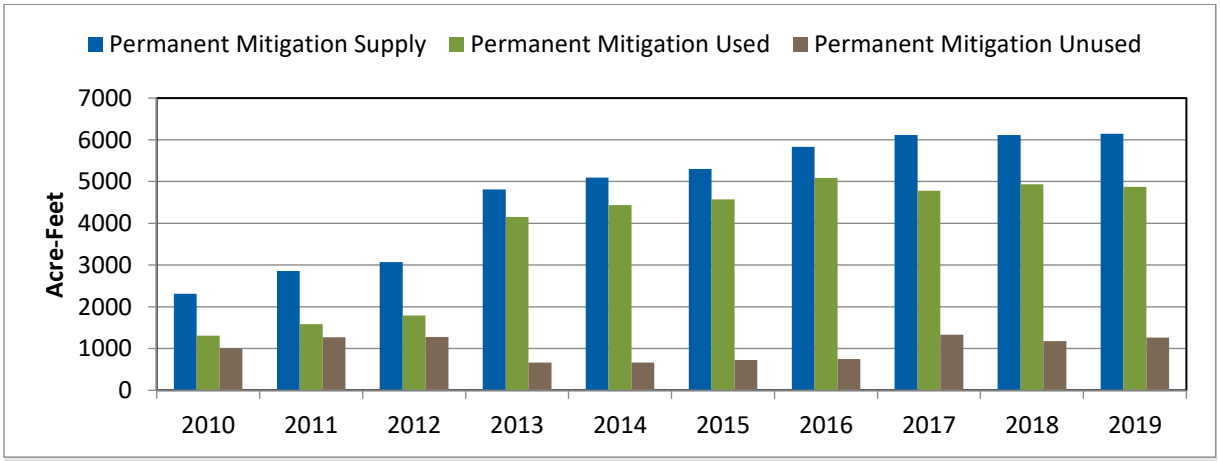

Figure 24: Supply and Use of Permanent Mitigation

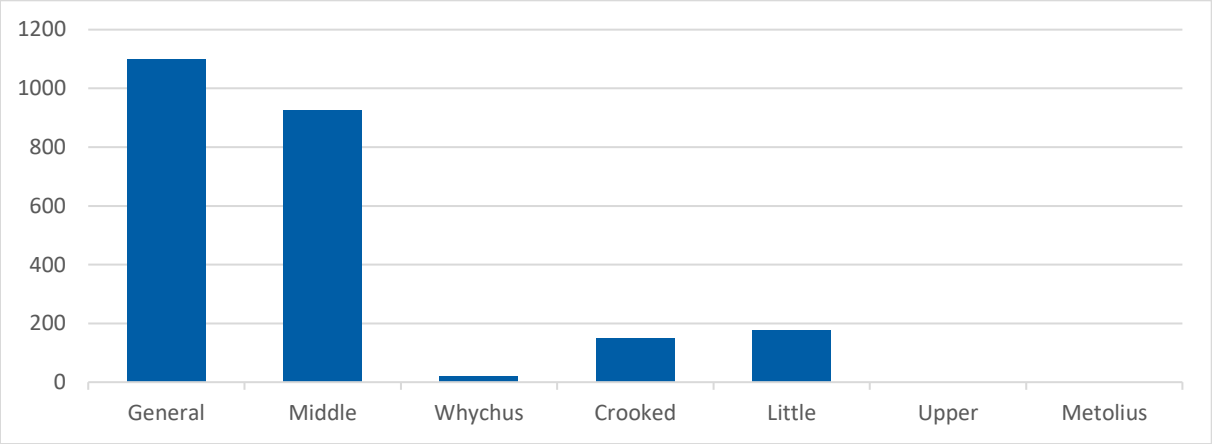

Figure 25: Mitigation Credits Available by Zone of Impact

OWRD maintains a tracking system of mitigation credits, mitigation credit holders, and use of mitigation credits. This information is available upon request from OWRD.

B. Consumptive Use:

Stakeholder Comments: The Department of Environmental Quality (DEQ) stated that the consumptive use coefficient used to determine mitigation requirements and mitigation credits should reflect the actual use, including frequency of annual use, and use type (such as pivots vs flood irrigation, vs domestic use) the consumptive use of a senior right with sprinkler irrigation is much higher than the consumptive use of a junior right with flood irrigation. Leasing an infrequently used inefficient use instream to mitigate for a highly efficient frequent use would lead to inaccuracies in accounting.

Central Oregon Cities Organization has commented that the success of the program does not require a reduction in consumptive use for each mitigation proposal.

OWRD Response: OWRD uses a standardized set of consumptive use coefficients to determine mitigation needs in the DGWSA. The coefficients used are the same as those used in other OWRD processes, including OWRD's Water Availability Model.

The following consumptive use coefficients are used by OWRD for determining mitigation obligations of proposed groundwater permit applications:

- Irrigation: 1.8 acre-feet per acre
- Municipal Use (year round): 40% of the annual volume
- Mining (such as gravel washing): 50% of the annual volume
- Domestic Use: 20% of the annual volume
- Commercial Use: 15% of the annual volume
- Agricultural Use (such as temperature control): 50% of the annual volume
- Storage and maintenance for a small reservoir/pond: 2.67 acre-feet per surface area acre
- Industrial use: 10% to 100% of the annual volume depending on the specific type of industrial use

The consumptive use coefficients are averages. If an application, or other information provided to OWRD (such as through public comment), suggests that the consumptive use should be higher or lower, OWRD will evaluate the application using the best information available.

Each groundwater permit issued under the Mitigation Program is also conditioned to require additional mitigation should OWRD determine that the average annual consumptive use has increased beyond the originally mitigated amount (See OAR 690-505-0620(1)(g)).

At this time, OWRD does not anticipate changing how mitigation obligations are calculated. However, should better information become available for consumptive use estimates, OWRD will review that information and determine whether any changes or updates are needed.

C. Permanent mitigation credits used temporarily:

Stakeholder Comment: Clyde Snow, LLC commented that the Department consider a mechanism to allow permanent mitigation credits to be assigned "temporarily" to groundwater permits, in particular, cities could benefit from a rule that would allow more certainty than using temporary mitigation based on instream leases, such a rule also could address the problem of finding mitigation outside of the irrigation season. Further comments conveyed a need for allowing creative solutions such as temporary assignment of permanent mitigation credits, forbearance agreements or other similar mechanisms that will add flexibility and address the needs outlined above. It was suggested that OWRD reconsider these issues during this evaluation and pursue a collaborative process for the evolution of this program.

OWRD Response: It is not clear how temporary assignment of permanent mitigation credits could be done at this time. However, OWRD does anticipate that changes will need to be made to the Mitigation Program rules based upon identified programmatic improvements.

D. Consideration of the Impacts of Exempt Wells:

Stakeholder Comment: WaterWatch of Oregon identified that OWRD should be either requiring mitigation for exempt wells that are junior to the instream water rights or regulating those uses off for injury to instream water rights.

OWRD Response: Use of water from exempt wells is not part of the Deschutes Basin Groundwater Mitigation Program; therefore, such discussion is not included in this report.

E. Use of Storage Releases and Allocations of Conserved Water as Mitigation Projects:

The Mitigation Program rules identify several project types that could be used to establish mitigation in the Deschutes Groundwater Study Area. These include instream transfer applications, allocations of conserved water, storage releases, aquifer recharge and instream lease applications. To date, no mitigation has been established from an aquifer recharge project nor an allocation of conserved water application.

Stakeholder Comments: WaterWatch, identified that use of allocations of conserved water and aquifer recharge for mitigation should be deleted as possible mitigation projects in the rules.

