

WILKE Laura K

From: McSwain, Michelle <mmcswain@blm.gov>
Sent: Friday, March 20, 2015 7:07 AM
To: WILKE Laura K
Subject: Re: Deadline Extension: FW: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested

Thank you, Laura. The BLM does not plan to submit any comments at this time.

mm

Michelle McSwain, Assistant Field Manager
Bureau of Land Management
Prineville, OR
541-416-6877

On Thu, Mar 19, 2015 at 1:15 PM, WILKE Laura K <laura.k.wilke@state.or.us> wrote:

Greetings Michelle:

The Department is extending the deadline for submission of feedback from stakeholders on the Deschutes Groundwater Mitigation Program until close of business on **April 10, 2015**. See original e-mail below for details.

Thank you,

Laura Wilke

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SALEM, OR

From: WILKE Laura K
Sent: Friday, January 23, 2015 10:52 AM
To: 'mmcswain@blm.gov'
Subject: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested

Greetings Michelle:

The Department is initiating a review of the Deschutes Ground Water Mitigation Program under House Bill (HB) 3623, Chapter 694 Oregon Laws 2011. The text for HB 3623 is attached for your review and information. This House Bill requires the Department to look at the mitigation program and identify any regulatory and statutory changes that could be made to improve the program to address and mitigate for injury and offset measurable reductions of scenic water way flows. The Department will also be looking at additional elements identified in HB 3623, including issues raised by stakeholders.

With this e-mail, the Department is soliciting your feedback as a stakeholder on the Deschutes Ground Water Mitigation Program. Please provide any feedback you may have by ~~March 31, 2015~~.

If you have any questions, please feel free to contact myself or Dwight French, Water Right Services Administrator. Dwight can be reached at (503) 986-0819 or dwight.w.french@wrds.state.or.us.

Thank you,

Laura Wilke

Flow Restoration Program Coordinator

Oregon Water Resources Department

725 Summer Street NE, Suite A

Salem, OR 97301-1271

Phone: (503) 986-0884

Fax: (503) 986-0903

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MAR 20 2015

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WILKE Laura K

From: Leslie <leslie@coid.org>
Sent: Friday, April 17, 2015 2:46 PM
To: 'WILKE Laura K'
Cc: 'Craig Horrell'
Subject: RE: HB 3623 (2011) legislative report - effect of Mitigation Program on other water users in the Deschutes

Laura,

Thanks for the email. I had planned to make comment but time got away from me. I always have GW mitigation in the back of my mind as COID has been one of the primary mitigation sources for the cities and other water purveyors in the basin.

The Deschutes Basin districts are under tremendous pressure from many directions. The most challenging is the ESA regarding the recent listing of the Oregon spotted frog. The DBBC is working with the federal agencies to obtain a permit for the taking of the species through our normal operations. We are facing the reality of giving up storage for winter and seasonal flows and possible reduction in surface deliveries. We are working very hard at creative ideas to meet the species needs while continuing to meet other basin needs.

To date COID has filed permanent instream applications on 2082 acres of surface water, primarily coming off of lands within the UGB of Redmond. Demand from our patrons for water to expand new farm land is growing. The current market for hay and beef is at a high and we are challenged to meet the new demand. Our Board policy is to place water on farmland over all other uses and they are very leery of allowing the transfer of more water permanently instream, reducing our assessment base and our ability to transfer water to new lands.

Districts need more tools to meet demands. Several suggestions:

1. Allow municipalities to use temporary credits on a 1 to 1 ratio on long-term leases of 25 years. They want permanent credits but this option may make it more attractive.
2. Allow conserved water projects to be used for mitigation credits. We understand the concern of negative winter flows. Allowing long-term temporary transfers of storage shaped during winter months combined with mitigation credits from conserved water projects could meet GW mitigation while helping districts improve systems, reducing storage demand. This would take an act of congress but with everyone working together we believe it can be accomplished.
3. Ability to lease (long-term) mitigation credits held by one entity to another entity without permanent assignment to a well i.e. city of Redmond is holding a large number of credits and could lease them to city of Bend while retaining the right to get them back and apply them to their own well in the future.

I'm out of the office the rest of the afternoon but I'm happy to bounce these ideas around with you next week.

Have a great weekend!

Leslie

Leslie Clark
Water Right Manager
Central Oregon Irrigation District
541-504-7576

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APR 17 2015

SALEM, OR

WILKE Laura K

From: paul@centraloregonlandwatch.org
Sent: Wednesday, March 25, 2015 10:12 AM
To: laura.k.wilke@state.or.us
Subject: HB 3623 review of Deschutes Ground Water Mitigation Program
Attachments: LandWatch Legis HB 3623 Yinger Powerpoint 2011.pdf; LandWatch legis SB 3623 ltr to Laura Wilke OWRD.pdf

Hello Laura:

Please see the attached letter and Power Point regarding Central Oregon LandWatch's concerns about the mitigation program. Thank you for your consideration.

Paul Dewey
541-420-8455

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MAR 25 2015

SALEM, OR



50 SW Bond St., Ste. 4 | Bend, OR 97702
Phone: (541) 647-2930
www.centraloregonlandwatch.org

March 23, 2015

Ms. Laura Wilke
Flow Restoration Program Coordinator
Oregon Water Resources Department
725 Summer St, NE, #A
Salem, OR 97301-1266

Re: Comments regarding Deschutes Ground Water Mitigation Program

Dear Ms. Wilke:

I am writing on behalf of Central Oregon LandWatch to comment on OWRD's mandated review of the Deschutes Ground Water Mitigation Program under House Bill 3623. LandWatch participated in hearings on that bill and expressed our concerns then about how the OWRD "zone of impact" rules were being applied.

We have been particularly concerned about potential impacts on spring systems caused by groundwater withdrawals, and specifically with regard to the spring systems of the Metolius River, Whychus Creek and the Lower Middle Deschutes River. These spring systems are critical not only to the substantial recreation and scenic resources of the rivers, but also to the \$250 million investment in reintroduction of steelhead, chinook and sockeye into these rivers. The springs provide important cold water refugia and are expected to become even more important as system waters warm up in summer due to climate change.

The problem with the mitigation rules is that when OWRD grants permits for groundwater wells which will impact spring systems, it allows the mitigation to occur in a general zone of impact instead of requiring mitigation for where the impacts on the springs will be. The allowed mitigation can occur 30 or 40 miles away from where the impact on the springs happens. See the attached review from hydrogeologist Mark Yinger on the nature of the problem.

LandWatch requests that the statutes or rules be revised to clearly require localized mitigation and, where impacts occur in more than one local zone, the mitigation should be proportional to the respective impacts.

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Please inform us of when you will make your report to the Legislature and any other opportunity for public comment to you or the Legislature on this issue. Thank you for your consideration.

Very truly yours,

**Paul Dewey,
Executive Director**

50 SW Bond St., Ste. 4 | Bend, OR 97702
Phone: (541) 647-2930
www.centraloregonlandwatch.org

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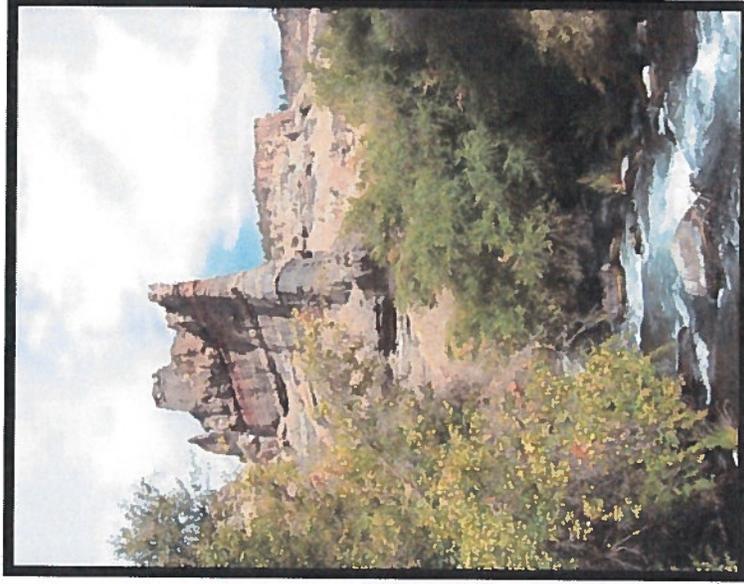
MAR 25 2015

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A Case Study: Thornburgh Resort Water Resources Impact Evaluation

Upper Deschutes Basin, Oregon



Whychus Creek at the confluence with the Deschutes River.

For an electronic copy
of this report and presentation
on a CD contact me:

Mark Yinger, RG
Mark Yinger Associates
69860 Camp Polk Road
Sisters, OR 97759

marky@bendbroadband.com

Phone 541-549-3030

Mark Yinger Associates
and
Northwest Land & Water, Inc.

February 2008

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Our study area = USGS study area

USGS Objectives:

Quantitatively evaluate relationship between groundwater and surface water

Develop tools for water resource management decisions

Our Objectives:

Evaluate impact of Thornburgh wells on streams – flow, fish and riparian habitat

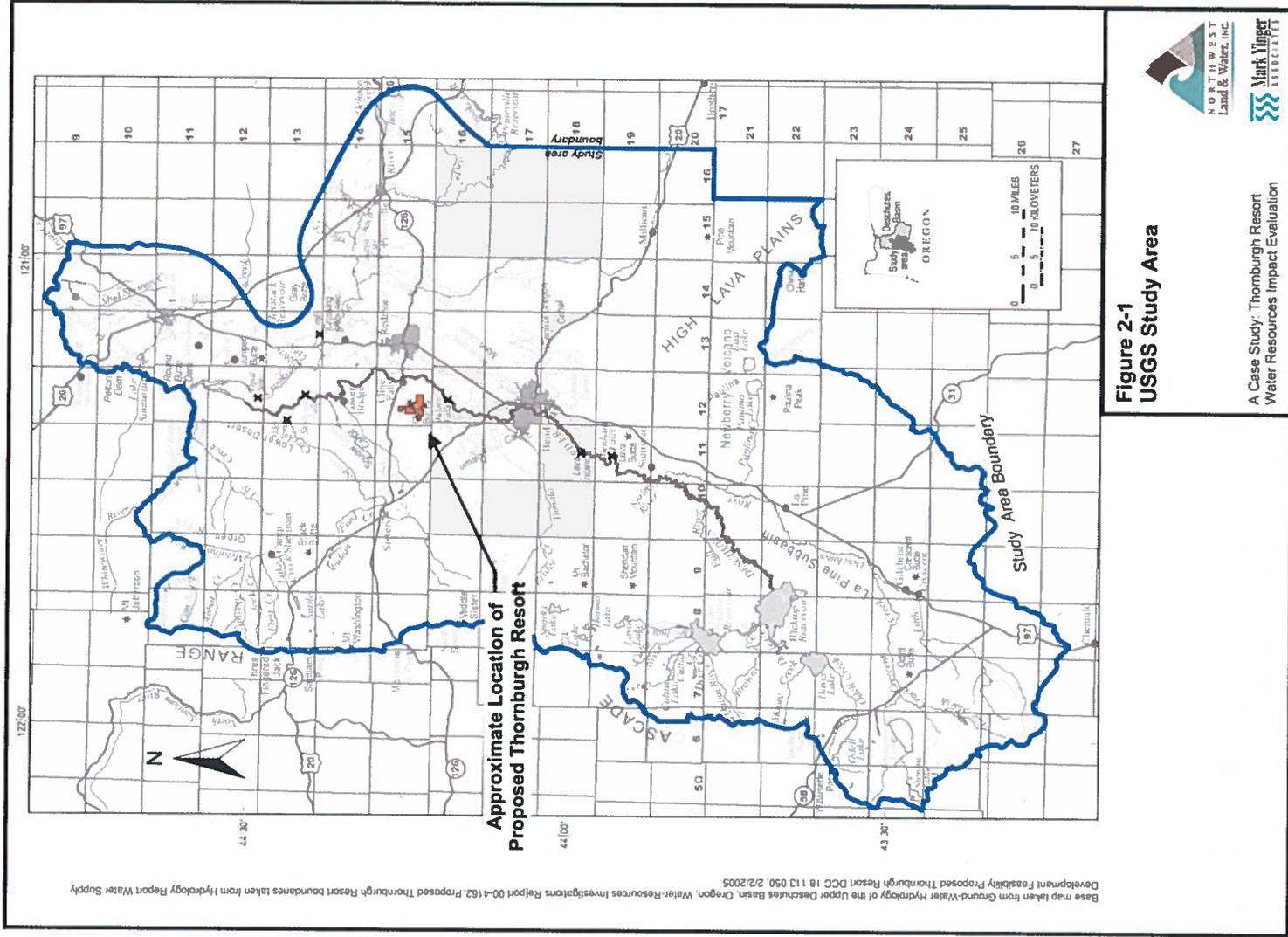
Evaluate impact of Thornburgh wells on groundwater levels – existing wells

Demonstrate a level of evaluation that should be applied to major groundwater developments

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July 2005

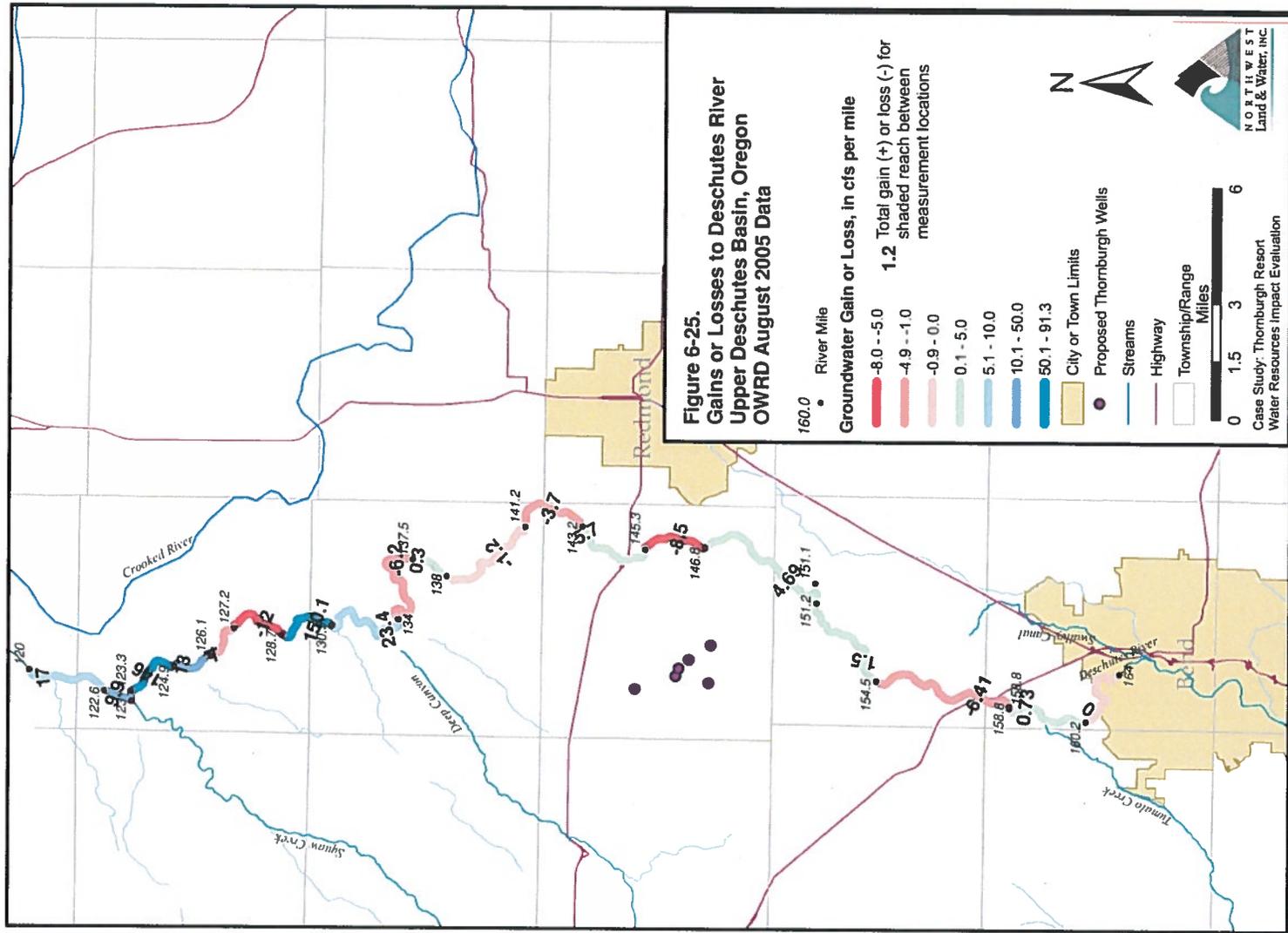
Groundwater discharge:

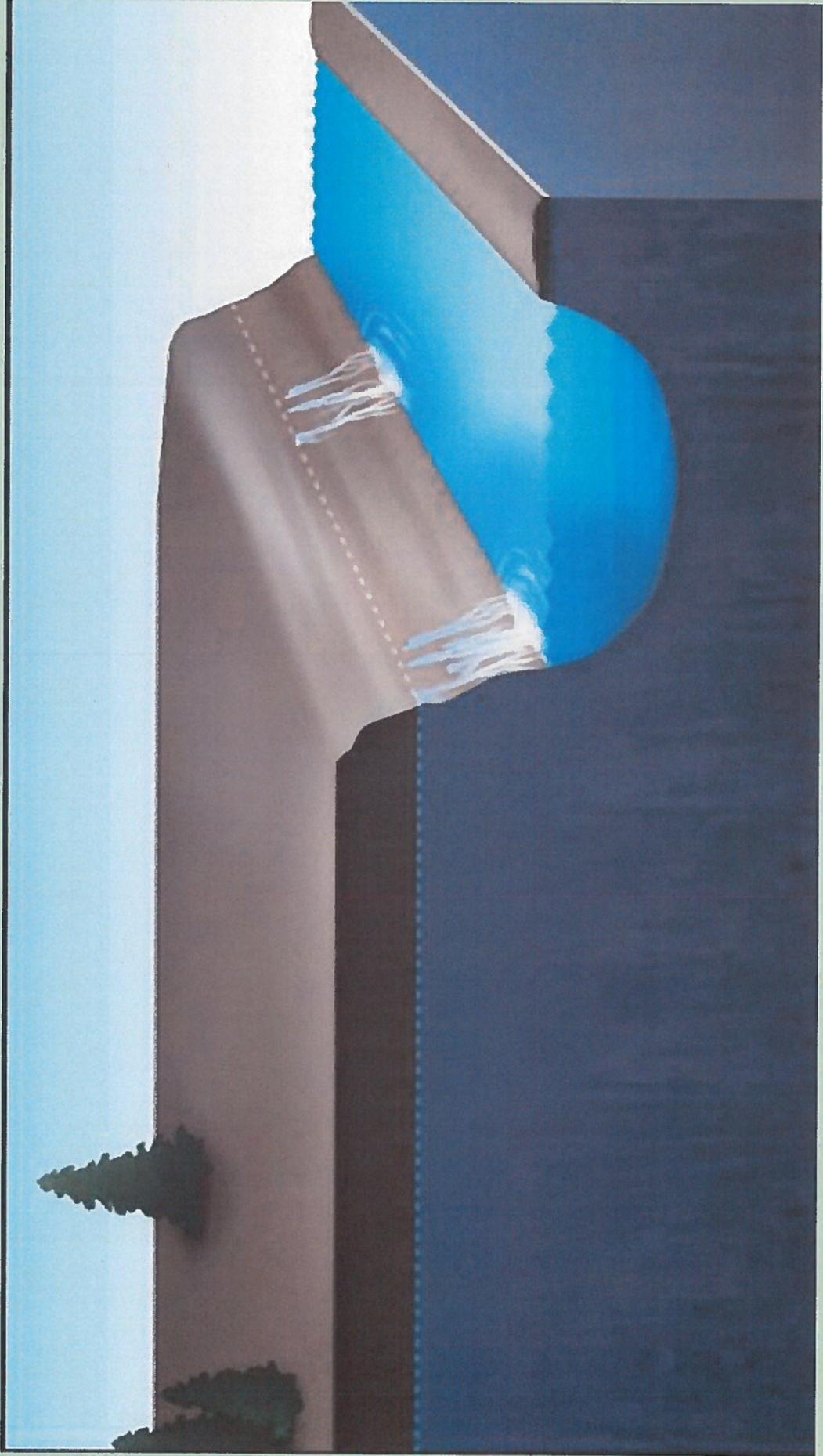
- Springs and
- Seepage into stream beds

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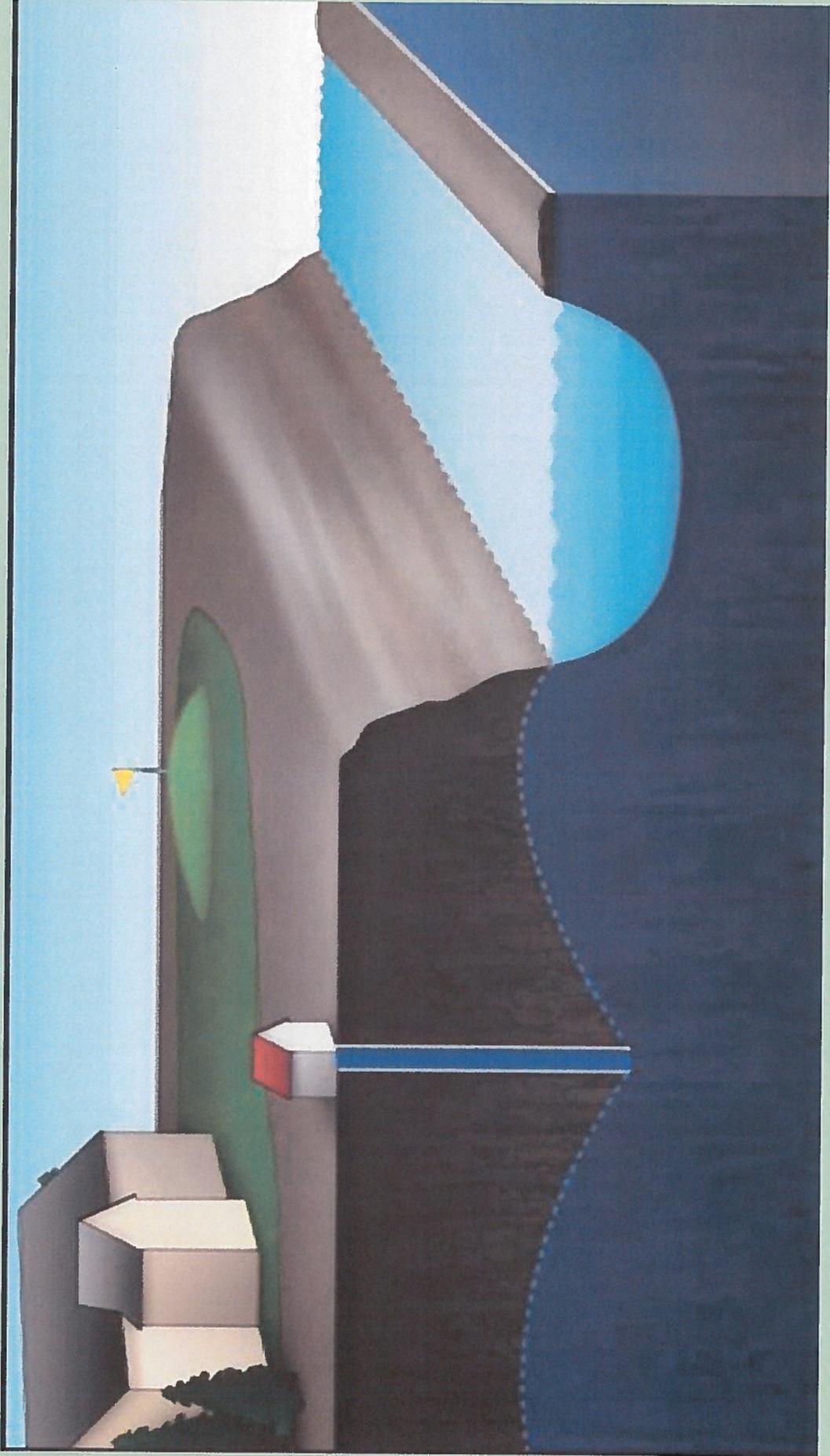




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Stream Temperature

Decrease in groundwater discharge will allow warm temperature to migrate downstream

This negatively impacts fish and riparian habitat

79 to 82 degree water upstream of reaches critical for fish

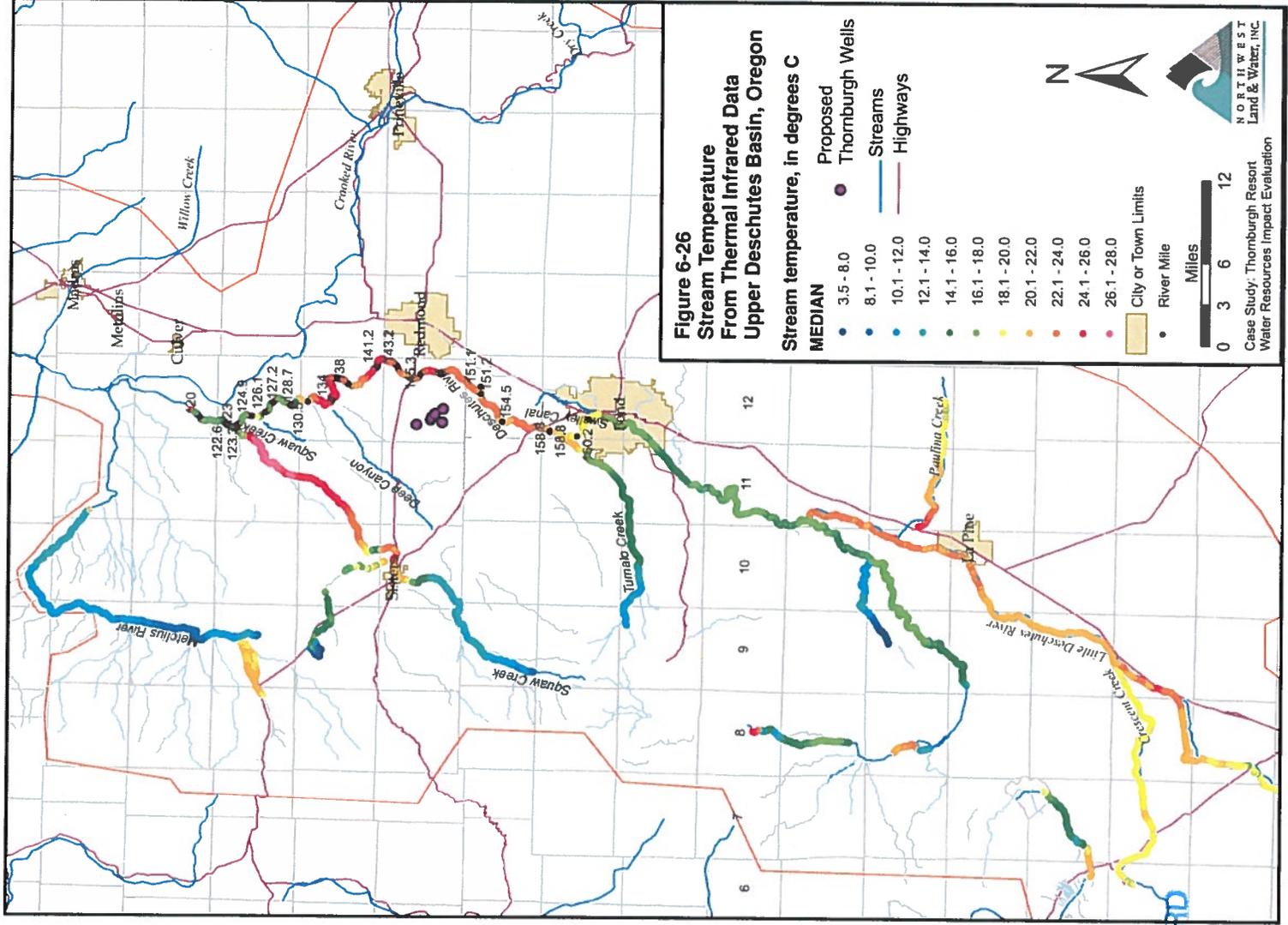
Groundwater discharging to streams is 51 degrees

In the area of Critical Bull Trout Habitat stream temperature is 54 to 57 degrees

Bull Trout – 35 to 59 degree water

Chinook Salmon – success depends on cold water of lower Wychus Creek

Native Redband Trout – core population health depends on cold water



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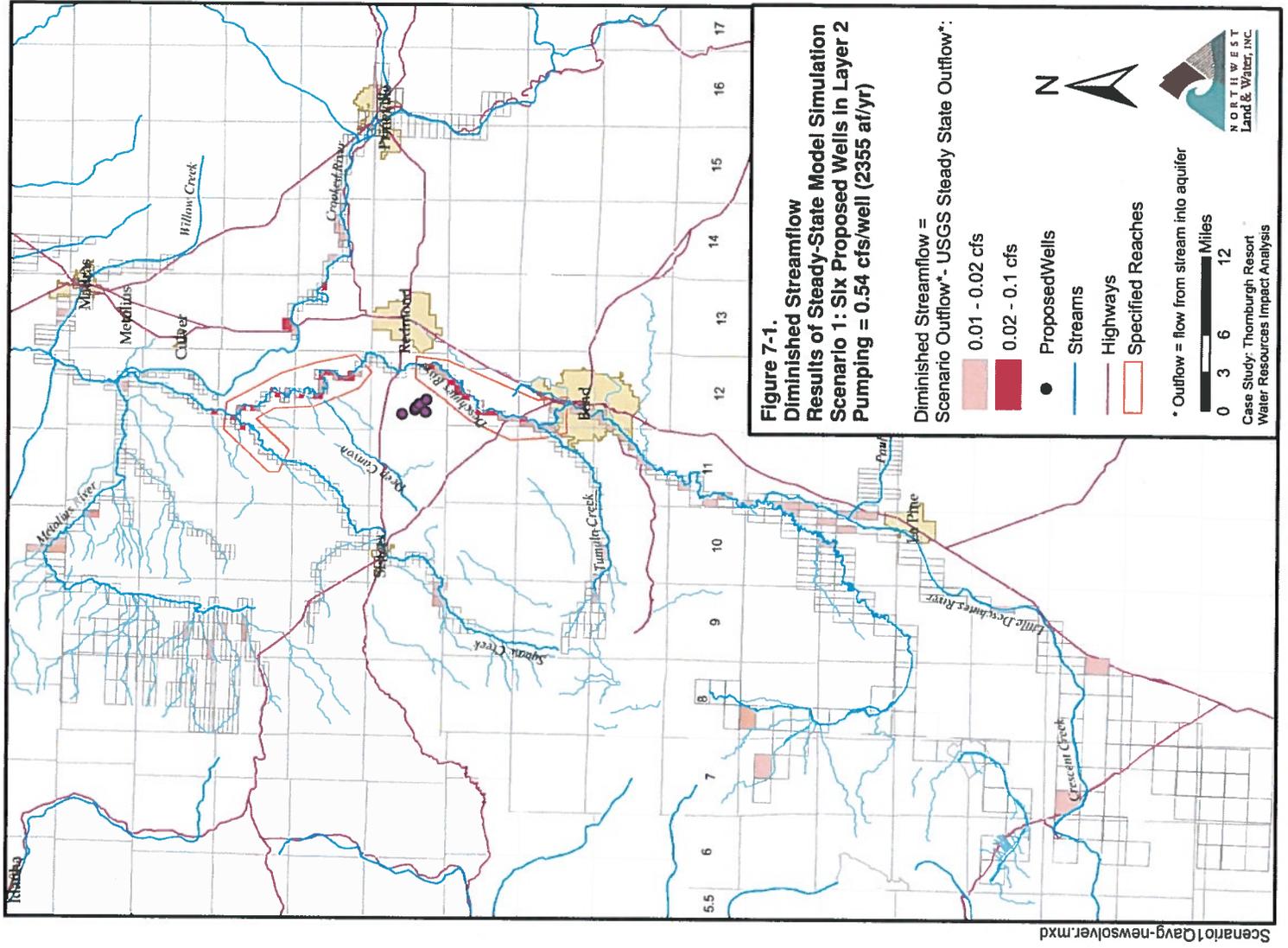
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Modeling the pumping of the six Thornburgh wells using the USGS model 64% to 72% of the pumping would come from the two highlighted reaches.

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Critical Bull Trout Habitat

US Fish and Wildlife, 2005
50 CFR Part 17

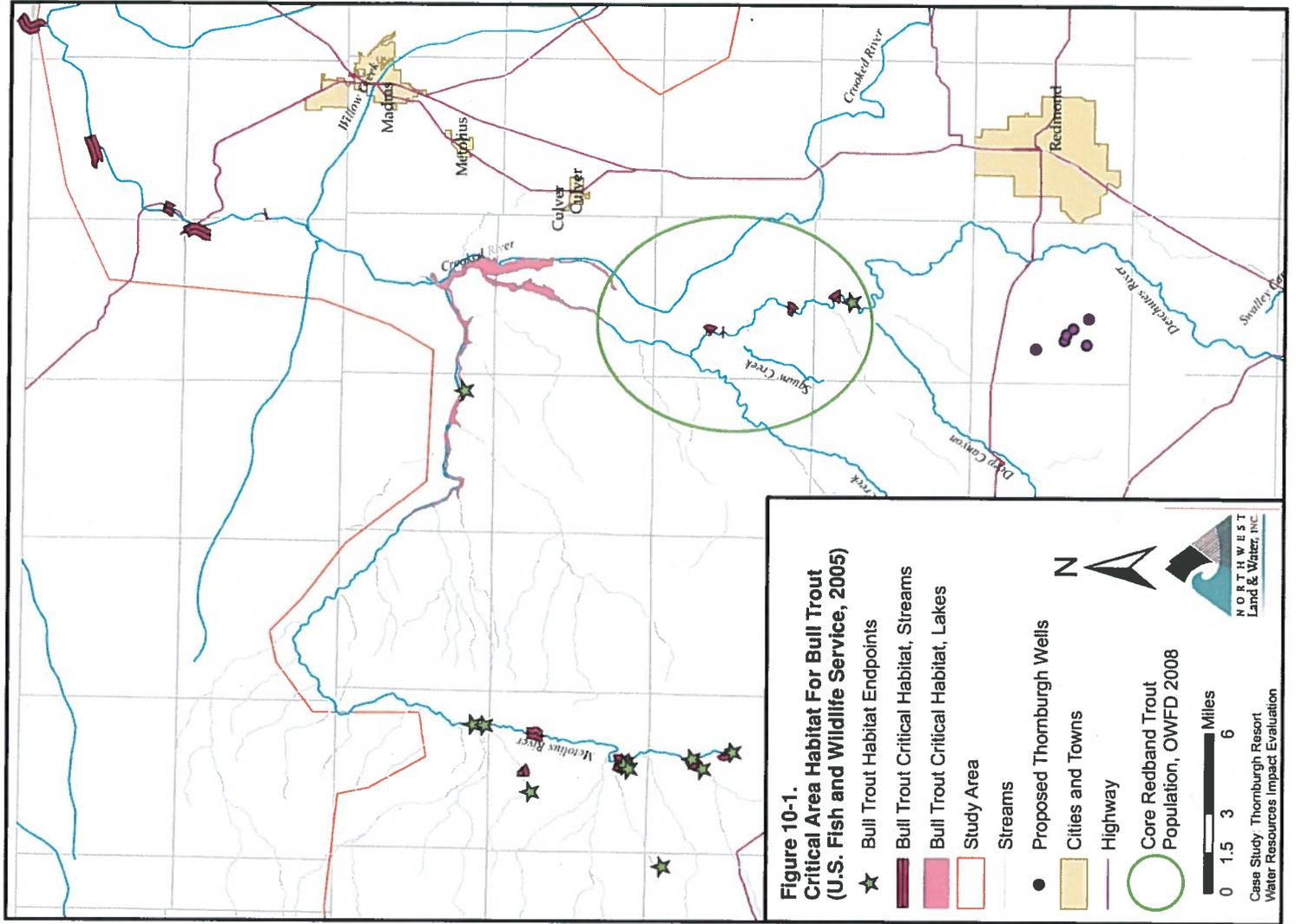
Core Redband Trout Population

ODWF, 2008

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Summary

Thornburgh pumping impacts

- Reduced stream flows on: Middle Deschutes River and Wychus Creek
- Groundwater level declines mean less water available to feed springs and streams
- Groundwater level declines will likely be significantly greater locally than modeled – impacting existing wells
- Reduced groundwater discharge will result in higher stream temperatures – impacting fish

Recommendations

- Target the mitigation to those critical stream reaches that are impacted
- Planners must consider cumulative impact of individual groundwater developments
- Greater emphasis on evaluating impacts to water quality

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WILKE Laura K

From: MEHTA Smita <smita.mehta@state.or.us>
Sent: Monday, April 13, 2015 9:33 AM
To: WILKE Laura K
Cc: LAMB Bonnie; NIGG Eric
Subject: RE: Deadline Extension: FW: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested
Attachments: DEQ Comments on Deschutes Mitigation_final.pdf

Hi Laura,

Here are DEQ's comments on the Deschutes Mitigation Program 5-Year Review. Please let me know if you'd like me to send a paper copy instead.

Thanks,
Smita

Smita Mehta
Integrated Water Resources
Oregon Department of Environmental Quality
Eastern Region - Pendleton Office
800 SE Emigrant Ave, Suite 330
Pendleton, Oregon 97801
541-278-4609
Mehta.Smita@deq.state.or.us

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APR 13 2015

SALEM, OR

From: WILKE Laura K [<mailto:laura.k.wilke@state.or.us>]
Sent: Thursday, March 19, 2015 1:10 PM
To: LAMB Bonnie; NIGG Eric; MEHTA Smita
Subject: Deadline Extension: FW: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested

Greetings Bonnie, Eric and Smita:

The Department is extending the deadline for submission of feedback from stakeholders on the Deschutes Groundwater Mitigation Program until close of business on **April 10, 2015**. See original e-mail below for details.

Thank you,
Laura Wilke

From: WILKE Laura K
Sent: Friday, January 23, 2015 10:41 AM
To: LAMB Bonnie; NIGG Eric
Subject: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested

Greetings Bonnie and Eric:

The Department is initiating a review of the Deschutes Ground Water Mitigation Program under House Bill (HB) 3623, Chapter 694 Oregon Laws 2011. The text for HB 3623 is attached for your review and information. This House Bill requires the Department to look at the mitigation program and identify any regulatory and statutory changes that could be made to improve the program to address and mitigate for injury and offset measurable reductions of scenic water way flows. The Department will also be looking at additional elements identified in HB 3623, including issues raised by stakeholders.

With this e-mail, the Department is soliciting your feedback as a stakeholder on the Deschutes Ground Water Mitigation Program. Please provide any feedback you may have by ~~March 31, 2015~~.

If you have any questions, please feel free to contact myself or Dwight French, Water Right Services Administrator. Dwight can be reached at (503) 986-0819 or dwight.w.french@wrds.state.or.us.

Thank you,
Laura Wilke
Flow Restoration Program Coordinator
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271
Phone: (503) 986-0884
Fax: (503) 986-0903

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SALEM, OR



Oregon

Kate Brown, Governor

Department of Environmental Quality

Eastern Region Pendleton Office

800 SE Emigrant Avenue, Suite 330

Pendleton, OR 97801

(541) 276-4063

FAX (541) 278-0168

TTY 711

April 10, 2015

Laura Wilke
Flow Restoration Program Coordinator
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271

RE: DEQ's Comments on the Deschutes Ground Water Mitigation Program

Dear Ms. Wilke:

The Oregon Department of Environmental Quality (DEQ) appreciates the opportunity to provide comments on the Deschutes Ground Water Mitigation Program. We believe that OWRD has successfully implemented the Deschutes Ground Water Mitigation Rules and Deschutes Basin Mitigation Bank and Mitigation Credit Rules. We believe that the mitigation program is an effective tool for addressing the impacts of new groundwater withdrawals on streamflow. From a water quality perspective, there are streams within the Deschutes Basin that have benefited from the program.

DEQ does have some comments on the Deschutes Ground Water Mitigation Program, which are outlined below. We have also reviewed the comments provided by ODFW (dated 4/10/15) and support their comments.

1. The annual review of the mitigation program uses monitored stream flows as one measure of success of the program. However, much of the annual review is a review of paper rights and documents associated with mitigation activities. To better understand the success of the program, it would be helpful to know how many and how often mitigation activities are monitored, and, how often uses are regulated because mitigation was not occurring.
2. The number of mitigation credits generated for a project is based upon the consumptive use of the originating water right or water rights. As water use systems become more efficient, OWRD will need to accurately determine consumptive use coefficients for new water uses to better estimate mitigation obligations. It would be helpful for us to know how the consumptive use coefficients are determined for each mitigation obligation.
3. In the Deschutes Basin, demand for upstream groundwater use is increasing, but mitigation is more often occurring at downstream locations (where irrigation rights are being leased or

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transferred instream) and/or at a different time of year. There are several problems with this:

- a. The timing of mitigation is during the irrigation season, but the new groundwater use is often year round. There are streams that are listed for flow-related parameters in the non-irrigation season that will be further impaired by lower flows this time of year.
- b. Reaches above a mitigation site may be dewatered relative to reaches below a mitigation site. This means that even though mitigation may be occurring at the time of use, there will still be dewatered stream reaches. Many of these reaches are already listed for temperature or other criteria and will therefore be further impaired.

To address these problems the Deschutes Mitigation Program could prioritize mitigation obligations that occur:

- During the season of use;
 - In areas upgradient from the use to be mitigated;
 - In watersheds that are high priority for flow restoration, (as identified by ODFW and OWRD in the Oregon Plan for Salmon and Watersheds)
4. DEQ would also like to reiterate a comment made by ODFW about the importance of protecting springs (see below). Springs are important sources of cool water inputs to streams and dewatering springs could exacerbate stream temperature impairments. DEQ is interested in and willing to work with other agencies on this issue.

“Although not included in the Mitigation Program but related to the increase in groundwater use in the basin, ODFW continues to have 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 cool stream temperatures during the summer in streams with depleted flows. While the water currently provided through mitigation has improved conditions during the irrigation season for fish and aquatic life in certain reaches relative to pre-mitigation program conditions, it is mostly warmer water from storage and does not yield equitable benefits compared to cool spring water. Over time, ODFW assumes that continued and increased groundwater withdrawal for agricultural, residential, and municipal needs will further affect springs when there is a surface/groundwater connection.

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.

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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 spring flow reductions."

Thank you for the chance to comment. If you have any questions on these recommendations, please contact me (541-278-4609) or Bonnie Lamb (541-633-2027).

Sincerely,



Smita Mehta
Integrated Water Resources Specialist

Bonnie Lamb
Deschutes Basin Coordinator

cc: Brett Hodgson, ODFW
Danette Faucera, ODFW

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SALEM, OR

WILKE Laura K

From: Gen Hubert <gen@deschutesriver.org>
Sent: Wednesday, March 04, 2015 2:30 PM
To: WILKE Laura K
Cc: Tod Heisler
Subject: RE: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested

Laura,

I think it would be similar.

There are only a couple of things that I can think of at this time that are an issue, but they may only require guidance and not a rule change or legislative change.

1. **Compliance.** Does the department have a clearly defined way to handle people who purchase temporary credits for a year to two, receive their permit and stop buying credits, but continue to use water? Some properties sit in limbo due to foreclosure or sale and it takes a while to educate the new owner, water is not usually being used by these and once I get the new owners on track, they seem to be fine. The issue is with permit holders who continue to use water but do not continue to purchase credits once they acquired their permit (no change of ownership or ownership limbo).
2. **Temporary use of credits from a permanent project.** You may have heard this from John Short and have heard something similar from Adam Sussman - it might be beneficial to have a method to lease or sell annual credits from a permanent project (temporary or annual assignment of credits). Adam Sussman touched on this as it would relate to one MU/QM temporarily assigning credits from a permanent project to another MU/QM, but if there was a way for an irrigator or non-MU user to do this as well, it could be useful in the future.
3. **Zones of impact vs supply of credits.** Does the Department have any guidance on what to do with applicants who cannot find any mitigation (permanent or temporary) after they've invested quite a bit of money on applications and development of their water systems? We do have a few zones of Impact that have very minimal potential supply – such as Little and Upper Deschutes and Metolius. Can we get guidance on what will happen to a bank client if they buy temporary credits for a few years, then in a few following years they cannot mitigate because of lack of supply. The permits suggest regulation of water and not cancellation. This also relates to #4 below.
4. **Related to #3. Education up front with application.** There is a very, very short window of time for applicants to get a refund on their application fees. I'm not sure that it gives them time to find out just how much their mitigation will cost and whether any is even available in their zone of impact. Usually they have not already drilled wells at this time – but well depths vary and can be as deep as 700 feet. At \$150 per foot to drill, that could be over \$70,000 in investment for someone who can't find mitigation because there just isn't any in their zone. It really is up to them to do the research – but it is not easy to find the information. Can the state develop a booklet or pamphlet for those who inquire about GW permits in the study area that can give them some guidance ahead of application? The guidance could be steps/research prior to application, application process (outlining opportunities to make changes such as withdraw with refund, reduce application prior to permit, file CBU after permit), maintain mitigation or risk regulation/cancellation. So many of the people I work with do not even read their permit once they've got it.

Are any of these helpful?

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MAR 04 2015

SALEM, OR

Gen

From: WILKE Laura K [mailto:laura.k.wilke@state.or.us]
Sent: Wednesday, March 04, 2015 1:56 PM
To: Gen Hubert
Cc: Tod Heisler
Subject: RE: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested

If I remember right, that e-mail was in the context of the Division 522 rulemaking. Would probably be great to get some feedback, even if it's similar, directly for this solicitation.

Thanks, Laura

From: Gen Hubert [mailto:gen@deschutesriver.org]
Sent: Wednesday, March 04, 2015 1:45 PM
To: WILKE Laura K; Tod Heisler
Subject: RE: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested

Thanks Laura,

We will get something to you. I sent an email a while back with some potential issues, do you need this in a more formal format?

Gen

From: WILKE Laura K [mailto:laura.k.wilke@state.or.us]
Sent: Wednesday, March 04, 2015 1:35 PM
To: Tod Heisler
Cc: Gen Hubert
Subject: FW: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested

Greetings: I just wanted to send you a quick reminder of the upcoming deadline to provide feedback to the Department on the Deschutes Groundwater Mitigation Program. See initial e-mail below.

Thanks,
Laura Wilke

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MAR 04 2015

From: WILKE Laura K
Sent: Friday, January 23, 2015 10:21 AM
To: Tod Heisler (tod@deschutesriver.org)
Cc: Gen Hubert (gen@deschutesriver.org)
Subject: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested

SALEM, OR

Greetings Mr. Heisler:

The Department is initiating a review of the Deschutes Ground Water Mitigation Program under House Bill (HB) 3623, Chapter 694 Oregon Laws 2011. The text for HB 3623 is attached for your review and information. This House Bill

requires the Department to look at the mitigation program and identify any regulatory and statutory changes that could be made to improve the program to address and mitigate for injury and offset measurable reductions of scenic water way flows. The Department will also be looking at additional elements identified in HB 3623, including issues raised by stakeholders.

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If you have any questions, please feel free to contact myself or Dwight French, Water Right Services Administrator. Dwight can be reached at (503) 986-0819 or dwight.w.french@wrp.state.or.us.

Thank you,
Laura Wilke
Flow Restoration Program Coordinator
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271
Phone: (503) 986-0884
Fax: (503) 986-0903

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WILKE Laura K

From: Patrick Griffiths <pgriffiths@bendoregon.gov>
Sent: Friday, April 10, 2015 10:27 AM
To: WILKE Laura K
Cc: BYLER Thomas M; FRENCH Dwight W (dwight.w.french@state.or.us); Adam Sussman (ASussman@gsiws.com); Tom Hickmann; Paul Rheault; Erik Kancler (erik@kanclerconsulting.com); Jon Skidmore; Eric King
Subject: City of Bend Mitigation Comments
Attachments: FinalBendMitigationComments -signed4-10-15.pdf

Hi Laura

Attached our the comments on the mitigation program per HB 3623.

Looking forward to discussing with the department!

Cheers

Patrick

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SALEM, OR

April 10, 2015

Tom Byler, Director
Oregon Water Resources Department
725 Summer Street
Salem, OR 97301



Re: Response to Request for Stakeholder Feedback -
House Bill 3623 (2011) Deschutes Mitigation Program
Evaluation

710 NW WALL STREET
PO BOX 431
BEND, OR 97701
[541] 388-5505 TEL
[541] 385-6676 FAX
BENDOREGON.GOV

Dear Mr. Byler:

The City of Bend received a request to provide the Oregon Water Resources Department with feedback regarding the Deschutes Ground Water Mitigation Program. We understand that the Department is reviewing the Mitigation Program and evaluating potential modifications to improve the program, as required by House Bill 3623.¹ Please consider the City's following comments on this important water resource program. As outlined below, the City's continues to express concerns that under the current program there is not a reliable, predictable, efficient and cost effective path for developing required permanent mitigation credits.

JIM CLINTON
Mayor

SALLY RUSSELL
Mayor Pro Tem

VICTOR CHUDOWSKY
City Councilor

DOUG KNIGHT
City Councilor

NATHAN BODDIE
City Councilor

CASEY ROATS
City Councilor

BARB CAMPBELL
City Councilor

ERIC KING
City Manager

Introduction

As required of all municipalities, the City of Bend has a legal duty to provide its customers with a reliable supply of water. In fact, the City is required to have a 20 year supply of land and water to meet future needs according to existing state law. Similarly, the Department's Water Management and Conservation Planning rules require municipal water providers to plan for future water demands in 20-year increments. Water supply planning (particularly for the next 20 years) is, accordingly, of extreme importance to the City.

The City has a dual source of supply, and it uses groundwater to meet approximately half of its customers' annual water demands. Two of the City's water use permits require mitigation under the requirements of the Deschutes Ground Water Mitigation Program, and the City could need up to 3,200 mitigation credits to fully develop its permits.

In addition to the City's need for mitigation, the Deschutes Water Planning Initiative (Deschutes River Conservancy and Deschutes water Alliance, 2013) identified the need for over 14,000 mitigation credits for both municipal and other permit applications pending at the Department under the current 200 cfs "cap." (See graphic below. These projections will be updated as part of the Upper Deschutes Basin Study being conducted by the Bureau of Reclamation and the Basin Study Work Group).

¹ HB 3623 (2011), which extended the sunset provision for the Mitigation Program to January 2, 2029, required the Department to periodically review the program and to report to the legislature every 5 years on outcomes of the program.

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SALEM, OR

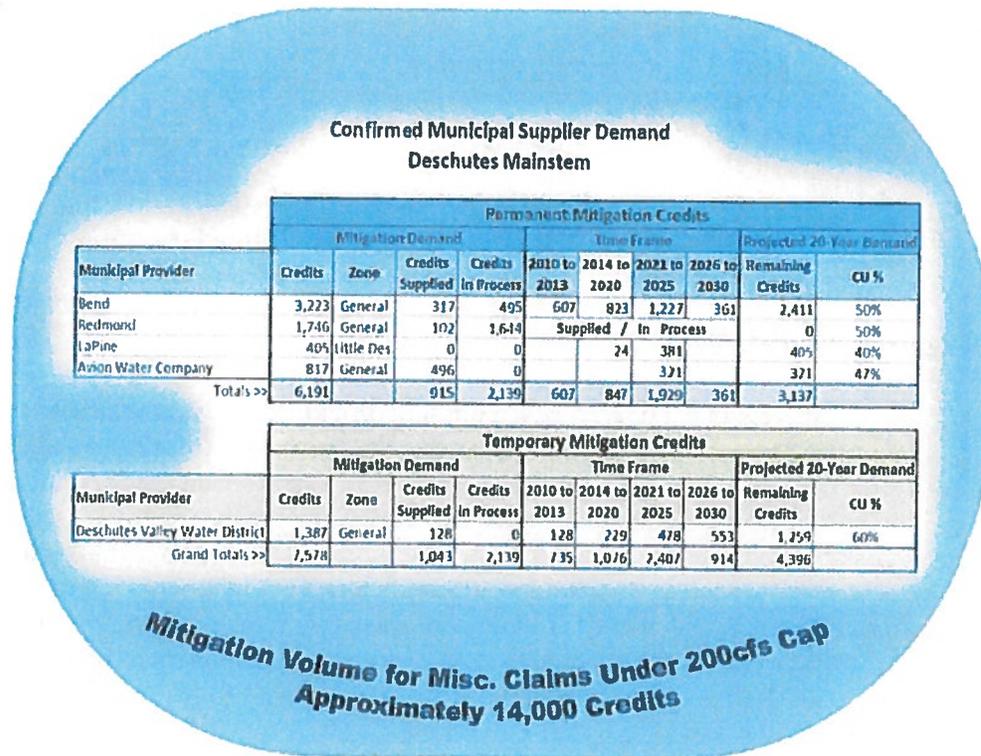


Figure 14. Confirmed municipal supplier mitigation demand along the mainstem Deschutes River.

Source: Deschutes Water Planning Initiative Water Supply Goals and Objectives, Deschutes River Conservancy --Deschutes Water Alliance, Final Report. February 26, 2013.

Consequently it is critical for the City (and other Deschutes Basin water providers and water users) to have a reliable and predictable mitigation program, as well as an available supply of mitigation credits. Further, based on the required 20-year planning timeframe, the City needs sufficient mitigation available to meet its 20-year projected water demands.

The City actively participated in the House Bill 3494 review² process in 2008. This effort involved a broad range of stakeholders with interests in water use in the Deschutes Basin, convened by the Department to review the Mitigation Program. As described in its 2009 report (*Deschutes Ground Water Mitigation Program: House Bill 3494 Report*, January 2009), to the Oregon Legislature, the group concluded that the Mitigation Program was largely successful in meeting its goals, but that there were a number of areas in which the program could be improved. To date, these issues have not been addressed.

² HB 3494(2005) required a report to the legislature by January 31, 2009, describing the implementation and operation of the Mitigation Program.