Others, including Central Oregon Cities Organization, expressed interest in and the need to look at other types of mitigation projects, including stored water and allocations of conserved water, as possible sources of mitigation; perhaps combinations of projects.

OWRD Response: OWRD agrees that additional types of mitigation projects should be carefully considered before being implemented to assure that the goals of the Mitigation Program continue to be met.

Central Oregon Cities Organization (Attachment 1)

Central Oregon Cities Organization

Bend, Culver, La Pine, Madras, Maupin
Metolius, Prineville, Redmond, Sisters

September 11, 2020

Sarah Henderson
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301

Sent VIA Electronic mail

RE: Deschutes Basin Groundwater Mitigation Program – 5-year Review

Dear Ms. Henderson:

The Central Oregon Cities Organization (COCO) appreciates the opportunity to provide input on the Deschutes Basin Groundwater Mitigation Program (Mitigation Program) as part of the 5-year review under ORS 540.155.

COCO was formally established in 2002 and has grown to include the cities of Bend, Culver, La Pine, Madras, Maupin, Metolius, Prineville, Redmond and Sisters. COCO's purpose is to effectively and efficiently promote common interests of the cities in Central Oregon for issues such as transportation, economic development, school funding, tax reform, and water. COCO has specifically established a water subcommittee that meets each month to discuss basin-wide water issues, including the Mitigation Program.

Since 2002, new groundwater uses in the Deschutes Basin (the main water supply for COCO's members) require "mitigation." Historically, this mitigation has been developed in partnership with irrigation districts in the basin. However, even during the height of City/district collaboration the process for mitigation credit establishment was unpredictable, costly, time consuming and out of sync with long-term planning needs. With recent events in the Deschutes Basin (such as the need for some irrigation districts to forego winter storage to provide habitation restoration), the districts are feeling water supply insecurity and the historic process for establishing mitigation credits has all but ceased. This has led to an "everyone for themselves" approach to mitigation and unprecedented speculation. This new reality coincides with the Bureau of Reclamation's 2016 Upper Deschutes Basin Study, which among other things estimated the need for up to 16,000 acre-feet of mitigation to meet the 50-year City and private water provider projected groundwater mitigation demand.

Meeting the Deschutes Basin's mitigation demand is of critical importance to COCO and a key component of a thriving Central Oregon economy. To this end we offer the following input:

Overarching Goals of the Mitigation Program: When the Mitigation Program was established the Department clearly articulated the dual purposes of the program - to allow for some continued development of new groundwater use within the Deschutes Study Area while ensuring that

1

scenic waterways and instream flows were protected. (See OWRD's September 13, 2002 staff report to the Oregon Water Resources Commission requesting adoption of the Mitigation Program rules, which states that the rules "provide for mitigation of impacts to scenic waterway flows and senior water rights while allowing additional qualifying appropriations of ground water.") This balanced approach is a hallmark of the Mitigation Program. It is extremely important that the Department not lose sight of the dual goals of the program and be mindful of both elements when reviewing the program and considering potential changes.

Measuring Efficacy of the Mitigation Program: The Department rules are clear that the efficacy of the Mitigation Program is to be measured by evaluating "whether scenic waterway flows and instream water right flows in the Deschutes Basin continue to be met on at least an equivalent or more frequent basis as compared to long-term, representative base period flows established by the Department." (See OAR 690-505-0500). In this regard, the Department has shown year after year that the program is successful. In continued evaluation of the Mitigation Program, the Department must rely on this fundamental measuring stick and resist mischaracterizations of how success of the program should be measured. Success of the program does not require a reduction in consumptive use for each mitigation proposal, nor does it require things like improvement in habitat or water quality. Basin-wide efforts, such as the Deschutes Basin Water Collaborative are the forum for addressing broader restoration and improvement issues.

Mitigation Associated with Stored Water Projects: The Department and several basin stakeholders have raised concerns that flows in some Deschutes Basin streams are lower than desired during the time period outside of the irrigation season, and that the Mitigation Program typically does not function to increase flows during that time period. Despite this recognized need to protect water instream outside of the irrigation season, and the fact that water associated with storage projects can meet this need, there is continued resistance to the use of stored water for mitigation. In reviewing the Mitigation Program the Department should work cooperatively with Basin stakeholders to successfully establish use of stored water as a viable mitigation option. It is understood that the release of stored water as a mitigation project may not result in a specific reduction in consumptive use; however, as mentioned above the measured efficacy of the overall Mitigation Program does not require that each mitigation project reduce consumptive use. The use of stored water for qualifying mitigation, through the protection instream of either the storage right or the "secondary" water right, can provide important ecological benefits and meet the dual purposes of the mitigation program.

Mitigation Associated with Allocation of Conserved Water Projects: As the Department is aware, allocations of conserved water can maintain the viability of an irrigator (or irrigation district) and restore stream flows. In the Deschutes Basin, numerous allocations of conserved water, funded by state and federal money have resulted in senior water rights being placed instream for restoration. These restoration efforts meet many of the objectives of the mitigation program (restoring flows for instream water rights and scenic waterways) yet there has been no overlap between the two programs to date. Given the multiple benefits of allocations of conserved water, COCO and other entities in the Basin continue to be interested in the use of allocations of conserved water to establish mitigation credits. COCO believes that allocation of conserved water projects can be "packaged" with other projects to meet the dual objectives of the mitigation program.

Lack of Available Permanent Mitigation Credits and State-Funded Bank: Currently, there is no framework or formal mechanism to find and acquire permanent mitigation credits. Each entity or person seeking permanent mitigation credits is on their own, leading to an inefficient and unpredictable permanent mitigation supply. Equally concerning is that the lack of permanent mitigation credits "on-the-shelf" has led to speculation and outrageous costs for mitigation

credits. There needs to be a structure, such as a publically funded, neutral mitigation bank, that can be a clearing house for permanent mitigation credits when they become available. Currently, there is no state support for the Mitigation Program other than processing water right applications and tracking mitigation. In reviewing the Mitigation Program the Department should consider a more active and leadership role; a role that could leverage multiple state-funded projects that result in water legally protected instream and that should also count for qualifying mitigation credits.

Mitigation Program Sunset: It is COCO's understanding that by statute the current Mitigation Program Rules in OAR Chapter 690, Division 505, sunset in 2029. This looming deadline creates significant uncertainty for COCO members that are planning on 20, 50 and 100 year horizons; planning for infrastructure, financing, land use, etc. This must be addressed as soon as possible and the Department should be in an active leadership role to renew the sunset based on the success of the program to meet specific benchmarks and measuring sticks outlined in the Mitigation Program rule.

The Deschutes Basin is chock-full of water-related activity including: the development of a Habitat Conservation Plan; law suits and settlements over the spotted frog; changes in reservoir management; the recently completed Upper Deschutes Basin Study; the recent establishment of the Deschutes Basin Water Collaborative; and the 5-year evaluation of the Mitigation Program and the looming program sunset. As a backdrop to all of these activities, COCO is looking to the Department for policy-level engagement and pro-active leadership. Foremost on our minds is the need for predictable, affordable and efficient groundwater mitigation.

We look forward to on-going dialog with the Department and reviewing the draft report 5-year review when available.

Sincerely,

Steve Uffelman
Mayor, City of Prineville,
Chair, Central Oregon Cities Organization Water Subcommittee

Oregon Department of Environmental Quality (DEQ) (Attachment 2)

Oregon

Kate Brown, Governor

Department of Environmental Quality
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475 NE Bellevue Drive, Suite 110
Bend, OR 97701
(541) 388-6146
FAX (541) 388-8283
TTY 711

July 24, 2020

Sarah Henderson
Flow Restoration Program Coordinator
Oregon Water Resources Department
725 Summer St. NE, Suite A
Salem, OR 97301

RE: DRAFT 2019 Annual Review of the Deschutes Groundwater Mitigation Program

Dear Ms. Henderson,

The Oregon Department of Environmental Quality appreciates the opportunity to provide comments on the Oregon Department of Water Resources' Draft 2019 Annual Review of the Deschutes Groundwater Mitigation Program.