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The City recognizes that issues identified in the 2009 Report will ultimately need to be resolved. The broader ongoing efforts and studies currently occurring in the basin, such as the Bureau of Reclamation Basin Study and the Deschutes Basin Multi-Species Habitat Conservation Plan,³ create opportunities to address some of these outstanding concerns. These efforts may provide opportunities for the development of projects that protect and restore streamflows and create mitigation in ways that were not conceived of during development of the 2009 Report. Nevertheless, the City has specific concerns about the Mitigation Program that are described in more detail below.

Background

Large investments in new groundwater supply projects in the Deschutes Basin will require *permanent* mitigation credits. (Such projects cannot rely on temporary mitigation credits, which may or may not be available from one year to the next.) To date, permanent credits generally result from individual transfers of irrigation water rights to instream purposes and were relatively easy to initiate and acquire when the Mitigation Program was first developed. At that time, the economy in central Oregon was booming and considerable development was resulting in urbanization of irrigated lands within irrigation districts. A collaborative, grassroots process came out of this perfect storm of events – irrigated land was being developed and several water users in the basin desired permanent mitigation credits. The districts would receive payment for the water rights and exit fees or ongoing payment of assessments to offset the loss of revenues from water rights being moved off agricultural lands. The Deschutes Water Alliance (DWA) functioned as a *de facto* bank, and divided these water rights and mitigation credits between the districts, municipal water providers, and restoration users. The result was a fluctuating, but continual, supply of permanent mitigation credits. The state did not provide staffing or financial support to this process.

Several factors ended this “honeymoon period” for the Mitigation Program. The economic downturn essentially ended the development of irrigated lands within the districts. The irrigation districts also began to reassess their interest in losing acreage from their irrigation water right certificates. (The districts now typically opt to move irrigation rights to other agricultural land when no longer required on the original place of use.) And, many of the DWA members were overwhelmed with other duties and did not have the capacity to “staff” this process and maintain their other responsibilities.

The end result of these changes is that now each person or entity seeking permanent mitigation must “go it alone.” There are no permanent mitigation credits readily available for use and there is no structure, such as a mitigation bank, that could be a

³ The Deschutes Basin Habitat Conservation Plan, which is intended to benefit species listed under the Endangered Species Act including the Oregon spotted frog, and bull trout, is currently in its sixth year of planning. Twenty basin stakeholders, including seven irrigation districts, the City of Prineville, state and federal agencies, the Confederated Tribes of Warm Springs, and conservation groups are participating in the effort.

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clearing-house for permanent mitigation credits when they become available. There is no supply certainty. Finally, there is essentially no state support for the Mitigation Program, other than for processing water right applications and tracking permit and mitigation information. A stronger state role would be good public policy.

Identified Issues and Recommended Solutions

Insufficient supply of permanent mitigation credits: OWRD generally describes the mitigation program as having sufficient mitigation available for the permits requiring mitigation. As recognized in the 2009 Report, however, the available mitigation is primarily temporary mitigation. The Department should not get complacent about the Mitigation Program based on an abundance of temporary mitigation credits. As previously described, temporary mitigation does not meet the needs of municipal water providers and other water users that require supply certainty from one year to the next. In addition to the lack of certainty, temporary mitigation credits have additional drawbacks. Permit holders must pay for temporary credits on an annual basis. (This is true even if the permit holder is using its own water right to establish the needed mitigation credits.) Finally, twice as much temporary mitigation credits are required as compared to permanent mitigation credits. Permanent mitigation is provided on a 1:1 basis (1 acre-foot must be protected instream for each 1 acre-foot of consumptive use of groundwater), while temporary mitigation must be provided on a basis of 2:1 (2 acre-feet must be protected instream for each 1 acre-foot of consumptive use of groundwater).

Financing Risk Associated with Mitigation Program – Impacts of No Defined Permanent Supply of Mitigation Credits: To develop accurate and timely financing strategies for purchasing required permanent mitigation credits (and other large utility-related system improvements), the City needs discrete projects with discrete costs. Oregon allows for creation of System Development Charges (SDCs), which allows growth-related infrastructure investments to be shared in a fair and equitable way, rather than only through rate increases. The lack of a reliable way to estimate the cost and timing of mitigation credit purchases, however, makes the use of SDCs very difficult. It is nearly impossible to predict final transaction costs and timelines when there are no existing (on-the-shelf) mitigation credits to purchase and no reliable cost estimates for a permanent credit. Moreover, the development process for the creation of permanent mitigation credits is complicated and subject to countless public interest challenges and review complications with the Department. This situation complicates rate making and SDC development, as well as bond rating issues, and ultimately can result in a lack of supply certainty over the long term.

Burdensome administrative process: Currently, each permit holder must individually undertake the administrative process to secure permanent mitigation credits, which typically involves transferring an existing irrigation right to instream use. This approach is inefficient, costly and extremely slow. To complete the process to obtain permanent mitigation credits, the groundwater user must identify and obtain a qualifying water right, as well as complete the instream transfer process. The City has found the process to obtain OWRD approval of an instream transfer application for mitigation to be complex and extremely lengthy. The City currently

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has two instream transfers that were filed in 2009 still pending with the Department. Clearly, waiting more than six years to obtain required mitigation credits is a significant impediment to efficient water resource planning for groundwater users in the Deschutes Basin.

Recommend State-supported mitigation framework for permanent mitigation credits. The City recommends that OWRD establish, fund and staff a state-supported framework, such as a mitigation bank, that would make permanent mitigation credits available to qualified groundwater users (those with state defined mitigation obligations associated with current groundwater permits) in the Deschutes Basin. The current system does not discourage, and could allow or even promote speculation in water rights and associated mitigation credits. For example, credits in the Crooked Zone of Impact are currently for sale at close to \$7,000 per credit. A state supported framework or bank would limit speculation, would be better public policy for a state-required mitigation process, and would be square-on with the Department's responsibility to promote and administer sound water resources management. A state supported framework would also provide a predictable and affordable supply of mitigation credits. Finally, by establishing a central clearing house for mitigation credits, it would enable the leveraging of multiple projects.

Conclusion

A mitigation program that makes permanent credits available to groundwater users in an efficient, predictable, timely, and cost effective manner is critical to the health and economy of the Deschutes Basin. The City would encourage the Department to take actions to build a state supported, funded and staffed framework to continue the successful implementation of the Deschutes Basin Groundwater Mitigation Program. Finally, although many of the other issues related to the Mitigation Program may best be resolved through ongoing studies in the Basin, the City encourages the Department to ensure that adjustments to the program protect the interests of groundwater users that depend on this program for current and future water supply.

The City of Bend appreciates the opportunity to comment. I would be happy to meet to discuss these issues further.

Sincerely,



Patrick Griffiths
City of Bend, Water Resources Manager

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WILKE Laura K

From: Douglas Hancock <doug@hancockhughey.com>
Sent: Friday, March 20, 2015 5:30 AM
To: WILKE Laura K
Subject: RE: Deadline Extension: FW: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested
Attachments: Friends of the Metolius Comments.pdf

Hi Laura,

Friends of the Metolius' comments are attached for your consideration. Thank you, and please feel free to get in touch if you have any questions.

Best regards,

Doug Hancock

From: WILKE Laura K [<mailto:laura.k.wilke@state.or.us>]
Sent: Thursday, March 19, 2015 1:33 PM
To: Douglas Hancock
Subject: Deadline Extension: FW: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested

Greetings Mr. Hancock:

The Department is extending the deadline for submission of feedback from stakeholders on the Deschutes Groundwater Mitigation Program until close of business on **April 10, 2015**. See original e-mail below for details.

Thank you,
Laura Wilke

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MAR 20 2015

From: WILKE Laura K
Sent: Wednesday, March 04, 2015 1:27 PM
To: 'doug@hancockhughey.com'
Subject: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested

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Greetings Mr. Hancock:

I understand from Bonnie Lamb (DEQ) that you (representing Friends of the Metolius) are interested in the Department's current solicitation for feedback on the Deschutes Groundwater Mitigation Program. The text below is from initial e-mails sent out January 23, 2015.

The Department is initiating a review of the Deschutes Ground Water Mitigation Program under House Bill (HB) 3623, Chapter 694 Oregon Laws 2011. The text for HB 3623 is attached for your review and information. This House Bill requires the Department to look at the mitigation program and identify any regulatory and statutory changes that could be made to improve the program to address and mitigate for injury and offset measurable reductions of scenic water way flows. The Department will also be looking at additional elements identified in HB 3623, including issues raised by stakeholders.

With this e-mail, the Department is soliciting your feedback as a stakeholder on the Deschutes Ground Water Mitigation Program. Please provide any feedback you may have by ~~March 31, 2015~~.

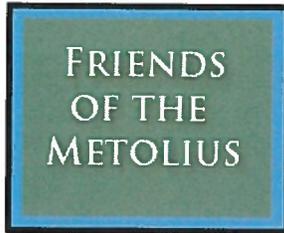
If you have any questions, please feel free to contact myself or Dwight French, Water Right Services Administrator. Dwight can be reached at (503) 986-0819 or dwight.w.french@wrds.state.or.us.

Thank you,
Laura Wilke
Flow Restoration Program Coordinator
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271
Phone: (503) 986-0884
Fax: (503) 986-0903

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P.O Box 101, Camp Sherman, Oregon 97730

March 20, 2015

By email only to: laura.k.wilke@state.or.us
Laura Wilke
Flow Restoration Program Coordinator
Oregon Water Resources Department
Salem, Oregon

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SALEM, OR

Re: Comments Regarding Deschutes Ground Water Mitigation Program

Dear Ms. Wilke,

Thank you for letting us know about the opportunity to comment on OWRD's statutorily mandated review of the Deschutes Ground Water Mitigation Program under House Bill 3623. Friends of The Metolius has been concerned about what we have perceived to be the OWRD's interpretation of its "zone of impact" regulations for ground water mitigation purposes. In this letter we articulate the basis for our concerns, and the damage to surface waters in the Metolius Basin that could result from current interpretation. We also provide our recommendations for revised OWRD treatment of the issues.

1. Background and The Problem

A significant and ongoing problem with the Deschutes Basin Groundwater Mitigation Program has been repeatedly identified as the "zone of the impact" issue. It is a function in large part that results from the extent to which the groundwater hydrology and connection to surface water in the Deschutes Basin is complicated. When groundwater is pumped, it can and does impact nearby surface waters, rivers and streams. The complicated part is that the impacted surface waters, rivers, and streams can also be located far away from the well. In fact, the impacted surface waters, rivers, and streams can often be in entirely different watersheds from those that are nearest the wells. Therefore there often are several "zones of impact" affected by a single well or permit.

The OWRD currently interprets its own rules to only mitigate impacts of groundwater pumping in "primary zones of impact". This means that if a well pulls water from, or otherwise impacts, more than one surface water such as a river or stream, the mitigation is only required to take place in one of them – the one that the Department finds is 'primarily' impacted. Even though the Department finds impacts to a river in a secondary zone that could include reduced water flows and negative impact to water quality and altered water temperature, it does not require ANY mitigation to that secondary zone. Simply put in terms of an example, if a well is found to have 70% of its impacts on the Deschutes River and 30% of its impacts on the Metolius River, then the Department is only requiring mitigation on the Deschutes. This interpretation theoretically could threaten the Metolius as its flows could be

reduced and adversely affected by the cumulative effects of wells drilled from outside of the Metolius Sub-basin.

This potential problem has been documented previously and is of course well-known to OWRD. It became more acute in 2009 when two destination resorts were planned for the Metolius Basin. In response to an application at that time by one of the groups that was hoping to build a destination resort on Green Ridge, Brett Hodgson, an Oregon Department of Fish and Wildlife Fish Biologist wrote a letter on January 27, 2009 to the OWRD issuing ODFW comments on the proposed application by for a groundwater permit in the Deschutes Ground Water Study Area. The letter is reproduced in significant part below:

Proposed Final Order

The PFO recommends issuance of a groundwater right for quasi municipal use between the Metolius River and Whychus Creek watersheds. The PFO would authorize the use of 10 wells in Jefferson County.

The total volume of groundwater used is 8.8 cubic feet per second (CFS), with a maximum annual volume of 2422 acre feet. OWRD has determined the proposed use is within the Deschutes Ground Water Study Area, and is subject to the Deschutes Ground Water Mitigation Rules (OAR 690-505). OWRD has further determined the proposed use will have the potential for substantial interference with the Deschutes River (OAR 690-09) and consequently, the applicant must mitigate for the proposed use.

OWRD identified the required mitigation obligation as 968.8 acre feet which must be provided in the General Zone of Impact, located anywhere in the Deschutes Basin above the Madras gage.

Issues

The department has identified the following fishery related issues associated with PFO G-16674.

>Existing hydrologic reviews and analysis suggest the proposed well field will diminish surface flows in the Metolius River, Whychus Creek and Fly Creek watersheds. However, the analysis to date has been insufficient to quantify the magnitude of reduced flows and its potential fishery affects.

>OWRD's PFO prescribes mitigation only in the general zone of impact (anywhere in the Deschutes Basin above the Madras gage). This fails to adequately mitigate for the loss of cold spring-fed surface water in the Metolius River and Whychus Creek local zones of impact.

Hydrologic Impacts

Zone of Impact/Mitigation

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The OWRD's groundwater review of application G-16674 found that there will likely be localized impact on the Metolius River, Whychus and Fly Creeks. Of these streams, Fly Creek is the closest to the proposed well field, and could proportionally be the most affected due to already low base flows.

Despite evidence of hydrologic connection between groundwater extracted from the proposed wells and surface waters in both the Metolius and Whychus *local* zones of impact, application of the current groundwater mitigation rules fails to recognize the impact on local springs and streams by requiring mitigation in the *general* zone of impact only in the PFO for G-16674.

The department recommends additional analysis be conducted to determine estimated volumes of surface water impacted in the Metolius and Whychus local zones. The required mitigation for the applicant should be applied in the *local* zone of impact at the appropriate ratios.

PFO G-16674 would remove 8.8 cfs of groundwater which in turn has the potential to affect the volume of groundwater available to feed local springs. This would result in an undetermined decrease in the volume of cold spring water contributing to flows in the Metolius River and Whychus and Fly Creeks. The PFO proposes to mitigate with 964 acre of surface water elsewhere in the basin. The likely mitigation water would be surface water which is warmer than spring water and does not provide equal fisheries or water quality value.

Water Rights

The State of Oregon holds instream water rights for each of the three watersheds that may be hydrologically connected to the proposed well field. These water rights are to provide migration, spawning, egg incubation, fry emergence and juvenile rearing of salmonids (ORS 537.341). The Instream Water Rights Act states instream water rights are granted the same legal standing as all other rights. ORS 537.350. Thus, OWRD needs to ensure in permitting Water Right Application G-16674 that the instream water rights in the affected local streams are not injured by reductions in stream flows from this proposed junior water right. ORS 537.621.

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Potentially affected instream water rights include:

IS 70698 Metolius River from Canyon Creek (River mile 35.6) to Lake Billy Chinook.

IS 70699 Metolius River from Metolius Springs (River mile 41) to Canyon Creek (River mile 35.6)

IS 70753 Whychus Creek from Indian Ford Creek (River mile 19.5) to mouth (River mile 0)

IS 70761 Creek from Meadow Creek to the mouth.

Hydrologic review of the PFO associated with G-16674 indicates there is a likely, yet unquantified, impact to surface waters in each of these streams. Reductions in stream flow will negatively impact resident and anadromous fish populations. The department recommends OWRD conduct a comprehensive analysis to quantify the

relative hydrologic impact to each of the streams and prescribe mitigation by the applicant within the respective *local* zones of impact. Without this critical information issuance of a Final Order authorizing development of the well field is premature at this time.

In a letter to then Governor Ted Kulongoski dated October 31st, 2007, the OWRD Director Phil Ward wrote¹:

WRD has a number of programs in place to administer laws that ensure existing water rights and public values are protected, while allowing for new development. In the Deschutes Basin, of which the Metolius is a part, the Deschutes Mitigation Program is the strongest program available to the department to address protection of streamflow in the Metolius River.

The Deschutes Mitigation Program was established in 2002 as a result of a multi-year ground water research study by WRD and the United States Geological Survey (USGS). The study confirmed that ground and surface water are directly connected within the Deschutes study area, including the Metolius sub-basin. This means any new ground water use would impact stream flow that is already appropriated in the Deschutes Basin.

The mitigation program divides the Upper Deschutes Basin into seven sub-basins or “zones of impact” and requires bucket for bucket mitigation for any new ground water use to protect streamflow in the primary zone of impact. Water rights applicants purchase credits from a mitigation bank as needed to balance their new use. The credits are generally derived from existing out-of-stream water rights that are left in-stream. The program has been successful at protecting streamflow in the Deschutes Basin and at the same time allowing economic growth in the region. While mitigation credits are available for most sub-basins, there are no credits currently available for the Metolius zone due to the lack of historic water development in that area.

Any new development would likely rely on ground water to meet its water supply needs. The study found that ground water is connected to surface water beyond the sub-basin boundary where the wells are constructed. This means that ground water withdrawal outside of the Metolius sub-basin could have an impact on stream flow in the Metolius River.

The Deschutes Mitigation Program will ensure no diminishment of flow in the Metolius River when the primary zone of impact of the new development is the Metolius sub-basin. The mitigation program, as currently administered, does not

¹ Director Ward ultimately concludes in this same letter that, “It is the Department’s view that the Deschutes Mitigation Program has been successful at balancing streamflow protection with economic development in the Deschutes Basin. For this reason, we recommend this program continue to operate as it is currently administered.”

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provide that same level of protection of the Metolius River when the Metolius sub-basin is not the primary zone of impact.

One option to strengthen these protections would be to require mitigation for new ground water use in all zones where state scenic waterways are impacted.

2. Solution

The clear takeaway from the foregoing is that in order to protect in-stream flows ground water mitigation must be in all zones of impact affected by appropriation under an individual's permit under the Deschutes Ground Water Mitigation Program. More specifically, HB 3623 should be amended as alluded to by former OWRD Director Ward to add the following language to the relevant statute:

"The Water Resources Depart shall require groundwater mitigation from individual water right permit or certificate holders at the appropriate ratios in each local zone of impact affected by the appropriation under the individual's permit under the Deschutes Groundwater Mitigation Program."