The Deschutes Groundwater Mitigation Program is intended to protect instream flows for scenic waterways and senior water rights including instream water rights. Protecting instream flows is an essential part of protecting water quality. When flows are diminished by withdrawals or other causes, streams have less capacity to assimilate pollutants and become less resilient to climate changes. In other words, protecting instream flows keeps our streams fishable, swimmable, and drinkable. ODEQ has reviewed the draft report and has several comments and concerns.

ODEQ concurs with ODFW's comments

ODFW submitted comprehensive comments on the Draft 2019 Annual Review on July 22, 2020. ODEQ concurs with ODFW's comments and will not repeat those comments here.

Time lag of impacts

The impacts of groundwater withdrawals affect groundwater flow patterns at a regional scale and therefore we may not see flow diminishment in streams for many years. In the meantime, mitigation water increases instream flows immediately. This makes it seem like the mitigation program is a success. However, future decades may see a decline in streamflow from today's groundwater withdrawals and additional mitigation may become necessary. Monitoring streams and springs throughout the basin and reviews of the Deschutes Groundwater Mitigation Program need to continue for decades to ensure that the Program meets its goals of protecting instream flow.

Spatial consideration of impacts

Streamflows in the upper portions of the basin are more susceptible to diminishment under the Program. Groundwater flow paths are shorter, which means that the impacts of increased groundwater withdrawals on

streamflow are likely to show up sooner. Also, mitigation credits may come from anywhere within the Zone of Mitigation. This means that mitigation credits near the mouth can be used to offset a withdrawal near the headwaters. In this example, it is unlikely that the mitigation project at the mouth would mitigate the local impact to streamflow in the headwaters. DEQ recommends that mitigation projects be sited upgradient from groundwater withdrawals.

Similarly, groundwater withdrawals with direct, local impacts to streams, as determined by OWRD's Groundwater Section, should be mitigated by projects upstream of the diminished reach.

Accuracy of accounting

The consumptive use coefficient used to determine mitigation requirements and mitigation credits should reflect the actual use, including frequency of annual use, and use type (such as pivots vs flood irrigation, vs domestic use. The consumptive use of a senior right with sprinkler irrigation is much higher than the consumptive use of a junior right with flood irrigation. Leasing an infrequently used inefficient use instream to mitigate for a highly efficient frequent use would lead to inaccuracies in accounting.

Suggestions for report improvements

The Annual Review should clarify which types of water rights are included in the Deschutes Groundwater Mitigation Program. OWRD issues many types of water rights including surface water, groundwater, reservoir, limited licenses, use of stored water, instream water rights, transfers, leases, alternate reservoir, etc. It was recently brought to my attention that limited licenses are not required to be mitigated by the Program. Which water rights are required to be mitigated by the Program?

In Figure 4, it would be helpful to have a second set of bars that should how much water has been allocated in each zone.

Define "established mitigation" and "temporary mitigation credit" on page 3.

The Appendix 3 tables are very helpful. It would be even more helpful if the report could summarize this information in a map (or set of maps) or a chart.

Thank you, again, for the opportunity to comment. I look forward to continuing conversations with OWRD on the Deschutes Groundwater Mitigation Program and working together to ensure the protection of instream flows in Oregon.

Sincerely,

Smita Mehta
Deschutes Basin Coordinator

John Short, Bend, Oregon (Attachment 3)

HENDERSON Sarah A * WRD

From: John Short <johnshort@usa.com>
Sent: Sunday, August 16, 2020 6:06 PM
To: HENDERSON Sarah A * WRD
Subject: Deschutes Basin Groundwater Mitigation Program

Hey Sarah,

The 5 year evaluation and annual review look fine. Thanks for the chance to review.

Sincerely
John

John A. Short CCB# 197121

541-389-2837

Water Right Services, LLC
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Bend, OR 97709
johnshort@usa.com
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Oregon Department of Fish and Wildlife (ODFW) (Attachment 4)

Oregon
Kate Brown, Governor

Department of Fish and Wildlife
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www.dfw.state.or.us/

September 14, 2020

Sarah Henderson
Flow Restoration Program Coordinator, Transfer and Conservation Division
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271

RE: Deschutes Basin Mitigation Program Evaluation (ORS 540.155 and OAR 690-505) Feedback

Dear Ms. Henderson,

The Oregon Department of Fish and Wildlife (ODFW) appreciates the opportunity to provide feedback in preparation for the Deschutes Basin Mitigation Program Evaluation (ORS 540.155) and Five-Year Administrative Evaluation (OAR 690-505). Overall, ODFW agrees that the Deschutes Groundwater Mitigation Program (Program) has been successful in maintaining and improving flows in the middle and lower Deschutes River during the irrigation season. Increases in stream flow during the irrigation season in the Middle Deschutes has provided an added benefit to the overall objective of the rules, which are to maintain Scenic Waterway flows in the lower Deschutes River. However, as we acquire more information about the additional detrimental impacts to fish and wildlife expected in the future from a changing climate, we have increasing concerns about water accounting, the impacts to springs, and decreases in flow during the non-irrigation season. These issues are also of immediate concern, as water users are currently moving ahead with innovative means to secure future mitigation credits that may not fully meet the needs of fish and wildlife in the basin (e.g., proposed winter reservoir releases with unclear mitigation intent).

Since inception of the Program, ODFW has annually submitted comments that address our ongoing concerns with the Program. We are pleased that the Oregon Water Resources Department (OWRD) will soon convene sister agencies to revisit the statutes and rules in preparation for the upcoming 5-year Program review. ODFW looks forward to continuing conversations and advising the

agency on ways to strengthen the efficacy of the Program to improve and protect instream flow for fish, wildlife, and their habitats.

Because the agencies have not yet met to discuss concerns and seek solutions, ODFW will review our primary concerns here. Specifically, these tangible improvements to the Program need to be addressed before the 200 cfs cap on the Program is lifted:

Water Accounting and Impacts of Climate Change

A. ODFW recommends the Program include a protocol for monitoring, accounting (measuring), and reporting the volume of water transferred instream from annual mitigation credits in each zone of influence. Currently, the Deschutes River Conservancy tracks and accounts for the administrative transfer of water instream, but the verification and measurement of actual "wet water" used as mitigation in each zone is limited. A monitoring program to ensure mitigation is providing a true offset for impacts as initially intended and remains available as "wet water" in perpetuity (or for the life of the project) is necessary for assessing effectiveness of the Program. This may require additional gauges and flow measurement beyond what is currently in place.

   We know that climate change will exacerbate existing issues and alter streamflow, temperatures, and adjacent landscape characteristics necessary to support fish and wildlife populations. As we acquire more information about the detrimental impacts to fish and wildlife expected from a changing climate, closely monitoring groundwater use and associated mitigation is a necessity for the Program. In fact, Gannett and Lite, in their 2013 report "Analysis of 1997–2008 Groundwater Level Changes in the Upper Deschutes Basin, Central Oregon," found that groundwater flow model simulations indicated that climate variations have the largest influence on groundwater levels throughout the upper Deschutes Basin.