Thank you for the opportunity to provide comments.

Sincerely,



Doug Hancock
President of the Board of Directors

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MAR 20 2015

SALEM, OR

WILKE Laura K

From: John Short <johnshort@usa.com>
Sent: Thursday, March 26, 2015 2:06 PM
To: WILKE Laura K
Subject: Mitigation program - memory is only mostly gone...

Hello Laura,

A comment at this point on the mitigation program would be that having a way to lease permanent credits to other permit holders would sure be helpful. For example, some credit holders may not use their credits for many years, but FO or Permit holders needing them cannot lease the permanent credits in the interim.

Thanks,
John

John A. Short CCB# 197121

541-389-2837

Water Right Services, LLC
PO Box 1830
Bend, OR 97709
johnshort@usa.com
oregonwater.us

April 10, 2015

BY HAND DELIVERY

Laura K. Wilke
Oregon Water Resources Department
725 Summer St NE Ste A
Salem OR 97301-1271

Re: Comments on Deschutes Ground Water Mitigation Program --
HB 3623 Program Review

Dear Laura:

Thank you for the opportunity to provide comments on the Deschutes Basin Ground Water Mitigation Program (“Mitigation Program”) in connection with a programmatic review under HB 3623 (2011 Oregon Laws Chapter 694). I have been involved with the Mitigation Program since its inception: First, in the initial stages of policy and program development that took place while I served as Director of the Oregon Water Resources Department (“OWRD” or “Department”). Since then I have represented numerous clients in successfully using the program to obtain new ground water rights with appropriate mitigation. I also served as a member of the “Deschutes Group,” a public advisory group formed by OWRD to provide input during a previous programmatic review process required under HB 3494. I have remained a strong supporter of the Program throughout its history. The following reflect my personal observations and recommendations about the Mitigation Program and are not submitted on behalf of any client.

Overall, I believe the Mitigation Program has provided an extremely valuable and successful model for allowing responsible ground water development with appropriate mitigation for surface water impacts. However, I have one very serious concern that has not been adequately addressed by the Department. The following comments relate to implementation of one narrow, but very important aspect of the Mitigation Program – the Department’s determination of the “zone of impact” in which mitigation is required when a proposed ground water use is expected to affect surface water in multiple sub-basins. As you know, this issue is the subject of litigation currently pending before the Oregon Court of Appeals on behalf of one of my clients; however, my comments are not intended to affect the outcome of that case and are submitted in response to the Department’s request for stakeholder feedback as part of the HB

3623 program review. I appreciate the opportunity to participate in the review effort and I hope the comments will help motivate the Department to invite further public discussion, and take steps to provide much-needed clarity and transparency in the application review process.

Overview of the Issue

Changes are needed in the Mitigation Program rules and implementing guidance to ensure that the applicable standard for determining where mitigation must occur is clearly described in the rule, and applied consistently to all applications.

Specifically, OAR 690-505-0610(4) should be amended to clarify how OWRD determines the specific zone of impact – whether the “General Zone” or one of several identified “localized” zones – where mitigation will be required.

The current rule specifies that for each ground water application, OWRD will determine “the general zone of impact” in which mitigation will be required. OWRD has a well-established practice of interpreting this rule to mean that mitigation is required in only one zone, even when a single proposed ground water use is likely to affect more than one sub-basin. In such instances, OWRD has explained in official documents and reports that mitigation is required in the “primary zone of impact” where “most of the impact” is expected to occur.

Despite the apparent clarity and common understanding of the words used by OWRD in these public statements, the Department’s adherence to and interpretation of its own policies has been inconsistent, and there has been no further action by the Department to answer the critical follow-up questions: How does OWRD determine what is the “primary” zone? What does OWRD mean by the terms “primary” and “most”? Does OWRD still stand behind those previous public statements as to how the determination is made? How can an applicant be assured that the Department’s determination in one case will be consistent with others when there are no objective criteria specified in rules or guidance for making the determination?

Background

The general purpose of the Mitigation Program is to provide mitigation or offset for the expected impacts of new ground water development. The Mitigation Rules require that mitigation “must be provided within the general zone of impact identified by the Department.” OAR 690-505-0610(4). Under the rules, “General zone of impact” is defined as”

“...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 Wychus Creek], Little Deschutes, and Crooked River subbasins as identified by the Department.”

OAR 690-505-0600(5).



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The rule appears to assume impacts will occur in only one sub-basin. In practice, when reviewing a new application for ground water use, OWRD makes a finding that specifies whether mitigation will be required in what it commonly calls “the General Zone” (anywhere on the main stem or tributaries above the Madras gage) or in one of the specifically named “localized” zones. But the current rules provide no further direction as to *how* the Department makes this important determination. Nor do the rules provide any explanation or guidance as to what happens when the facts show that a single new ground water use will have impacts in multiple sub-basins. As a result, applicants have no basis upon which to objectively evaluate, question or challenge the Department’s interpretation and findings.

The specific issue of how the rules are interpreted and applied was raised as early as 2007 in the context of a highly controversial proposal to develop a new destination resort in the Metolius sub-basin. At that time, Governor Ted Kulongoski wrote to Director Phil Ward to request an explanation of whether and to what extent the OWRD Mitigation Program would protect surface water flows in the Metolius River. In the Department’s official response, Director Ward explained:

“The mitigation program divides the Upper Deschutes Basin into seven sub-basins or “zones of impact” and requires bucket for bucket mitigation for any new ground water use to protect streamflow in the primary zone of impact.

“The Deschutes Mitigation Program will ensure no diminishment of flow in the Metolius River when the primary zone of impact of the new development is in the Metolius sub-basin. The mitigation program, as currently administered, does not provide that same level of protection of the Metolius River when the Metolius sub-basin is not the primary zone of impact. “

Letter from Director Phil Ward to Governor Ted Kulongoski, October 31, 2007
Emphasis in original. (Copy attached.)

In February, 2008, OWRD publicly reiterated its process of determining the “primary” zone of impact in its official Five-Year Program Evaluation Report for the Mitigation Program that was submitted to the Water Resources Commission. The report stated: “Zones of impact are based upon where the proposed use will primarily impact surface water flows.” The Report did not provide further detail as to how the determination is made.

Later in 2008, OWRD convened a public advisory group – known as “the Deschutes Group” – to provide input and advice on the Mitigation Program part of another program review required by the Legislative Assembly under HB 3494. I served as a member of the Deschutes Group and participated in a number of meetings during which various aspects of the Mitigation Program were reviewed and discussed. At a meeting on September 5, 2008, the specific topic of discussion was the question: how does the Department determine the “primary” zone of impact. In a staff presentation at that Deschutes Group meeting, and in the official minutes of the



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meeting included in the Department's subsequent report to the Legislature and Commission, the Department explained:

“OWRD currently identifies one zone of impact based on where most of the impact is going to occur. To identify the primary zone of impact, Ken [Lite – OWRD staff] uses the Department's conceptual understanding of the ground water flow system (based on the USGS-OWRD Deschutes Basin Ground Water Study) and well construction information provided by the applicant (e.g., well depth, water table elevation). He relates that to regional ground water flow direction, areas of ground water discharge, and the proximity of the proposed well to those discharge zones.”

OWRD House Bill 3494 Report, January, 2009 (Copy attached.)

This official response by OWRD confirmed and publicly restated the Department's policy that mitigation is required in only one zone of impact determined on the basis of where “most” of the impact will occur. OWRD has taken no steps since publication of this report to retract, clarify, or modify this policy statement.

At first blush, one might reason that no further explanation is needed; the wording is clear on its face. But OWRD is well aware that this is not the case. Since 2008, the Department has been engaged in a legal dispute over what “most” means. The case in question, *Young v. OWRD* (CA No. A 153699) helps frame the issue, but it is not the reason why this issue is important: The public is entitled to know what standards apply and how the Department makes its determinations under the standards.

In the *Young* case, OWRD is taking the position that mitigation is required in a local zone, the Little Deschutes, which it has determined will be affected by the proposed new well. The Department does not assert that this is the zone in which “most” of the impact will occur. Instead, the Department has argued alternatively that either the explanations contained in the letter to Governor Kulongoski and subsequent reports to the Commission and Legislature do not constitute an official agency position, or if they do, that the terms “primary” and “most” do not refer to a quantitative analysis. OWRD asserts the words describe a “spatial reference” that is intended to describe the closest surface water or “the most likely” surface water that will be impacted by the pumping. (Citations to Record available.)

In taking this position in the *Young* case, the Department relies on its interpretation of an internal guidance memo issued by staff in 2002, soon after the Mitigation Program rules were adopted. In terms of process, it is important to note that this 2002 guidance memo was not shared with the Deschutes Group in the 2008 program review process and to my knowledge has never been published or publicly referenced since then. A copy of the guidance memo is attached. According to this memo, if OWRD finds *any* impact within a localized zone, then all of the mitigation is required in that zone. The memo does not address what happens if impacts are expected in more than one local zone and as a practical matter, the memo appears to be in direct contradiction to the practices described in the later letter to Governor Kulongoski, and in

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Laura K. Wilke
April 10, 2015
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the Department's reports. The memo does not use the terms "primary" and "most" and there is no apparent quantification or comparison of the level of impact between multiple zones.

Regardless of how the *Young* case is resolved, the programmatic questions remain: How does the Department determine the single zone of impact where mitigation will be required? And how does the public know what the standard is? For now, the only public pronouncements made by the Department are those contained in the 2007-2008 documents. To most people, the term "most" means some kind of quantitative determination – more impact in one zone than in another. This is the plain and common meaning attributed to the words OWRD selected to describe its program to the public. Based on evidence and legal arguments presented in the *Young* case, to OWRD "most" does not involve a quantitative determination at all and relates spatially to the first or closest point of surface water impact. If this is the policy position and standard OWRD now recommends for the Mitigation Program, it has the opportunity and obligation to take action through formal rulemaking.

It is time to confront this policy question head on. The report to Legislature resulting from this programmatic review should identify the concern and should recommend action to ensure clarity and transparency for the future.

Sincerely,



Martha O. Pagel

MOP

cc: Mr. Tom Byler
Dwight French
Renee M. Moulun
Oregon Water Resources Commission



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Oregon

Theodore R. Kulongoski, Governor

Water Resources Department
North Mall Office Building
725 Summer Street NE, Suite A
Salem, OR 97301-1266
503-986-0900
FAX 503-986-0904

October 31, 2007

Governor Theodore Kulongoski
State Capital
Salem, OR 97301-4047

Dear Governor Kulongoski:

Thank you for your July 13, 2007 letter directing the Water Resources Department (WRD) to evaluate whether the existing laws and rules that it administers are adequate to ensure that new destination resort development in or near the Metolius Basin would result in no reduction of stream flows in the Metolius River. We have completed that evaluation and offer the following for your consideration.

WRD has a number of programs in place to administer laws that ensure existing water rights and public values are protected, while allowing for new development. In the Deschutes Basin, of which the Metolius is a part, the Deschutes Mitigation Program is the strongest program available to the department to address protection of streamflow in the Metolius River.

The Deschutes Mitigation Program was established in 2002 as a result of a multi-year ground water research study conducted by WRD and the United States Geological Survey (USGS). The study confirmed that ground and surface water are directly connected within the Deschutes study area, including the Metolius sub-basin. This means any new ground water use would impact stream flow that is already fully appropriated in the Deschutes Basin.

The mitigation program divides the Upper Deschutes Basin into seven sub-basins or "zones of impact" and requires bucket for bucket mitigation for any new ground water use to protect streamflow in the primary zone of impact. Water right applicants purchase credits from a mitigation bank as needed to balance their new use. The credits are generally derived from existing out-of-stream water rights that are left instream. The program has been successful at protecting streamflow in the Deschutes Basin and at the same time allowing for economic growth in the region. While mitigation credits are available for most sub-basins, there are no credits currently available for the Metolius zone due to the lack of historic water development in that area.

Any new development would likely rely on ground water to meet its water supply needs. The study found that ground water is connected to surface water beyond the sub-basin boundary where the wells are constructed. This means that ground water withdrawal outside of the Metolius sub-basin could have an impact on stream flow in the Metolius River.

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03/04/2008 11:03 FAX 503 378 3225.

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The Deschutes Mitigation Program will ensure no diminishment of flow in the Metolius River when the primary zone of impact of the new development is the Metolius sub-basin. The mitigation program, as currently administered, does not provide that same level of protection of the Metolius River when the Metolius sub-basin is not the primary zone of impact.

One option to strengthen these protections would be to require mitigation for new ground water use in all zones where state scenic waterways are impacted. The Metolius River is a designated state scenic waterway from its source at river mile 41.2 downstream to Candle Creek at river mile 29. We've been advised by the Attorney General's office that mitigation could be required for impacts to multiple zones involving state scenic waterways. This option however, could have far reaching effects that could potentially eliminate most new ground water development in portions of the Deschutes Basin. For example, using this broader "mitigate everywhere" approach could seriously constrict the economic growth in the Sisters area, since withdrawal from wells near Sisters could affect flows in the Metolius sub-basin and require mitigation where credits are not available.

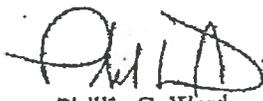
A second option would be to close the Metolius Basin to new appropriations of water. This could be done by Water Resource Commission (WRC) or legislative action, however this option would not provide protection against ground water use by proposed development located outside of the Metolius sub-basin.

A third option would be for the WRC to withdraw designated areas from particular ground water uses. This would limit where new development could withdraw ground water. The difficulty with this option would be hydrologically justifying the withdrawal boundaries.

If implemented, option one could have significant consequences on economic development in the region. Option two does not provide additional protection beyond what the existing mitigation program provides. Option three would limit the development of ground water in designated areas, but without a strong hydrologic basis for delineating those areas, actions under this option would likely be subject to legal challenge.

It is the department's view that the Deschutes Mitigation Program has been successful at balancing streamflow protection with economic development in the Deschutes Basin. For this reason, we recommend this program continue to operate as it is currently administered.

Sincerely,


Phillip C. Ward
Director

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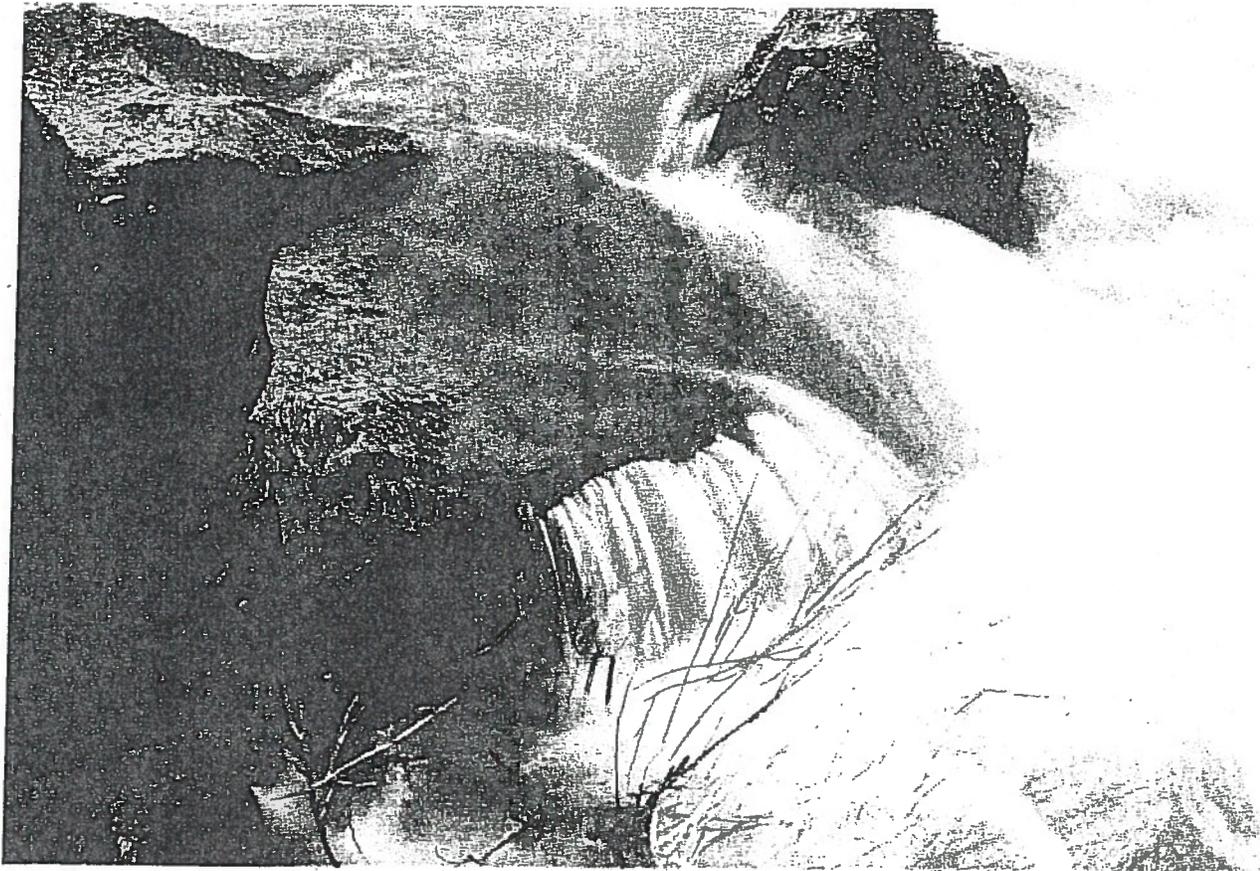
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Deschutes Ground Water Mitigation Program:

House Bill 3494 Report



January 2009

State of Oregon
Water Resources Department



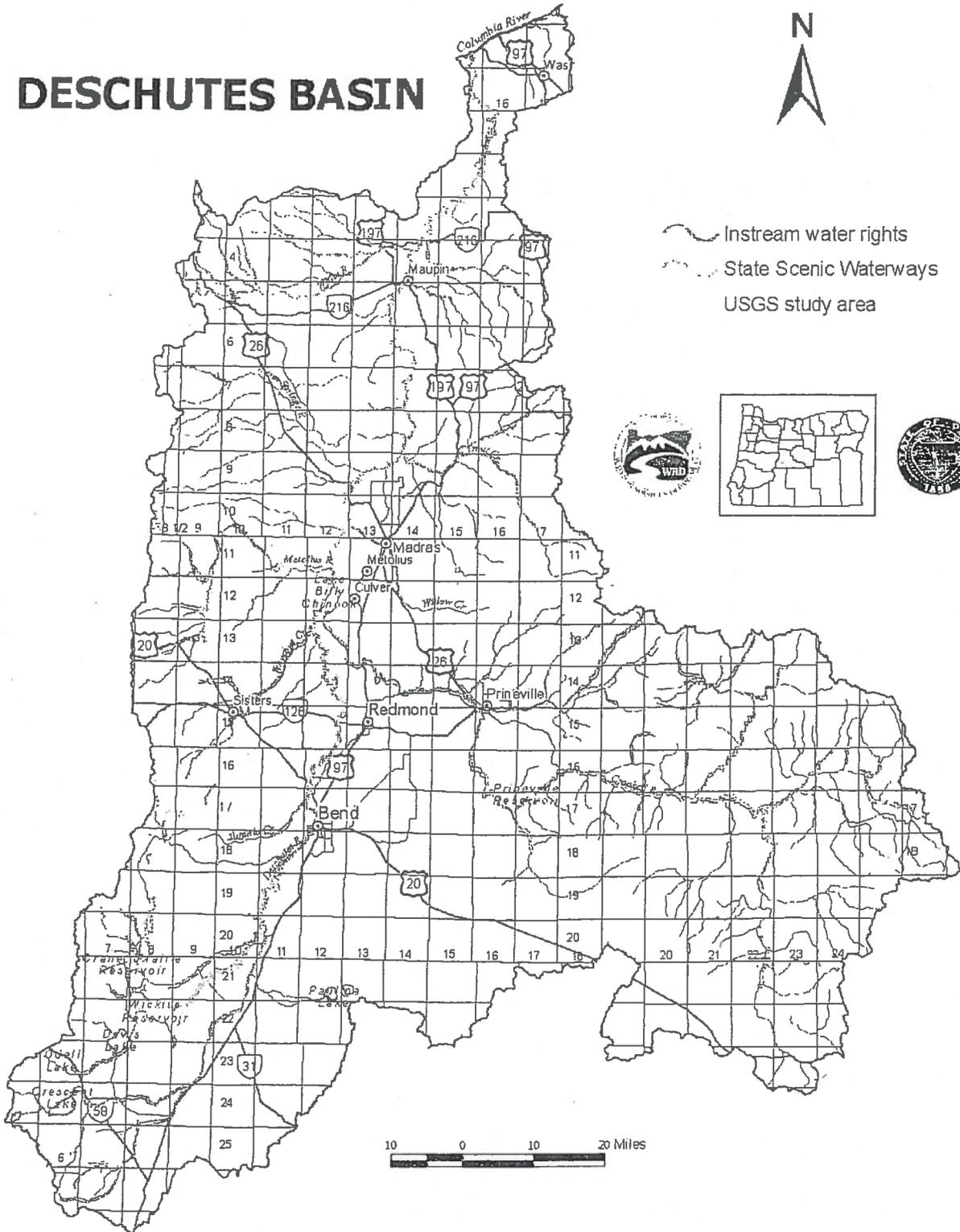
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DESCHUTES BASIN



OWRD GIS (rh), 1/8/2008, ds/desfig_USGS_TSMR_SSM.mxd

Deschutes River Basin and Ground Water Study Area.

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*Special Thanks to All of the Members of the Deschutes Group for their Valuable Input
and Cooperative Efforts on this Review*

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Deschutes Ground Water Mitigation Program: House Bill 3494 Report

Executive Summary

Background

House Bill 3494 (Chapter 669, 2005 Oregon Laws) directs the Oregon Water Resources Department (OWRD) to report to the 75th Legislative Assembly, no later than January 31, 2009, on the implementation and operation of the Deschutes River Basin Ground Water Mitigation and Mitigation Bank Programs.

In the Deschutes Basin above Lake Billy Chinook, a US Geological Survey (USGS) study conducted in cooperation with OWRD and others indicated there is a hydraulic connection between ground water and surface water within the Deschutes Ground Water Study Area. Because of this connection, ground water withdrawals within this area are anticipated to affect surface water. Since scenic waterway flows and instream water rights in the Deschutes Basin are not always met, OWRD may not approve new ground water permits unless the impacts are mitigated with a similar amount of water being put instream. The Deschutes Mitigation Program provides a set of tools that applicants for new ground water permits within the study area can use to establish mitigation and, thereby, obtain new permits from OWRD. These programs are implemented under Oregon Administrative Rules (OAR) Chapter 690, Divisions 505 and 521.

The amount of new ground water use that can be approved under the program is limited to a total of 200 cubic feet per second (cfs). Since adoption of the Deschutes Mitigation rules in September 2002, OWRD has issued 67 new ground water permits with associated mitigation, totaling 52 cfs of water. In addition to the 52 cfs allocated, there is approximately 148 cfs in pending applications and approved final orders. Assuming all pending applications and final orders move forward as proposed, the 200 cfs "cap" will be met and no additional permits can be issued without the Water Resources Commission modifying its rules and adjusting the cap.

The Department maintains an accounting record of new ground water permits and associated mitigation with links between the ground water permits and their source of mitigation. Overall, for each year the program has been in place, there has been sufficient mitigation water available to meet the needs of the ground water permits issued under the program. However, there may not be sufficient supplies of mitigation water available to satisfy the mitigation needs of all currently pending ground water use requests. Additionally, there are areas of the basin where mitigation has not been available. To date, much of the mitigation water is temporary in nature (in the form of annual instream leases of existing

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irrigation water rights). However, the amount of permanent mitigation water available has increased steadily each year of the program.

Deschutes Group

To assist with development of this report to the Legislative Assembly, in May 2008 the Department convened the Deschutes Group, a broad range of water users and organizations with an interest in water use in the Basin. This group was convened to review the implementation and operation of the Deschutes Mitigation Program. The Group met four times over five months. The Group identified where the program was being successfully implemented and where members of the group believed the program could be modified or improved.

In the first meeting the Group generally agreed that the Deschutes Mitigation Program is working and brainstormed a list of successes including:

- Transactions are occurring – OWRD has issued mitigation credits and water has been put back into the Middle Deschutes reach.
- All interests are aligned around an instream flow purpose. Everybody has to think about the river in terms of how new water rights can be acquired and what mitigation has to occur in order to provide for those new rights.
- Very few places in the West have capped consumptive use. Overall consumptive use in the Basin is neutral.
- The program has made a good strong start in achieving the goals of mitigation in the Basin. People want to keep improving it, but do not want the program eliminated or compromised.

In subsequent meetings, the Group focused their discussions on the following six issue areas:

- The zones of impact in which mitigation is provided;
- What is counted under the 200 cfs allocation cap on new ground water uses in the Deschutes Basin;
- Offset of impacts on surface water flows resulting in reduced mitigation requirements and incremental mitigation provided by municipal and quasi-municipal ground water permit holders;
- Potential water quality impacts of the Mitigation Program;
- Non-irrigation season mitigation and;
- Water right permits that were issued prior to rule adoption with a condition on their use to allow regulation to protect scenic waterway flows (called “7(j) conditioned water right permits”).

Small work groups defined or “framed” these issues between meetings to provide context and background so that the Group could have an informed discussion of the issues at subsequent meetings.

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- Provides for adaptive management through annual evaluations and review of the Program every five years (OWRD, 2008).

House Bill 3494 Requirements

House Bill 3494 (Chapter 669, 2005 Oregon Laws) directs the Oregon Water Resources Department (OWRD) to report to the 75th Legislative Assembly, no later than January 31, 2009, on the implementation and operation of the Deschutes River Basin Ground Water Mitigation and Mitigation Bank Programs. The 2005 act requires that the report include a summary of:

- The cumulative rate of water appropriated under all ground water permits approved in the Deschutes River Basin after the effective date of the 2005 act;
- The volume of water, in acre-feet, provided for mitigation; and
- The measured stream flow of the Deschutes River and its major tributaries.

The report may also include information on the progress on restoring streamflows in the Deschutes River Basin to support anadromous fish and any statutory changes needed to accomplish needed streamflow restoration.

Deschutes Group

To assist with development of the report, in May 2008 the Department convened the Deschutes Group (Group), a broad range of water users and organizations with on-the-ground experience and an interest in water use in the Basin. This group was convened to review the implementation and operation of the Deschutes River Basin Ground Water Mitigation and Mitigation Bank Programs (Program). This review included identifying and discussing successful elements of the existing Program, opportunities to improve the Program in the future, and legislative or rule changes necessary to implement these improvements. Prior to the first meeting of the Group, interviews were conducted with each participant to

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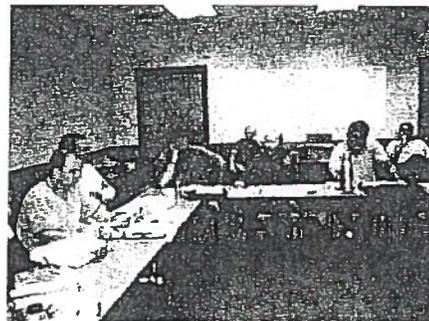
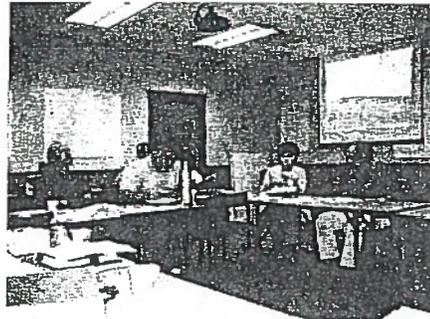
gather a range of perspectives about the Program. The summary of these pre-meeting interviews is located in Appendix A.

The Group met four times over five months. In addition, subcommittees met between meetings to “frame” issues for discussion with the broader Group at each meeting. Approved agendas for each of the four meetings are located in Appendix B, and approved summaries of each of the meetings are located in Appendix C. This report provides a synthesis of the work and recommendations of the Deschutes Group. On December 10, 2008, the Department also hosted a public meeting in Bend to present the results of the draft report.

Deschutes Group members included:

- Robert Brunoe, The Confederated Tribes of the Warm Springs Reservation of Oregon;
- Tod Heisler, Deschutes River Conservancy;
- Steve Johnson, Central Oregon Irrigation District;
- Rick Kepler, Oregon Department of Fish and Wildlife;
- Michelle McSwain, U.S. Bureau of Land Management, Prineville District Office;
- Martha Pagel, Schwabe, Williamson, Wyatt;
- Kimberley Priestley, WaterWatch of Oregon;
- John Short, Deschutes Irrigation LLC;
- Adam Sussman, GSI Water Solutions, Inc.; and
- Jan Wick, Avion Water Company

In addition to the participants listed above, two alternates were appointed to the Deschutes Group: Jan Houck (Oregon Parks & Recreation Department) as an alternate for Rick Kepler, and Patrick Griffiths (City of Bend) as an alternate for Adam Sussman. OWRD representatives Debbie Colbert and Kyle Gorman also participated in the Deschutes



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- The program has made a good strong start in achieving the goals of mitigation in the Basin. People want to keep improving it, but don't want the program eliminated or compromised.

Primary Issues of Concern as Identified by the Deschutes Group

At their first meeting the Deschutes Group discussed key issues of concern about the implementation and operation of the Program, as well as bigger picture water issues in the Deschutes Basin.

The Deschutes Group brainstormed the following list of opportunities to improve the program:

- How applications are "counted" under the 200 cfs allocation cap ;
- Zones of impact determination;
- Non-irrigation season mitigation;
- 7(j) conditioned ground water rights;
- Need to improve analytical monitoring tools used by the Program;
- Program sunset dates;
- Net consumptive use in the basin;
- Need to shorten the length of time to process new ground water and mitigation project applications;
- Need to evaluate how transferable the program is;
- Need for monthly accounting of instream flows to be part of any report or analysis of the Program;
- The changing environment of the program;
- Location of mitigation (where water is actually transferred back instream);
- The need to address or develop ways to extend or improve alternative mitigation options;
- Limitations due to mitigation water not being available in all areas.

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OWRD staff and Deschutes Group members also brainstormed the following “big picture” water issues in the basin:

- Water quality impacts including potential impacts to springs;
- Other basin efforts such as the ongoing Habitat Conservation Planning (HCP) process;
- Broader restoration efforts and actions;
- Need to investigate ground water (aquifer) declines in certain areas in the basin;
- Need to determine net consumptive use in the basin;
- Understanding the impact of exempt wells;
- Winter flow restoration efforts and opportunities;
- Need to evaluate the sustainability of the Deschutes Water Alliance (DWA) Water Bank.

From the issues that the Group brainstormed above, the Group focused their discussions on the following six issue areas:

- The zones of impact in which mitigation is provided;
- What is counted under the 200 cfs allocation cap on new ground water uses in the Deschutes Basin;
- Offset of impacts on surface water flows resulting in reduced mitigation requirements and incremental mitigation provided by municipal and quasi-municipal ground water permit holders;
- Potential water quality impacts of the mitigation program;
- Non-irrigation season mitigation and;
- Water right permits that were issued prior to rule adoption with a condition on their use to allow regulation to protect scenic waterway flows (called “7(j) conditioned water right permits”).

Small work groups defined or “framed” these issues between meetings to provide context and background so that the Group could have an informed discussion of

the issues at subsequent meetings. The remaining issues were not discussed further by the Group because of time constraints for reporting on the program.

The following sections on each focus issue are organized with a statement of the issue; recommendations agreed upon by the Group that address some aspect of the issue; the issue framing paper developed by the small work groups; and the range of discussion by the Group on each focus issue. Not all discussion points raised in the issue framing papers were discussed by the Group.

Zones of Impact

Issue Statement: Some stakeholders are concerned about the Department requiring mitigation only in the “primary” zone of impact when ground water pumping may impact more than one zone of impact.

Recommendation #1: Recommend that the Department improve their analytical tools to be able to better assess the zones of impact.

Issue Framing Paper

Background

The Deschutes Mitigation Rules adopted by the WRC require mitigation be provided within the zone of impact identified by the Department. The rules divide the required location of mitigation into two areas – (1) those in general zone and (2) those in local zones. The concept is that those in the general zone are developing water in the “regional aquifer” and their potential groundwater pumping impacts would be on the regional confluence areas of the Deschutes, Crooked and Metolius Rivers, hence they need only provide mitigation anywhere above the Madras gage on the Lower Deschutes River. For those wells determined by the Department to have a localized impact on surface water, mitigation must be provided in the local zone of impact. The local zones are

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generally described by rule as anywhere within the impacted subbasin of the Deschutes River as identified by the Department. The initial local zones of impact identified by the Department were the Middle Deschutes, Crooked River, Whychus Creek, Upper Deschutes River, Little Deschutes River, and Metolius River.

In its determination of local zones of impact, the Department considered subbasin boundaries, locations where instream water rights or scenic waterway flows were not being met, general ground water flow information, and other hydrogeologic information, including identification of where stream reaches were influenced by groundwater discharge.

Once the local zones were identified, the Department pinpointed the lower boundary within each local zone by one of two means: (1) the lower boundary of the zone being located below the lowest groundwater discharge area, and (2) the lower boundary of the zone being within the groundwater discharge area where instream requirements are not met above that point.

(http://www1.wrd.state.or.us/pdfs/Deschutes_Mitigation_5_Year_Review_Final_Report.pdf: see page 20 of 5-year evaluation report).

The rules require the Commission to review the general zones of impact identified by the Department every five years.

Issue Framing

Issues raised by stakeholders about the zones of impact, as they relate to the implementation and operation of the mitigation program, are described below.

A. Primary/Secondary Impact: This issue is highlighted in the October 31, 2007 letter from Director Ward (see Appendix E1). In short, some stakeholders have raised concerns with regards to the Department requiring mitigation only in the "primary" zone of impact when groundwater pumping may impact more than one zone of impact. This issue may raise the following discussion points.

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- Is OWRD's approach to the primary/secondary impact issue consistent with its rules?
- What is the extent of the primary/secondary issue? (i.e. how many applications have been approved/are in the queue that may impact more than one zone of impact? How does the OWRD determine the primary zone of impact when there may be more than one zone?
- What are the implications for senior surface water rights and scenic waterway flows on any "secondary impact" streams?
- Is OWRD's current approach a problem?
- What is being done/can be done to monitor potential primary/secondary impacts?
- What can or should be done?
- Does the available information and scale of the program lend itself to a primary/secondary impact approach?
- Would a more detailed approach (multiple zones of impact) lend itself to a program that can be administered by OWRD?
- What are the implications of a primary/secondary approach?

B. Location of Mitigation Within a Local Zone: Again, focusing on location of impact vs. mitigation, some stakeholders would like more information regarding the potential impact from groundwater pumping vs. the location of mitigation being provided within a local zone. This issue may raise the following discussion points.

- Is mitigation being provided at or above the point of impact?
- Does the Department track, on a case-by-case basis how mitigation and potential impact match-up in the local zones as it indicated it could in a 2003 monitoring plan provided to the Commission?
- Can this issue be monitored for future review?
- Do changes need to be made?
- Should the Department refine the local zones of impact? (i.e. Tumalo Creek, Indian Ford Creek)

- What are the implications of a different approach?
- How is the program working for local impacts on tributaries within a local zone? (i.e. Indian Ford Creek and Tumalo Creek)
- Is the Department undertaking identical injury determinations for senior consumptive and instream water rights?

C. Availability of Mitigation: As described in the Department's 5-year review report, not all zones of impact have mitigation water available and some that do may only have limited amounts of year-to-year temporary mitigation.

Stakeholders have raised concerns about the "lumpy" supply of mitigation in some zones and the lack of mitigation altogether in others. This issue may raise the following discussion points.

- What are the implications for the program if mitigation is not available in a particular zone?
- Are there ways to facilitate the development of mitigation where no or little mitigation is available today?
- What are the implications of the Fort Vannoy case on the availability of mitigation, if any?
- Others?

Discussion

The following represents the range of perspectives discussed by the Group on this focus issue. OWRD staff explained that the Department currently identifies only one zone of impact based on where most of the impact will occur using the Department's conceptual understanding of the ground water flow system (based on the USGS-OWRD Deschutes Basin Ground Water Study) and well construction information provided by the applicant (e.g., well depth, water table elevation). This information is then assessed in relation to regional ground water flow direction, areas of ground water discharge, and the proximity of the proposed well to those discharge zones.