B. A portion of the water supporting the Mitigation Program is leased instream. ODFW is concerned with mitigating permanent groundwater rights with temporary leased water. This could set up the potential in the future to not have enough mitigation water to cover all the permanent groundwater rights that need mitigated. In cases where permanent groundwater pumping certificates have been granted, temporary instream leasing provides no certainty that the mitigation will remain in place for the life of the permit and/or certificate. Past Program reports have identified permit holders that have allowed temporary credits to expire

while continuing to irrigate. It is not clear if this issue has been addressed. Therefore, OWRD should increase compliance monitoring and immediate regulation of non-compliant participants. ODFW proposes that OWRD and program partners work more proactively to provide permanent mitigation water (permanent instream transfers) to offset groundwater pumping.

C. ODFW recommends modifying the presentation of flow data. The annual reports for the Program consistently present flow data on a monthly and annual basis, which demonstrate minor changes in flow. Because fish and other aquatic organisms are very susceptible to acute and chronic events (e.g., dewatered reaches or lower flow rates for extended periods), annual and even seasonal changes do not necessarily reflect true impacts to aquatic life. ODFW recommends presenting flow data in a form that is more relevant to fish needs, such as improvements in low flows, variability in flows throughout the year, and flows during critical time periods for fish.

Zonal Mitigation

Allowing mitigation for groundwater impacts to occur away from the point of impact but within a larger "Zone of Impact" results in localized impacts to streams and the fish and wildlife they support. This is particularly true for the General Zone. Mitigation under the Program should directly offset the impact by being located upstream of the impacted reach consistent with the Program goals to provide for new ground water uses while maintaining scenic waterway and instream water right flows in the Deschutes Basin.

Impacts to Springs

ODFW continues to express concerns with the localized impacts of groundwater pumping on local springs. Springs provide very important cold water inputs to streams by providing cold water refugia and other habitat benefits for fish and by helping to cool stream temperatures during the summer in streams with depleted flows. Over time, continued and increased groundwater withdrawal for agricultural, residential, and municipal needs will further affect springs when there is a surface/groundwater connection. Impacts to springs from current and future groundwater withdrawals are exacerbated by the increasing trend to convert area irrigation canals to piped delivery systems. While this is positive in that it generates conserved water that currently results in improved instream flows in the middle Deschutes River, it also eliminates seepage which recharges the aquifer and contributes to spring recharge of cold water. The result is an exchange (loss)

of cold spring water for warmer water upstream. Further, any future shift for conserved water projects that return flow to the upper Deschutes River to benefit the Oregon Spotted Frog (*see* **Impacts During the Non-Irrigation Season**), particularly during the winter months, will add additional stress on the middle Deschutes and lower Crooked rivers in the valuable spring recharge areas. The fisheries impacts from these inconsistencies are likely to become more pronounced in future years as climate change continues to be increasingly more influential. Cold water refugia could likely become critical to long-term persistence of many fish species and populations and should be considered in water management decisions and when assessing effectiveness of the Program.

ODFW requests that OWRD consider implementing a program to monitor key springs/spring complexes in the basin to determine ecological impacts to spring flow, including temperature and nutrient changes resulting from groundwater pumping. Monitoring impacts of groundwater pumping on springs and spring complexes is important in respect to their aquatic habitat, botanical, wildlife, water quality, water quantity, and societal values. This issue was recognized by state and federal agencies several years ago, but work to address the concerns faded due to other priorities. ODFW would like to re-engage on the spring flow concerns and is willing to work with other agencies to seek funding, coordinate efforts for research, and develop and implement a strategy to address these concerns.

Impacts During the Non-Irrigation Season

As currently designed, the Program mitigates year-round groundwater withdrawals with irrigation season water and reports changes to streamflow on an annual basis. This type of mitigation does provide for more instream water during the irrigation season, as is consistently reported, but is also reported to reduce flows in the lower river during the non-irrigation season. Critical fish life history components occur outside of the irrigation season, particularly during "shoulder months" at the beginning and end of the irrigation season (March/April and October/November).

In addition, current implementation of the Program poses potential impacts to the ESA-listed Oregon Spotted Frog (OSF) outside of the irrigation season. Improving winter flows on the upper Deschutes River below Wickiup Reservoir and on Crescent Creek is essential to the survival of the OSF, and freshwater spring habitats in the upper Deschutes Basin have been identified as critical to overwinter survival.

The continual detrimental impact to streamflow during the non-irrigation season is now a greater concern for more than just the "shoulder months." Most stakeholders recognize that non-irrigation flow concerns still need to be addressed for the Deschutes basin as a whole. In the past, OWRD recognized this concern as well. One option, which is currently being sought by water users in the basin, would be to release stored water in Wickiup, Crane Prairie, Crescent and other reservoirs instream during the winter and shoulder months. ODFW recognizes the release of stored water during the non-irrigation season as a valuable tool for supplementing the existing mitigation credits that are currently limited to the irrigation season. Winter releases would aide in offsetting impacts of groundwater withdrawal on a true 1:1, year round basis, but only if utilized as mitigation for winter impacts and in partnership with other mitigation applied to the irrigation season. To fully mitigate impacts to fish and wildlife resulting from groundwater withdrawals, mitigation credits should apply the appropriate volume and quality of water to both the middle and upper Deschutes River on a year round basis.

200 CFS Cap

Stream flows outside the irrigation season are important to fish for a number of reasons, including providing habitat for spawning, rearing habitat throughout the year, and especially for spring outmigrating salmon and steelhead beginning in March and continuing through May. When the Program rules were developed, all parties recognized the Program would reduce flows in the lower river during the non-irrigation season. Because of this, the 200 cfs cap was put in place to limit flow reduction impacts in the lower river outside of the irrigation season and allow for an overall assessment of the Program. All stakeholders at the time recognized that non-irrigation flow concerns still needed to be addressed for the Deschutes basin as a whole.

ODFW would like OWRD and program partners to work with us to seek clear options for year-round mitigation to offset year-round impacts. Therefore, the 200 cfs allocation cap should remain until such time as the winter flow issues can be resolved. Maintaining the cap will ensure that groundwater reductions due to unmitigated, non-irrigation season use is kept to a minimum (*see* **Impacts During the Non-Irrigation Season**).

Review of Mitigation Projects

OWRD works in cooperation with ODFW to enhance the resource benefits and make the most effective use of mitigation projects and mitigation water (OAR 690-505-0615(7)).

ODFW Comments 9/14/20

Currently, ODFW's understanding is that in practice, WRD is seeking input regarding shaping of mitigation flows for proposed mitigation projects. However, this shaping is limited to the season of the original water right and some certificates have protocols that preclude releasing higher amounts during shoulder months. As such, ODFW is limited in our ability to effectively comment on mitigation projects so that they maximize benefits to fish and wildlife. ODFW would like to provide more meaningful input that benefits fish and wildlife year round in reach-specific locations, which may require updates to the existing rules. This will aide in ensuring that mitigation is offsetting the local impact and not resulting in impacts during the non-irrigation season.

Thank you for the chance to comment. We look forward to revisiting Program goals and rule language and pursuing solutions to our concerns in upcoming discussions as OWRD plans for Program updates. In the meantime, the 200 cfs cap should not be lifted until these issues are resolved, and the Commission can determine that scenic waterway flows and instream water right flows in the Deschutes Basin continue to be met year round on at least an equivalent or more frequent basis as compared to long-term, representative base period flows established by the Department per OAR 690-505-0500(4). If you have any questions, please contact me (503-947-6092) in Salem or Brett Hodgson (541-388-6363) in Bend.

Sincerely,

Danette Faucera, Water Policy Coordinator

Brett Hodgson, Deschutes District Fish Biologist

References:

Gannett, M.W., and Lite, K.E., Jr., 2013, Analysis of 1997–2008 groundwater level changes in the upper Deschutes Basin, Central Oregon: U.S. Geological Survey Scientific Investigations Report 2013-5092, 34 p., http://pubs.usgs.gov/sir/2013/5092.

Oregon Farm Bureau, Deschutes County Farm Bureau, Crook-Wheeler County Farm Bureau, Jefferson County Farm Bureau (Attachment 5)

September 11, 2020

Sarah Henderson
Flow Restoration Program Coordinator
Transfer and Conservation Section
775 Summer St NE, Suite A
Salem, OR 97301

Submitted Via Email: sarah.a.henderson@oregon.gov

Re: Deschutes Basin Mitigation Program Evaluation Feedback Request

Ms. Henderson:

Thank you for the opportunity to provide feedback on the Deschutes Basin Mitigation Program Evaluation. Our members are concerned about the impacts of the Deschutes Basin Mitigation Program on farmers and ranchers in Central Oregon and urge the Department to undertake a comprehensive review of the science behind the program and the ongoing need for the program.

By way of background, OFBF is a voluntary, grassroots, nonprofit organization representing Oregon's farmers and ranchers in the public and policymaking arenas. As Oregon's largest general farm organization, its primary goal is to promote educational improvement, economic opportunity, and social advancement for its members and the farming, ranching, and natural resources industry. Today, OFBF represents nearly 7,000-member families professionally engaged in the industry. Deschutes, Jefferson, and Crook-Wheeler County Farm Bureaus represent 320-member farming families in Deschutes, Jefferson, and Crook counties, many of whom are directly impacted by the Deschutes Basin Mitigation Program.

Agriculture is critical to the Central Oregon economy. According to the 2017 census of agriculture, Deschutes County boasts 1,494 farms on 134,600 acres that contribute $28,769,000 in market value of agriculture products to the economy, Jefferson County has 397 farms on 792,920 acres that contribute $67,438,000 in market value, and Crook County has 620 farms spanning 799,845 acres that contribute $44,563,000. The totals over 2,500 farms, 1.7 million acres of farmland, and **over $140 million** in market value of agricultural products from farms in Central Oregon. Critically, these farms also provide fish and wildlife habitat, protect water quality, and protect open space and recreational areas for Oregonians.

Our members have been concerned about the Deschutes Basin Mitigation Program since its early inception. In the last several years, the program has resulted in removal of hundreds of acres of farmland from irrigated production, as cities look to irrigation water to provide mitigation for their growth. The removal of water rights from agricultural land severely reduces the value of the land, which can then depress property values for agricultural lands regionally. Critically, the removal of irrigation water makes it increasingly likely that the land will be removed from agricultural production. Within an irrigation district or agricultural area, this conversion can lead to a reduction in the overall agricultural community, as we have seen farm supply stores, tractor dealers and other infrastructure move away as farms in Central Oregon go out of business. In this respect, we are concerned that the Program conflicts with Oregon's land use planning goals, as it effectively banks irrigation water (and therefore agricultural land) for future use for cities in violation of Goal 3, which protects agricultural land for agricultural production.

Additionally, we are concerned that the Program is based on questionable and outdated science. It is our understanding that the Program was created based on a United States Geological Survey (USGS) study from the late 1980s that found that the Deschutes River was connected to all groundwater within the Program boundaries. We understand that there has been subsequent data and information that has further refined and called into question some of the assumptions contained in the early studies, but that the Program was not meaningfully adjusted or changed based upon this more recent information. Given that the program is having a major impact on both urban and rural communities in Central Oregon, the science underpinning its existence should be comprehensively reviewed and updated given the length of time that has passed since the program's inception.

Further, we are concerned that the program is not supported by a finding that the basin has been removed from appropriation or that groundwater is in limited supply. Indeed, the USGS study indicates that the primary aquifer is quite large. Further, we understand that there is no measurable impact to the river flows at the mouth of the Deschutes that would justify such a restriction on ground water withdrawals. We strongly encourage you to revisit the science and legal underpinnings supporting the program.

We also want to be clear that we support the recent Habitat Conservation Plan developed by a number of irrigation districts and cities in Central Oregon and want to ensure that plan remains implementable by the districts and cities. While we do not believe that preservation of the Program is essential to implement the HCP, we want to be clear that we support that work by the impacted irrigation districts, cities, and farmers.

Thank you for the opportunity to provide feedback and do not hesitate to contact us if you have any questions.

Sincerely,

Mary Anne Cooper
Vice President of Public Policy
Oregon Farm Bureau Federation
maryanne@oregonfb.org
(503) 799-1701

Matt Cyrus
President
Deschutes County Farm Bureau

Tim Deboodt
President
Crook-Wheeler County Farm Bureau

Sue Vanek
President
Jefferson County Farm Bureau

Clyde Snow LLC on behalf of Shanda Asset Management, LLC (Attachment 6)

ClydeSnow
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WAYNE Z. BENNETT∞
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T. EDWARD CUNDICK∞◊
REAGAN L.B. DESMOND∞¤
CLARK W. SESSIONS∞†
JAKE TAYLOR∞Δ
NATHAN B. WILCOX∞

EDWARD W. CLYDE (1917–1991)

† SENIOR COUNSEL
∞ ADMITTED IN UTAH (NOT ADMITTED IN OREGON)
▪ ALSO ADMITTED IN ARIZONA
¤ ALSO ADMITTED IN CALIFORNIA
◊ ALSO ADMITTED IN DISTRICT OF COLUMBIA
Δ ALSO ADMITTED IN FLORIDA
ø ALSO ADMITTED IN NEW YORK
◊ ALSO ADMITTED IN TEXAS
∞ ALSO ADMITTED IN UTAH
π ALSO ADMITTED IN WYOMING

September 11, 2020

Via Email and U.S. Mail

Sarah A. Henderson
Flow Restoration Program Coordinator
Transfer and Conservation Section
Oregon Water Resource Department
725 Summer Street, NE, Suite A
Salem, OR 97301-1271
Sarah.A.Henderson@oregon.gov

Re: Comments on Deschutes Basin Ground Water Mitigation Program Evaluation (ORS 540.155)

Dear Ms. Henderson:

Thank you for providing notice of the Deschutes Basin Groundwater Mitigation Program Evaluation currently underway pursuant to Oregon Revised Statutes 540.155. As the Department prepares its combined report, we submit these preliminary comments on behalf of Shanda Asset Management, LLC, requesting certain issues be included in the review.

We understand the Oregon Department of Fish and Wildlife (ODFW) and other stakeholders in the past have raised concerns regarding the narrow availability of mitigation credits, which are limited primarily to the irrigation season. (*See* Letters from ODFW dated July 22, 2020 re: DRAFT 2019 Annual Review of the Deschutes Groundwater Mitigation Program and October 17, 2018 re: Combined Report for 2017 and the Five-Year Administrative Evaluation.) We also recognize a need for year round mitigation credits. To that end, we encourage a process that will seek creative solutions to this problem.

{01747914-1 }

ClydeSnow

During the prior Five Year Evaluation process, other stakeholders encouraged the Department to consider a mechanism to allow permanent mitigation credits to be assigned temporarily to groundwater permits. (*See* Review of Deschutes Ground Water Mitigation Program, December 23, 2016, p. 49.) In particular, cities could benefit from a rule that would allow more certainty than using temporary mitigation based on instream leases. Such a rule also could address the problem of finding mitigation outside of the irrigation season.