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The Department's ground water permit review involves three separate findings: under Oregon Administrative Rules (OAR) Division 690-08, Division 690-09, and the Scenic Waterway. The Division 8 (groundwater availability) and Division 9 (groundwater / surface water interference) findings are recorded on a form called the "Public Interest Review for Ground Water Applications." Staff may identify specific stream reaches that would likely be impacted by the proposed ground water use on this form. Those stream reaches may or may not be in another "zone of impact". A "zone of impact" finding is strictly related to a scenic waterway review in the upper Deschutes Basin.

When the Department was moving forward with implementing the program, considerable thought focused on how to balance using the best information without making the review and process so complex as to overwhelm staff and applicants. The Department subsequently chose to use the conceptual approach instead of the regional flow model to make zone of impact findings in order to achieve a balance between the needed information and staff/applicant resources and capacities.

The Group raised questions about how precise / accurate the Department's conceptual approach is, and what physical (scientific) factors such as well depth and geology may influence the zone of impact decisions. Improving the analytical tools used by the Department to determine zones of impact, so that the best possible analysis can be made, was also discussed. The Group reached consensus agreement on this issue (see Recommendation #1 above).

Discussion of Splitting Zones of Impact

The Group discussed whether the Department should consider splitting zones of impact (and require mitigation in more than one zone) if their analysis shows significant impacts in more than one zone. Department staff clarified that in some cases the Department may be able to identify impacts in more than one zone. However, splitting by zone using the numerical model would be constrained by

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available staff resources and model uncertainty. Other group members also stated that because of its limitations, the existing model should not be used to determine quantitative splits of impacts into more than one zone. Other participants said that if the analytical tools could be improved, that it would be good to split out impacts into multiple zones. Another suggestion was to split impacts and mitigate in multiple zones if the analytical tools allow for this, subject to the availability of mitigation credits. Others did not like this suggestion that requiring mitigation in more than one zone would be subject to availability.

No consensus was reached on the proposal

Discussion of Unavailability of Mitigation in Some Areas

The Group discussed the lack of availability of mitigation water in all zones of impact. Participants pointed out that there is a perception that because the Program is in place, mitigation credits are available in every zone of impact. However, the general public and elected officials do not appear to understand that certain areas in the Basin currently have no known source of mitigation. The Group discussed whether the Department should identify those areas in the Basin where no mitigation is currently available so as to raise awareness, to educate and inform communities, and create better understanding of the issue. Discussion noted that the intent of the proposal was to inform the Legislature that the Program cannot function in certain areas in the Basin because no mitigation is available in certain zones.

The Group agreed on the need to clarify in this report that mitigation is not currently available in all zones.

Discussion of Proposal to Look for Alternatives if No Mitigation Water is Available

Another suggestion discussed by the Group was whether alternative forms of mitigation should be considered if no mitigation water is available in a zone as long as flows are not impaired. Some suggested that there needs to be a

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reasonable approach to determine if there are any other creative options to enhance flows that could be applied in those zones where permanent mitigation is not available. Others did not support this idea because it represented a fundamental change in the Program that currently takes a "bucket for bucket" approach to mitigation.

No consensus was reached on this proposal.

What is Counted Under the 200 cfs Cap

Issue Statement: A requirement to count all final orders issued under the mitigation rules (even zero mitigation obligation, non-consumptive, and offset) appears to be an unintended consequence of the current rules. The issue is whether zero mitigation obligation or non-consumptive uses, such as a closed loop heat exchange, or permits issued under an offset, should be counted under the 200 cfs cap.

Recommendation #2: Water allocated under the 200 cfs cap should be restored to the cap if the amount of water use authorized in the permit or final certificate is less than the amount originally approved in the final order.

Issue Framing Paper

Background

The Deschutes Mitigation Rules adopted by the WRC established a 200 cfs cap under OAR 690-505-0500(1). The purpose of the cap was to establish a check-in point for the Commission to evaluate the mitigation program and rules. The cap rule reads as follows:

Appendix C2
OWRD GROUND WATER MITIGATION PROJECT
SUMMARY OF SEPTEMBER 5, 2008
DESCHUTES GROUP MEETING
(As approved at the October 22, 2008 meeting)

Deschutes Group Members Present: Debbie Colbert, Kyle Gorman, Tod Heisler, Steve Johnson, Rick Kepler, Michelle McSwain, Martha Pagel, Kimberley Priestley, Adam Sussman, and Jan Wick

Deschutes Group Members Absent: Robert Brunoe and John Short

Guests Present: Mary Meloy (State Water Resources Commissioner), Jeremy Giffin (OWRD Water Master), Ken Lite (OWRD Hydrologist), Patrick Griffiths (City of Bend), and Mark Yinger (consultant)

Meeting Facilitators: Paul Hoobyar and Joanne Richter, Watershed Professionals Network

After group introductions, Paul Hoobyar discussed the purpose of the meeting, the group approved the agenda, and Paul reviewed the Meeting Agreements with the group and asked whether there had been any media contacts (there were none). The group then discussed proposed changes to the Draft Meeting Summary from the July 17th meeting, and approved those changes.

Zone of Impact Issue Framing Discussion: Kimberley presented an overview of the issue framing paper that she, Adam and John had worked on. Adam added a key question they were concerned about: How does the Department interpret their own rules regarding zone of impact determinations? Ken Lite discussed in some detail how he makes zone of impact findings and clarified technical issues for the group. Main questions raised by the group, Ken's responses, and additional information provided by the Department after the meeting are shown below:

- How does Ken pick the primary zone of impact? Response: OWRD currently identifies one zone of impact based on where most of the impact is going to occur. To identify the primary zone of impact, Ken uses the Department's conceptual understanding of the ground water flow system (based on the USGS-OWRD Deschutes Basin Ground Water Study) and well construction information provided by the applicant (e.g., well depth, water table elevation). He relates that to regional ground water flow direction, areas of ground water discharge, and the proximity of the proposed well to those discharge zones.
- Does the Department account for possible impacts in other zones? Response: Ken's review of an application for a groundwater permit involves three separate findings: under Division 690-08, Division 690-09, and the Scenic Waterway.

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The Division 8 (groundwater availability) and Division 9 (groundwater / surface water interference) findings are recorded on a form called the "Public Interest Review for Ground Water Applications." There is a place on that form where Ken may identify specific stream reaches that would likely be impacted by the proposed ground water use. Those stream reaches may or may not be in another "zone of impact". A "zone of impact" finding is strictly related to a scenic waterway review in the upper Deschutes Basin.

- Why does the Department use a conceptual understanding of the system instead of the regional flow model to make zone of impact findings? Response: When the Department was moving forward with implementing the program, there was considerable thought about how to balance using the best information without making the review and process so complex as to overwhelm staff and applicant. That is why the Department chose to go with the conceptual approach to making these findings.
- Does the Department think its zone of impact implementation is consistent with the rules? Response: Yes
- Based on input from its AG, can the Department require mitigation in more than one mitigation zone? Response: Based on the rules, the Department could require mitigation in more than one zone.

Proposal (agreed upon by DG): Request that the Legislature give the Department funding to develop and refine the analytical tools used to determine the Program's impact in the Basin, including the development of a water budget for the Basin. This might include funding to run simulations of the ground water flow model that could be compared to the findings developed using the conceptual approach.

Proposal (tabled by DG): If OWRD's analysis shows a significant impact in more than one zone, the Department should look at splitting zones of impact and requiring mitigation in more than one zone. Staff indicated that in **some** cases the Department may be able to identify impacts in more than one zone. However, the Department noted that splitting by zone using the numerical model would be constrained by available staff resources and, in some cases, model uncertainty. This proposal was tabled for now because several members stated that the existing model should not be used to determine quantitative splits of impacts into more than one zone.

The Group also discussed the availability (or lack thereof) of mitigation in all zones of impact. The general public and elected officials don't seem to understand that mitigation water for new ground water permits is not available everywhere in the Basin.

Proposal (tabled by DG): Identify areas in the Basin where no permanent mitigation is currently available (Whychus, Metolius, Crooked River) so as to raise awareness and create better understanding of the issue. The proposal was tabled for now, but a request was made that the Final Report clarify that the mitigation available in all zones (shown in

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Exhibit P-2
Page 18 of 20

Five Year Report) is based on the availability of temporary water rights, not permanent mitigation.

Proposal (tabled by DG): Look at other alternatives for mitigation if no mitigation water is available in certain zones of impact. The proposal was tabled for now so that the group could have more discussion about the range of mitigation options that might be available and acceptable to them.

Several members of the Group wanted to discuss issues related to the location of mitigation (where water is actually transferred back instream), but agreed to table the discussion until the next meeting.

7(j) Conditioned Permits Issue Framing Discussion: Kimberley presented an overview of the issue framing paper that she and Martha had worked on. A key question is whether 7(j) has been triggered, and if so how will the Department implement the rule and what would the mitigation look like? OWRD staff stated that if 7(j) conditioned permit holders can provide mitigation through the existing rules than the Department won't regulate them. Another key question is whether different types of mitigation could be applied to 7(j) conditioned permits?

Proposal (agreed upon by DG): Table the discussion of this issue for now, and move on to other issues that the Group may be able to positively affect.

What is Counted under the 200 cfs Cap Issue Framing Discussion: Adam presented an overview of the issue framing paper he had prepared. The cap is based on water right permits issued, not on perfected water rights. The cap also includes non-consumptive uses and uses that have been offset. The group discussed whether these should be included against the cap. Another key question is whether it makes sense to base the cap on rate instead of volume? Also, how do incremental mitigation and offset provisions used by municipal and quasi-municipal water providers to meet their long-term water supply commitments fit under the 200 cfs cap?

Proposal (tabled by DG): Modify the rule so that final orders for non-consumptive uses and uses associated with offsets are not counted under the cap and have no mitigation obligation. The proposal was tabled for now because members needed more discussion of what non-consumptive use really means. Adam agreed to further clarify offset provisions and why he believes they could be used for incremental mitigation.

Proposal (agreed upon by DG): Water allocated under the 200 cfs cap can be restored to the cap if not perfected under the permit.

Proposal (tabled by DG): Cap overall demand in terms of volume, not rate (cfs). This proposal was tabled for now because members felt that low flow periods are important for fish, and you need to look at more than just an averaged volume. Concern was also expressed that the Program may ultimately result in less flow in the winter because instream transfers do not occur outside of the irrigation season.

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Topics for Next Meeting: The Group agreed that the following topics should be discussed at the next DG meeting:

- Water quality issue framing paper (discuss existing paper).
- Offset / incremental mitigation. Adam agreed to frame this issue by October 3rd.
- Non-irrigation season mitigation (winter flow restoration). Martha, Kimberley, Adam and Steve agreed to work on framing this issue by October 3rd. They will also try to tie in discussions of rate versus volume and timing of impacts.
- Kimberley offered to frame the net consumptive use issue. Martha agreed to help frame this issue. The group recognized they may not have time to discuss this topic given the other items that still need to be discussed.
- Follow up on proposals (above) that were tabled by the Group and needed further discussion.
- Discuss what the draft final report should contain / consist of.

Issues Bin: Additional issues of concern raised by the group include the following:

- Need to address or develop ways to extend or improve alternative mitigation options.
- Location of Zones of Impacts and availability of mitigation water need to be addressed.

Future Meeting Dates: October 22nd and November 14th

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Exhibit P-2
Page 20 of 20

December 11, 2002

INTEROFFICE MEMO

DATE: December 11, 2002
TO: Deschutes Mitigation Rules Implementation Core Team
FROM: Laura Snedaker, Field Services
SUBJECT: Determination of Localized Impact
Preliminary Implementation Decision

On October 23, 2002, the Deschutes Mitigation Rules Implementation Core Team discussed how the Department will determine whether a proposed ground water use will have a localized impact to surface water under the Deschutes Ground Water Mitigation Rules. This localized impact determination is needed to identify the zone of impact in which mitigation will be required.

A discussion paper entitled "Localized Impact Determination Non-Numerical vs Numerical Approach & Zone of Impact Identification" was presented at this meeting for discussion purposes.

Guidance Decisions:

Based upon discussions amongst Core Implementation Team members and Ground Water staff, it was determined that the Department should use a non-numerical approach to determining whether a proposed ground water use has a localized impact to surface water.

Generally, this determination will be made by examination of the Point of Appropriation(s) proximity to ground water discharge areas, well construction or proposed construction, which part of the aquifer the well(s) will draw water from, knowledge of hydraulic heads, and general groundwater flow direction.

If a well is determined to have a localized impact to surface water, then 100% of the mitigation will be required within the local zone of impact. The local zones of impact are under development by staff and will be discussed at a future meeting of this Team.

The hydrogeologist responsible for making this determination will include a summary of information used to make the localized impact determination in the ground water application/permit file records (see attached example).

This approach, also recommended by staff, does not require the use of a numerical model or adoption of threshold standards. It is also consistent with previous discussions on zone of impact.

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WATER RESOURCES DEPARTMENT MEMORANDUM

DATE 11/25/2002

APPLICATION_NUMBER G 15799
OWNER REYNOLDS
OUNT_REQUESTED 34 GPM NUMBER_OF_WELLS 1 BASIN DESCHUTES
SUB_BASIN CROOKED
QUADRANGLE_MAP_1 REDMOND COUNTY DESCHUTES

WELL_# 1 WELL_LOG_STATUS DRILLED, LOG AVAILABLE
WELL_LOG_NUMBER DESC 2386 DPN_LOG_1
TWNESH 14S RANGE 13E SECTION 16 QQQ BAB
PROPOSED_LEGAL_LOCATION 580 FEET SOUTH AND 1420 FEET EAST FROM THE NW CORNER, SECTION 16
DISTANCE_FROM_STREAM_1 8300 STREAM_1 CROOKED RIVER
DISTANCE_FROM_STREAM_2 STREAM_2
PROPOSED_WELL_DEPTH
WELL_ELEV 2790 STREAM_ELEV 2640 WELL_ELEV_minus_STREAM_ELEV 150
WELL_DEPTH 180 SWL 150
SEAL_DEPTH 20 SWL_DATE 8/15/1968
CASING_DEPTH 20 FIRST_WATER_DEPTH 155
IER_DEPTH WELL_TEST_1_TYPE BAILER
PERFORATIONS_SCREEN_1 YIELD_1 20 GPM
PERFORATIONS_SCREEN_2 DRAWDOWN_1 0
AQUIFER_TYPE UNCONFINED DURATION_1 1HR
HYDRAULIC_CONNECTION PROBABLY NOT AT NEAREST REACH
DIVISION_9_FINDING POTENTIAL FOR SUBSTANTIAL INTERFERENCE
ZONE_OF_IMPACT CROOKED RIVER

CONDITIONED_WATER_RIGHTS_IN_AREA SEE ATTACHMENT
OTHER_NEARBY_WATER_RIGHTS SEE ATTACHMENT
DENSITY_OF_NEARBY_WELLS SEE ATTACHMENT

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COMMENTS WELL IS CONSTRUCTED INTO A WATER BEARING ZONE WITHIN THE DESCHUTES FM. GROUND WATER FLOW IS TOWARDS THE NORTH-NORTHWEST WITH THE NEAREST PROBABLE DISCHARGE AREA ABOUT 2 MILES DISTANCE. WATER LEVEL IN THE WELL IS APPROX. THE SAME ELEVATION AS THE NEAREST SURFACE WATER SOURCE. WATER IS NOT AVAILABLE IN THE LOWER DESCHUTES RIVER 11 MONTHS OF THE YEAR.

REFERENCES USGS/OWRD DATA; USGS GEOL MAP I-2683; TOPO MAP; APPL. FILE G-115799; WELL REPORT DESC 2386; WATER AVAILABILTY FINDING FOR DESCHUTES RIVER ABOVE SHITIKE CREEK.

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Local Zone of Impact Identification

Zone of Impact Issue:

Ground water users needing to mitigate under the Deschutes Ground Water Mitigation Rules, Division 505, are required to provide mitigation in a zone of impact, as identified by the Department. Zone of impact, under the rules, is broken down into two types of zones. There is a general zone of impact, which is defined as anywhere in the Deschutes Basin above the Madras gage, located on the Lower Deschutes River below Lake Billy Chinook. And there is the local zone of impact. The local zone of impact is the zone (or area) in which any well determined to have a localized impact on surface water would need to provide mitigation. The rules generally indicate that local zones of impact may include several Deschutes Basin stream subbasins but are silent as to how they are actually defined.

Criteria to define the local zones of impact:

The base criteria, as suggested by the Deschutes Mitigation Rule Implementation team, for identifying local zones of impact should include the use of subbasin boundaries and hydrogeologic information. This base approach is described under Alternative 3 in a white paper entitled Localized Impact Determination: Non Numerical Approach vs Numerical Approach and Zone of Impact Identification, presented to the Implementation Team on October 23, 2002. In building on this base criteria staff felt that all criteria for defining local zones of impact should be uniform and uncomplicated, based upon hydrology, and, most importantly, defensible. Based upon these presumptions, staff propose the following criteria for identifying local zones of impact:

Identification of Local Zones of Impact:

- Local zones of impact should be identified using water availability data, at an 80% exceedance, and real time flow data to identify stream reaches where instream flow needs are not being satisfied;
- By using locations of known ground water discharge areas as shown on the Ground Water/Surface Water Interaction, Hydraulic Head and Flow Direction map;
- And by using stream subbasins within the Deschutes Ground Water Study Area.

Defining Upper and Outer Local Zone of Impact Boundaries:

- The upper and outer boundaries of a local zone of impact should be defined using stream subbasin boundaries.

Defining Lower Local Zone of Impact Boundaries:

The lower boundary of a local zone of impact is the point at which mitigation will be required at or above.