We believe the statutory evaluation process currently underway is intended to identify and facilitate programmatic improvements to the Deschutes Ground Water Mitigation Program. A procedure for allowing creative solutions such as temporary assignment of permanent mitigation credits, forbearance agreements or other similar mechanisms will add flexibility and address the needs outlined above. We respectfully request the Department reconsider these issues during this evaluation and pursue a collaborative process for the evolution of this program. We also request to be included on future notice lists, and we welcome any opportunity to further inform this process.

Very truly yours,

CLYDE SNOW & SESSIONS, PC

Reagan L.B. Desmond

Cc: Chris Johnson, Shanda Asset Management, LLC

{01747914-1 }

Confederated Tribes of Warm Springs (Attachment 7)

CONFEDERATED TRIBES OF WARM SPRINGS 1855

Confederated Tribes of Warm Springs, Oregon
PO Box C
Warm Springs, OR 97761
Phone: 541-553-1161
Fax: 541-553-1924

August 12, 2020

Via email: Sarah.A.Henderson@oregon.gov

Sarah A. Henderson
Oregon Water Resources Department
725 Summer Street, NE Suite A
Salem, OR 97301

Re: Deschutes Basin Mitigation Program Evaluation ("Program")

Dear Ms. Henderson:

I am the Branch of Natural Resources General Manager for The Confederated Tribes of the Warm Springs Reservation of Oregon ("Tribe"), which is a federally recognized, self-governing, sovereign Indian tribe and is the legal successor in interest to the Indian signatories to the Treaty between the United States of America and the Tribes of Middle Oregon, dated June 25, 1855, 12 Stat. 963, ("1855 Treaty" or "Treaty"). I am in receipt of your July 16, 2020 email soliciting feedback from stakeholders regarding the Deschutes Basin Mitigation Program Evaluation ("Mitigation Program") that is being undertaken by the Oregon Water Resources Department ("Department").

The Tribe has many sovereign interests in the Deschutes Basin; those interests include, but are not limited to, the protection and enhancement of the Warm Springs Reservation and the Tribe's treaty-reserved rights to take fish and have a harvestable population of fish to take throughout the Basin, which is within the Tribe's ceded and aboriginal lands. As a sovereign, governmental co-manager of the Deschutes River, the Tribe intends to participate in the Department's evaluation of the Mitigation Program. I anticipate that our Tribal Council will likely seek a government-to-government consultation with the Director Byler and appropriate staff to discuss Mitigation Program. Unfortunately, Covid-19 has caused a temporary shutdown of most Tribal offices, including Tribal Council, and I cannot say with any certainty as to when we can schedule the consultation.

I have asked one of our Tribal attorneys, Josh Newton, to follow up with you. I want to be sure that we are able to provide the Tribe's input on the Mitigation Program in a timely fashion. Thank you.

Sincerely,

Robert A. Brunoe

ROBERT A. BRUNOE
General Manager, CTWS Branch of Natural Resources
RAB/ehg

cc: Raymond Tsumpti, Tribal Council Chairman
Tom Byler, Director, Oregon Water Resources Department
Josh Newton, Tribal attorney

WaterWatch of Oregon (Attachment 8)

WaterWatch of Oregon
Protecting Natural Flows In Oregon Rivers

September 14, 2020

Sarah Henderson
Restoration Program Coordinator, Transfer and Conservation Section
Oregon Water Resources Department
725 Summer St. NE, Suite A
Salem, OR 97301
Email: sarah.a.henderson@oregon.gov

Re: Deschutes Groundwater Mitigation Program Review

Dear Ms. Henderson,

Thank you for the opportunity to provide comments as the OWRD embarks upon its review of the Deschutes Groundwater Mitigation Program, as required by ORS 540.155 and OAR 690-505. WaterWatch is a river conservation group dedicated to restoring and protecting water for rivers, streams and aquifers statewide. WaterWatch has been working in the Deschutes Basin for over 30 years. We negotiated the groundwater provisions of the State Scenic Waterway Act that resulted in this program, served as a member of the Deschutes Workgroup that developed the Groundwater Mitigation Program, were a member of the facilitated workgroup that provided input into the 2009 Legislative Report, have participated in all rulemakings related to this program and monitor new groundwater permits and associated mitigation credits in the basin.

Most of the issues that we will recommend for review are longstanding issues that WaterWatch and others have noted need attention since the adoption of the rules. Some were at issue in WaterWatch of Oregon v. Water Resources Commission, 199 Or. App. 598, (2005), in which WaterWatch prevailed. While we appreciate that following the Courts ruling, the 2005 Legislature passed a law to get around the ruling by mandating that the rules are in compliance with the Scenic Waterway Act, that statute expires in 2029.

In the 15 years since the Court ruling that found that the rules did not meet the mandates of the Scenic Waterway Act, the OWRD has not taken any meaningful action to address identified resource concerns. The OWRD did undertake two additional rulemakings during this time, but both were limited to addressing issues that would allow greater flexibility to users without addressing any of the longstanding resource concerns. As the statutory deadline of 2029 approaches, we would urge the OWRD to address longstanding issues. As we have stated throughout the years, WaterWatch will oppose any altering upwards of the 200 cfs cap absent resolution of outstanding resource concerns.

WaterWatch of Oregon
Main Office: 213 SW Ash St. Suite 208 Portland, OR 97204
Southern Oregon Office: PO Box 261, Ashland, OR, 97520

www.waterwatch.org
Main Office: 503.295.4039
S. OR Office: 541.708.0048

- **Water Quality/Springs:** Currently the mitigation program does not include protections for water quality and/or spring flows. As groundwater pumping in the basin has increased, the program's impact on cold water springs that feed the Deschutes is of increased concern. This was identified in the 2009 Report to the Legislature, but OWRD has not invested significant time and/or resources to this issue. Solution: Work with ODFW and DEQ to develop sideboards to the program that will avert impacts to water quality and/or springs.

- **7j Permits:** Pages 46-47 of the 2009 Legislative Report provide a good background on this issue. Long story short, when SB 1033 was negotiated language was included that would allow regulation of water rights issued post 1995 if the OWRD determined that the Scenic Waterway Act's "measurable reduction standard" had been triggered. In 2001, the OWRD found that the standard had been triggered and that the post 1995 (7j) water right holders would need to mitigate. Rule language states that if 7j water right holders provided mitigation, they were not subject to OWRD regulation[3]. Legislative and administrative history makes clear the intent was that if 7j water right holders did not mitigate, OWRD would regulate. The OWRD has not, as of yet, required mitigation of the 7j water right holders. Post 1995 water rights with the 7j condition are in the order of 188 cfs; allowing continued use of these permits absent mitigation is negatively affecting both scenic waterway flows and senior instream water rights. Solution: OWRD should require mitigation of all post 1995 rights with the 7j permit condition.

- **Exempt wells:** The Deschutes Groundwater Mitigation Rules do not require mitigation by exempt well holders. While the Scenic Waterway Act explicitly excludes exempt wells from its mitigation requirements, this does not relieve the OWRD from its obligation to protect senior surface water rights, including senior instream water rights. In the late 1990's the OWRD found that PSI (potential for substantial interference) had been triggered in the basin. The exempt well statutes ORS 576.545 grant OWRD explicit authority to regulate exempt wells. Given instream water rights throughout the Deschutes are routinely not met, the OWRD should either be regulating them off, or requiring mitigation. Solution: Amend rules to require post 1995 exempt well holders to provide mitigation under the program.

- **What qualifies as mitigation under the program:** Currently the rules include a list of projects that "may" qualify as mitigation. That said, the potential projects must meet the parameters of the program, namely that it result in water that is legally protected

[3] OAR 690-505-0600 (4) Holders of existing ground water permits and associated certificates in the Deschutes Ground Water Study Area issued after July 19, 1995, with priority dates after April 19, 1991, that are specifically conditioned to allow regulation for measurable reduction of a state scenic waterway and that choose to provide mitigation meeting the standards of these rules shall not be subject to regulation for scenic waterway flows pursuant to ORS 390.835(9). A ground water permit or certificate for which a mitigation project has been approved by the Department prior to the effective date of these rules shall not be subject to regulation for scenic waterway flows pursuant to ORS 390.835(9).

instream. During rule development, numerous commenters (including WaterWatch, Bureau of Land Management and ODFW) raised concerns with the inclusion of "conserved water" on that list. As OWRD is aware, the Conserved Water Statute requires that before allocating the applicant's portion of the conserved water, mitigation must be provided to offset any impacts to other water right holders. Because of the unique hydrology of the Deschutes basin whereby water leaked via canals returns to the Deschutes, saved water cannot be "allocated" to any additional consumptive use without diminishing flows protected by instream water rights. In other words, legally Conserved Water cannot serve as mitigation as all saved water must go towards offsetting impacts of diminished recharge on instream rights. The OWRD has received draft advice from DOJ corroborating this point. Similarly, aquifer recharge also cannot serve as mitigation as there is no way under Oregon law to protect water "recharged" instream. Solution: to avoid ongoing confusion, both conserved water and aquifer recharge should be deleted as possible mitigation projects in the rules.

Conclusion: While WaterWatch supports the continuation of the Deschutes Groundwater Mitigation Program, we continue to believe that the program needs updating to ensure it meets the mandates of the state Scenic Waterway Act, namely that mitigation must "ensure the maintenance of the free-flowing character of the scenic waterway in quantities necessary for recreation, fish and wildlife." ORS 390.835(10). While the program has benefitted certain segments of the river during certain times of the year, it is not ensuring the protection of scenic waterway flows either in all protected segments or year-round. Moreover, there have been some unintended consequences, such as the negative effects on springs, which should be addressed.

Thank you for the opportunity to provide comments in advance of the OWRD review; we look forward to continued opportunities to provide input as the OWRD develops draft documents.

Sincerely,

Kimberley Priestley
Senior Policy Analyst

Nunzie Gould, Bend, Oregon (Attachment 9)

HENDERSON Sarah A * WRD

From: Nunzie <nunzie@pacifier.com>
Sent: Monday, September 14, 2020 3:52 PM
To: HENDERSON Sarah A * WRD
Subject: comments on Deschutes Mitigation Rules
Attachments: Director's Report by Tom Byler for Aug. 27, 2020 OWR Commssion meeting.pdf; eo_15-05.pdf; Resolution No 2020-024.pdf

Please enter this email into comments on the Deschutes Mitigation Rules which closes at end of today Sept 14, 2020.

I concur with DEQ 7/24/20 and ODFW 7/22/20 written comments to OWRD and submitted in Tom Byler's submittal to WRC's August 27 2020 regarding the deschutes mitigation rules. It is important that the zone of impact should be used for place of mitigation, not the zone of withdrawl and not a general zone of impact.
The Director Byler's report to WRC meeting of 8/27/20 is attached.
In the documentation charts that Tom Byler submitted to WRC in August 27, 2020, I think there needs to be a distinction between temporary and permanent mitigation ass well as a tallying of temporary mitigation credits versus permanent mitigation available.
When a mitigation amount is reduced to a lesser incremental developer mitigation, there needs to be analysis performed to assure and show that there is sufficient permanent mitigation available since temporary mitigation credits only look outward for a maximum of 5 years. It's important that volumne allowed thru permits does not exceed permanent mitigation available: Please feature in the final report

The issue isn't so much about mitigation available compared to volumne pumped but permanent mitigation available today compared to volumne permitted to be pumped.

In my opinion, granting ground water permits without having long range permanent mitigation is a very short range and unsustainable commitment to the science of what we know about hydrologic connectivity in the Deschutes Basin.

I attach both Drought Declarations from 5/2015 Executive Order 15-05 and Deschutes County Resolution 2020 - 024 from 6/2020 to emphasize that Deschutes County continues to be impaired by reduced snowpack and climate change. There must be improvements to the Deschutes Mitigation Rules, such that when Drought is declared in the Deschutes Basin, that there is a measuring device to identify and report the actual amount of supplemental water that is drawn from the ground and that mitigation rules apply especially during drought conditions and not sidetrack the science by creating a carveout to exclude mitigation standards or to streamline transfers without the department doing due diligence to protect our scenic waterways. We need a Mitigation Rules Program that doesn't throw the science out the window in favor of pumping more groundwater unless it can be shown that mitigation is met beforehand. This includes Emergency Water Use Permits and Temporary Transfers of Water Rights and Use of Existing Right Option/Agreements. Frankly our water use should be curtailed during drought not expanded in withdrawl and certainly not exempted of mitigation.

I am a bit troubled by the computer generated statistic charts in Director Byler's report and would like to see actual stream guage measurements to substantiate the computer generated flows.
Furthermore, I think it imperative that the State of Oregon begin to measure springs in the Deschutes Basin in particular those that are not instream: i.e. those in the high desert.

I think it very important for the Deschutes Mitigation Rules to include mitigation for supplemental ground water rights and I think it imperative for WRD to measure with meters the amount of water withdrawn by supplemental water rights (including for pre-mitigation rules supplemental water rights) to have a basis for WRD to know how much water is withdrawn and to begin collecting data during this period in our history of climate change. Great telemetry strides have

1

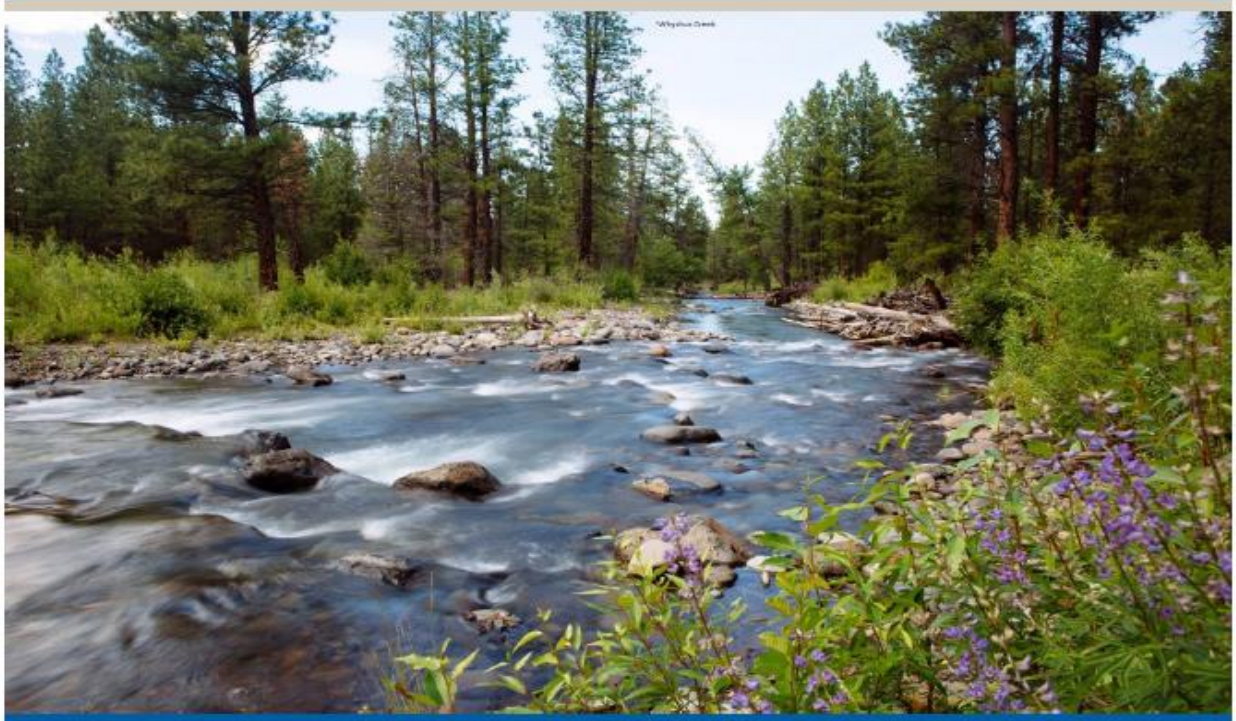
been made in technology and I do believe that Measuring devices should not just be "at the discretion of the water master".

Finally, It's time that where lands are subdivided that municipal water supplies be required such that multiple exempt wells are not
drilled impacting our watershed. Examples are 100 acres outside of
any UGB where 10 wells would then be drilled. It's imperative for there to be mitigation for such withdrawls and a municipal system would have to meet the Mitigation Rules whereas 10 individual exempt wells would not. Recently 74 new wells could be drilled adjacent to our state and federal scenic Deschutes River in one such subdivision. Not only is the proximity to the scenic waterway a concern together with so many well punctures, but it is unclear whether the hydrologic 100' setbacks for such wells could be met, yet the subdivision is approved. Leased lands are yet another example where new wells are drilled exempt of the mitigation rules for large homesites most with their larger lawns in the high desert: again, there should be a limit on the number of exempt wells that lands leased to others for dwelling are allowed or better yet, a municipal water source should be established such triggers the mitigation rules for such leased lands.

Already the state of Oregon is looking to add density to rural lands with ADU's and this will tax exempt rural wells that today don't partake into the mitigation rules.
If all wells were metered, OWRD would have measurable data on which to stand.
Thank you for considering my views,
Nunzie Gould
19845 JW Brown
Bend, OR 97701

This is the first page of the Nunzie Gould attachment that is 30 pages long, it refers to the 2019 Annual Review.

DESCHUTES BASIN GROUNDWATER MITIGATION PROGRAM



OREGON
WATER RESOURCES DEPARTMENT

2019 ANNUAL REVIEW

WRITTEN BY SARAH HENDERSON

OREGON WATER RESOURCES DEPARTMENT

Office of the Governor
State of Oregon

EXECUTIVE ORDER NO. 15-05

DETERMINATION OF A STATE OF DROUGHT EMERGENCY IN DESCHUTES, GRANT, JACKSON, JOSEPHINE, LANE, MORROW, UMATILLA, AND WASCO COUNTIES DUE TO DROUGHT, LOW SNOW PACK LEVELS, AND LOW WATER CONDITIONS

At the request of Deschutes County (by Declaration 2015-038 dated April 29, 2015), Grant County (by Resolution 2015-06 dated April 29, 2015), Jackson County (by Order 61-15 dated May 13, 2015), Josephine County (by Resolution 2015-017 dated May 6, 2015), Lane County (by Order 15-05-12-07 dated May 12, 2015), Morrow County (by Resolution R-2015-4 dated May 6, 2015), Umatilla County (by Order BCC2015-048 dated April 28, 2015), and Wasco County (by Resolution 15-003 dated May 20, 2015), and based on the recommendations of the Drought Council and the Water Availability Committee, and pursuant to ORS 401.165 and ORS 536.740, I find that continuing dry conditions, low snowpack, and lack of precipitation have caused natural and economic disaster conditions in Deschutes, Grant, Jackson, Josephine, Lane, Morrow, Umatilla, and Wasco Counties.

Projected precipitation and climatic conditions are not expected to alleviate the continuing drought conditions, and the drought is having significant economic and other impacts on communities and on agricultural, livestock, and natural resources in Deschutes, Grant, Jackson, Josephine, Lane, Morrow, Umatilla, and Wasco Counties.

The dry conditions present hardships for these communities: crops, agricultural and other economic interests are at risk; animals and plants that rely on Oregon's surface water supplies are threatened; and the risk of wildfires across the state is greatly increased. Current conditions are being monitored and analyzed by state agencies including the Department of Agriculture, the Department of Water Resources, and the Oregon Office of Emergency Management.

A timely response to the drought conditions is vital to the safety of persons, property and economic security of the citizens and businesses of Deschutes, Grant, Jackson, Josephine, Lane, Morrow, Umatilla, and Wasco Counties. I am therefore declaring that a continuing drought emergency exists in Deschutes, Grant, Jackson, Josephine, Lane, Morrow, Umatilla, and Wasco Counties, and directing the following actions.

REVIEWED
LEGAL COUNSEL

For Recording Stamp Only

BEFORE THE BOARD OF COUNTY COMMISSIONERS OF DESCHUTES COUNTY, OREGON

A Resolution Declaring a Countywide State of Emergency and Requesting State Declaration of Drought Emergency within all of Deschutes County

RESOLUTION NO. 2020-024

WHEREAS, ORS 401.309 and the Deschutes County Emergency Operations Plan (EOP) authorize the county governing body to declare a state of emergency within the county or within a designated portion of the county; and

WHEREAS, drought conditions endanger crops and livestock, endanger the health and safety of the county's population, jeopardize economic vitality within the county, and imperil the quality of the environment; and

WHEREAS, the Deschutes Basin Board of Control has informed Deschutes County that continuing extreme weather conditions within the county are likely to cause widespread and severe damage to livestock, wildlife, natural resources, recreation, tourism and related economies; and

WHEREAS, snow melt which feeds all water sources within the county is substantially below average; and

WHEREAS, Wickiup Reservoir is presently filled to its second lowest level on record; and

WHEREAS, month end contents at Wickiup Reservoir for April and May are the lowest ever on record; and

WHEREAS, the low water levels at Wickiup Reservoir will cause impacts to fishing and recreating; and

WHEREAS, the Deschutes River is experiencing extremely low natural flow levels such that all irrigation districts dependent upon water flows from the Deschutes River will be impacted; and

WHEREAS, the extended weather forecast for Central Oregon projects higher than normal temperatures and below average precipitation, now therefore,

BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF DESCHUTES COUNTY, OREGON, as follows:

Section 1. Pursuant to ORS 401.309,the Deschutes County EOP, and information provided to Deschutes County by the Deschutes Basin Board of Control, a State of Emergency is presently declared within Deschutes County.

Section 2. Pursuant to ORS 401.032(2), the governing body for Deschutes County finds that the appropriate response is beyond the capability of Deschutes County.

Section 3. The governing body for Deschutes County respectfully submits the Request contained immediately below in Section 4.

Section 4. **Request:** The Honorable Kate Brown, Governor of Oregon, declare a Drought Emergency for all of Deschutes County under the provisions of ORS 401.165 and ORS Chp. 536 due to severe and continuing drought conditions beginning at this time and continuing to October 31, 2020; and direct the Oregon Department of Water Resources and other Oregon executive branch agencies to make available for all purveyors of water within Deschutes County Temporary Transfers of Water Rights, Emergency Water Use Permits, and Use of Existing Right Option/Agreement; and other federal and state drought assistance and programs as needed.

Section 5. This Resolution shall take effect immediately from and after its adoption.

Dated this 15 of June, 2020

BOARD OF COUNTY COMMISSIONERS
OF DESCHUTES COUNTY, OREGON

Patti Adair
PATTI ADAIR, Chair

ANTHONY DeBONE, Vice Chair

PHILIP G. HENDERSON, Commissioner

ATTEST:
Recording Secretary

PAGE 2 OF 2 – RESOLUTION NO. 2020-024