- To define the lower boundary for a local zone of impact, consideration should be given to stream reaches that are vulnerable to impacts by ground water use. Vulnerable reaches include those where flows are influenced by ground water discharge and/or where instream flow needs for instream water rights (including pending applications) and/or scenic waterway flows are not being met (this

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can be evidenced by water availability analysis at an 80% exceedance, which is the standard for review of new applications, and by looking at real time instream flow data). It was felt that this basic criteria was important if the goal is to protect vulnerable reaches. The criteria are further defined as follows:

1. The lower boundary of a local zone of impact should be defined by identifying a point located below the lowest ground water discharge area in the selected stream subbasin. This will allow the Department to target mitigation in and above areas of a stream basin where flows are influenced by ground water discharge. This will also benefit instream water right and/or scenic waterway flows in these stream subbasins.
2. Or, if within the reach of the lowest ground water discharge area instream flow needs are met above the point just below the discharge area, then the point at which instream flow needs are met (or begin to be met) should be used to define the lower boundary of that local zone of impact. Real time instream flow data (*is this right phrase?*) can be used to identify the point approximately at which instream flow needs begin to be met as water flows downstream through the affected graining (ground water discharge area) river reach. This will allow the Department to target mitigation water in areas of a selected local zone of impact where surface water flows are vulnerable to ground water interference, where instream flow needs are not being satisfied and where additional flows are needed.

(Do we need to give any consideration to not only where instream water right flows begin to be satisfied but also to other existing surface water rights? Or is this already taken care of based on the points we have selected? Are both existing surface water rights and instream water rights, including scenic waterway flows, being met?)

- It should be recognized that in some cases that while a ground water use may be located within a defined local zone of impact, it may not be determined to have a localized impact within that local zone. It may rather be determined to have a regionalized impact on surface water. A discussion of how the Department's hydrogeologist will generally make this determination is described in a preliminary rule implementation team decision memo dated December 11, 2002.
- Consideration of lower boundaries for local zones of impact should also been given to locations of ground water use. If a ground water use is found to have a localized impact to surface water, the use of ground water should be located within that same zone of impact. However, if a ground water use located outside the boundaries of a local zone of impact, ie below the local zone, but has an impact within that zone, the Department will need to demonstrate that the use impacts surface water flows within that local zone of impact.

Proposed Local Zones of Impact - Identified:

Based upon the criteria outlined above, staff identified six local zones of impact. They are: Squaw Creek Subbasin, Crooked River Subbasin, Metolius River Subbasin, Little Deschutes Subbasin, Upper Deschutes River Subbasin, and Middle Deschutes River Subbasin. Each of these selected subbasins is vulnerable to local interference by ground water use and instream flows needs are not met in all but one of the local zones of impact selected by staff.

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The following is a description of why each zone was selected and which criteria were used to define the lower boundary of the local zone of impact. The upper and outer boundaries of each zone will be defined using subbasin boundaries.

Crooked River Zone of Impact - The proposed instream water right flows listed on the application for an instream water right on the lower Crooked River are not satisfied and a significant portion of the lower reach of the Crooked River, from approximately River Mile 21 to the mouth, is influenced by ground water discharge to surface water flows.

Staff propose that the lower point (or boundary) within this local zone of impact at or above which mitigation should be required be located at Osborne Canyon (River Mile 13.8). This point was selected using criteria #2 under defining lower zone of impact boundaries. Based upon instream flow data, instream water right flows above Osborne Canyon are not met but begin to be met below Osborne Canyon. Osborne Canyon itself appears to be the closest point on the River at which flows begin to be met.

Middle Deschutes River Zone of Impact - Scenic Waterway and Instream Water Right flows on the Middle Deschutes River are not being satisfied. Surface water flows in the Lower Bridge area are vulnerable to interference by ground water use. The lower part of the Middle Deschutes is influenced by ground water discharge to surface water beginning at approximately River Mile 138 and extending down into Lake Billy Chinook.

Staff propose that the lower point (or boundary) at or above which mitigation should be required within this zone of impact be located at Sundown Canyon Road, located at approximately River Mile 124 or 125. This point was selected using criteria #2 under defining lower zone of impact boundaries. While this lowest discharge area in the Middle Deschutes subbasin extends into Lake Billy Chinook, instream flow needs begin to be met at Sundown Canyon Road. Flows at this point are close to meeting the 250 CFS instream water right and 250/500 CFS Scenic Waterway (*question pending in association with these flows and the correct river mile*) flows.

Alternative - The lower point for this zone of impact could also be set using a lower point in the subbasin at which instream flows exceed instream water right and scenic waterway flows. The next measuring point is located at Scout Camp Trail Road, approximately at River Mile 123.

Metolius River Zone of Impact - While instream flow needs are met in the Metolius River Subbasin, the River and many of its tributaries above Jefferson Creek are vulnerable to interference by ground water use. The Metolius River is a designated State Scenic Waterway.

Staff propose that the lower point (or boundary) within this zone of impact at or above which mitigation should be required be located at River Mile 28. This point was selected using criteria #1 under defining lower zone of impact boundaries. Most ground water has discharged to surface water by the time flows in the River reach the confluence with Jefferson Creek, located at approximately River Mile 28. This is the lowest point in the subbasin at which ground water discharges to surface water and at which there is the potential for interference by ground water use.

Squaw Creek Zone of Impact - Squaw Creek is vulnerable to inference by ground water use and instream water right flows are not met throughout the Squaw Creek subbasin.

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Using lower zone of impact boundary criteria #1, staff propose that the lower point (or boundary) at or above which mitigation should be required within this zone of impact be located at River Mile 16. This point is located below a set of springs (the lowest ground water discharge area) on the east side of McKinney Butte and is located where the ground water level is no longer coincident with Squaw Creek. Meaning that even though instream water right flows are not met below this point, ground water use below this point has little or no potential for interference with surface water until flows reach Alder Springs, another ground water discharge area, at the mouth of Squaw Creek. However, at Alder Springs there are sufficient flows to satisfy instream flow needs.

Upper Deschutes River Zone of Impact - Instream water right and scenic waterway flows are not met in the Upper Deschutes River. A significant portion of the Upper Deschutes River is vulnerable to interference by ground water use.

Using lower zone of impact boundary criteria #1, staff proposes that the lower point (or boundary) at or above which mitigation should be required within this zone of impact be based upon a point below the discharge area. Discharge from ground water to surface water appears to no longer occur below River Mile 185. This point is located on the mainstem Deschutes River a few miles downstream from the confluence with Spring River. While instream water right flows are not met below this point, ground water use has little or no potential for interference with surface water below this point on the upper Deschutes River. This zone does not include the Little Deschutes River Zone of Impact.

Little Deschutes River Zone of Impact - Instream flow needs on the Little Deschutes are not being satisfied above the mouth of the Little Deschutes River. In addition, the mainstem Little Deschutes River and several of its tributaries in the upper reaches are vulnerable to interference by ground water use.

Using lower zone of impact boundary criteria #1, staff proposes that the lower point (or boundary) at or above which mitigation should be required within this zone of impact be at the mouth of the Little Deschutes River. The ground water discharge area on the Little Deschutes extends almost to the mouth of the Little Deschutes River.

Summary

In summary, each of the local zones of impact recommended by staff have surface water flows that are vulnerable to interference by ground water use and, with one exception, have reaches in which instream flow needs are not being satisfied. By using the criteria, as proposed by staff, the Department can define the proposed local zones of impact in such a way to assure that mitigation is being targeted into stream reaches that are vulnerable to ground water interference, where instream flow needs are not being satisfied and where additional flows are needed.

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WILKE Laura K

From: Danette Faucera <danette.l.faucera@state.or.us>
Sent: Friday, April 10, 2015 12:50 PM
To: WILKE Laura K
Cc: HODGSON Brett L; KEPLER Rick J; WISE Ted G
Subject: RE: Deadline Extension: FW: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested
Attachments: ODFW comments on Deschutes Mitigation_4-10-15.pdf

Laura,

Attached are ODFW comments concerning the Deschutes Groundwater Mitigation Program. Thank you for the opportunity to comment, and please let me know if you have any questions.

Danette

Danette Faucera
Water Policy Coordinator
Oregon Department of Fish and Wildlife
(503) 947-6092
4034 Fairview Industrial Drive SE
Salem, OR 97302

From: WILKE Laura K
Sent: Thursday, March 19, 2015 1:14 PM
To: FAUCERA Danette L; KEPLER Rick J
Cc: HODGSON Brett L
Subject: Deadline Extension: FW: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested

Greetings Rick and Danette:

The Department is extending the deadline for submission of feedback from stakeholders on the Deschutes Groundwater Mitigation Program until close of business on **April 10, 2015**. See original e-mail below for details.

Thank you,
Laura Wilke

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From: WILKE Laura K
Sent: Friday, January 23, 2015 10:49 AM
To: ODFW - Rick Kepler; danette.l.faucera@state.or.us

APR 10 2015

SALEM, OR

Cc: HODGSON Brett L

Subject: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested

Greetings Rick and Danette:

The Department is initiating a review of the Deschutes Ground Water Mitigation Program under House Bill (HB) 3623, Chapter 694 Oregon Laws 2011. The text for HB 3623 is attached for your review and information. This House Bill requires the Department to look at the mitigation program and identify any regulatory and statutory changes that could be made to improve the program to address and mitigate for injury and offset measurable reductions of scenic water way flows. The Department will also be looking at additional elements identified in HB 3623, including issues raised by stakeholders.

With this e-mail, the Department is soliciting your feedback as a stakeholder on the Deschutes Ground Water Mitigation Program. Please provide any feedback you may have by March 31, 2015.

If you have any questions, please feel free to contact myself or Dwight French, Water Right Services Administrator. Dwight can be reached at (503) 986-0819 or dwight.w.french@wrp.state.or.us.

Thank you,
Laura Wilke
Flow Restoration Program Coordinator
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271
Phone: (503) 986-0884
Fax: (503) 986-0903

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SALEM, OR



Oregon

Kate Brown, Governor

Department of Fish and Wildlife
Fish Division
4034 Fairview Industrial Drive SE
Salem, OR 97302
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FAX (503) 947-6202
www.dfw.state.or.us/

April 10, 2015

Laura Wilke
Flow Restoration Program Coordinator
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271



RE: ODFW's Comments on the Deschutes Ground Water Mitigation Program

Dear Ms. Wilke,

The Oregon Department of Fish and Wildlife (ODFW) appreciates the opportunity to provide comments on the Deschutes Ground Water Mitigation Program. ODFW believes the 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. ODFW believes the Oregon Water Resources Department (OWRD) has successfully implemented the Deschutes Ground Water Mitigation Rules and Deschutes Basin Mitigation Bank and Mitigation Credit Rules.

However, ODFW does have the following concerns with the Mitigation Program that we have expressed in the past and will reiterate now:

1. As currently designed, the Deschutes Groundwater Mitigation Program mitigates year-round groundwater withdrawals with irrigation season water. This type of mitigation does provide for more instream water during the irrigation season, but also will eventually reduce flows in the lower river during the non-irrigation season. All parties recognized this effect of the Program when the rules were developed. One of the reasons for the 200 cfs cap was to limit flow reduction impacts in the lower river outside of the irrigation season. All stakeholders recognized that non-irrigation flow concerns still needed to be addressed for the Deschutes basin as a whole.

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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.

2. ODFW recommends modifying the presentation of flow data. The annual reports for the Deschutes Ground Water Mitigation 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.
3. ODFW supports maintaining the 200 cfs allocation cap 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. 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). ODFW would like OWRD and program partners to work with us to seek options for year-round mitigation to offset year-round impacts. One option would be to forgo some stored water in Wickiup, Crane Prairie, Crescent, and other reservoirs during the non-irrigation season. This would better mitigate for the impacts of groundwater withdrawal on a true 1:1 basis.
4. Much of the water supporting the Mitigation Program is leased. ODFW is concerned with the number of permanent groundwater rights being mitigated 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. ODFW proposes that OWRD and program partners work more proactively to provide permanent mitigation water (permanent instream transfers) to offset groundwater pumping. 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. Annual reports continue to identify permit holders that have allowed temporary credits to expire while continuing to irrigate. Therefore, OWRD should increase compliance monitoring and immediate regulation of non-compliant participants.
5. ODFW would also like to raise awareness of the potential impacts from the Mitigation Program to the recently ESA-listed Oregon Spotted Frog (OSF).

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The presence of an additional listed species within the Deschutes Ground Water Mitigation Area elevates the concerns ODFW has raised on the Program and our concern for the impact on the recovery of this threatened species. Improving winter flows on the upper Deschutes River below Wickiup Reservoir and on Crescent Creek is essential to the survival of the OSF, and the Program does not currently mitigate for flow impacts during the non-irrigation season. In addition, freshwater spring habitats in the upper Deschutes Basin have been determined to be critical to overwinter survival of the OSF. The Program annual reports repeatedly state, "New groundwater uses produce a decrease in streamflow that is uniformly distributed over the year while mitigation projects generally increase streamflow only during the irrigation season." This continual detrimental impact to streamflow during the non-irrigation season is now a greater concern for more than just the "shoulder months." Again, ODFW would like OWRD and program partners to proactively seek options for year-round mitigation to offset the year-round impacts. One option would be to forgo some stored water in Wickiup, Crane Prairie, Crescent, and other reservoirs during the non-irrigation season to better mitigate for the impacts of groundwater withdrawal.

6. Although not included in the Mitigation Program but related to the increase in groundwater use in the basin, ODFW continues to have 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 cool stream temperatures during the summer in streams with depleted flows. While the water currently provided through mitigation has improved conditions during the irrigation season for fish and aquatic life in certain reaches relative to pre-mitigation program conditions, it is mostly warmer water from storage and does not yield equitable benefits compared to cool spring water. Over time, ODFW assumes that continued and increased groundwater withdrawal for agricultural, residential, and municipal needs will further affect springs when there is a surface/groundwater connection.

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

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to seek funding, coordinate efforts for research, and develop and implement a strategy to address spring flow reductions.

Thank you for the chance to comment. If you have any questions, please contact me or Brett Hodgson (541-388-6363).

Sincerely,



Danette Faucera
Water Policy Coordinator

Brett Hodgson
Deschutes District Fish Biologist

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APR 10 2015

SALEM, OR

WILKE Laura K

From: CIANNELLA Greg * OPRD <Greg.Ciannella@oregon.gov>
Sent: Tuesday, April 07, 2015 8:31 AM
To: WILKE Laura K
Subject: RE: Deadline Extension: FW: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested

Hi Laura,

I have no comments to offer.

Thanks,
Greg

Greg Ciannella, Natural Resource Specialist
Central & Eastern Oregon
Oregon Parks and Recreation Department
1645 NE Forbes Rd. Ste. 112
Bend OR 97702

Ph: 541.388.6236, Cell: 503.580.2434
greg.ciannella@oregon.gov

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APR 07 2015

SALEM, OR

From: WILKE Laura K [<mailto:laura.k.wilke@state.or.us>]
Sent: Thursday, March 19, 2015 1:08 PM
To: CIANNELLA Greg * OPRD
Subject: Deadline Extension: FW: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested

Greetings Greg:

The Department is extending the deadline for submission of feedback from stakeholders on the Deschutes Groundwater Mitigation Program until close of business on **April 10, 2015**. See original e-mail below for details.

Thank you,
Laura Wilke

From: WILKE Laura K
Sent: Friday, January 23, 2015 10:39 AM
To: CIANNELLA Greg * OPRD
Subject: HB 3623 Deschutes Mitigation Program Evaluation - stakeholder feedback requested

Greetings Greg:

The Department is initiating a review of the Deschutes Ground Water Mitigation Program under House Bill (HB) 3623, Chapter 694 Oregon Laws 2011. The text for HB 3623 is attached for your review and information. This House Bill requires the Department to look at the mitigation program and identify any regulatory and statutory changes that could be made to improve the program to address and mitigate for injury and offset measurable reductions of scenic water way flows. The Department will also be looking at additional elements identified in HB 3623, including issues raised by stakeholders.

With this e-mail, the Department is soliciting your feedback as a stakeholder on the Deschutes Ground Water Mitigation Program. Please provide any feedback you may have by ~~March 31, 2015~~.

If you have any questions, please feel free to contact myself or Dwight French, Water Right Services Administrator. Dwight can be reached at (503) 986-0819 or dwight.w.french@wrд.state.or.us.

Thank you,
Laura Wilke
Flow Restoration Program Coordinator
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271
Phone: (503) 986-0884
Fax: (503) 986-0903

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WILKE Laura K

From: Kimberley Priestley <kjp@waterwatch.org>
Sent: Monday, April 13, 2015 10:28 AM
To: WILKE Laura K
Subject: HB 3623 Groundwater Mitigation Program Evaluation, WaterWatch Comments
Attachments: 2015 Deschutes GW mitigation program Leg review.doc; 2015 mitigation review appendix deschutes_2009_hb_3494_report.pdf; 2015 groundwater review flow impact charts.pdf; 2015 deschutes review appendix fish life history.pdf

Hi Laura,

Attached please find WaterWatch's comments pertinent to the 2015 HB 3623 Deschutes Groundwater Mitigation Program Evaluation. As noted, our server was down at the end of last week for 2.5 days so I was unable to email these in until today. Please let me know if there are any problems opening any of our attachments (narrative and appendices).

Thanks, Kimberley

--
Kimberley Priestley
WaterWatch of Oregon
213 SW Ash, Suite 208
Portland, OR 97204
ph: 503-295-4039, x 3
www.waterwatch.org

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WILKE Laura K

From: Kimberley Priestley <kjp@waterwatch.org>
Sent: Monday, April 13, 2015 10:30 AM
To: WILKE Laura K
Subject: Re: HB 3623 Groundwater Mitigation Program Evaluation, WaterWatch Comments
Attachments: 2015 Deschutes GW mitigation program Leg review pdf.pdf

opps,I sent you a word rather than pdf of our narrative comments. Attached is the pdf. Thanks!

From: "Kimberley Priestley" <kjp@waterwatch.org>
To: "WILKE Laura K" <laura.k.wilke@state.or.us>
Sent: Monday, April 13, 2015 10:28:03 AM
Subject: HB 3623 Groundwater Mitigation Program Evaluation, WaterWatch Comments

Hi Laura,

Attached please find WaterWatch's comments pertinent to the 2015 HB 3623 Deschutes Groundwater Mitigation Program Evaluation. As noted, our server was down at the end of last week for 2.5 days so I was unable to email these in until today. Please let me know if there are any problems opening any of our attachments (narrative and appendices).

Thanks, Kimberley

--
Kimberley Priestley
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April 10, 2015

Laura Wilke
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271

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RE: HB 3623 Deschutes Groundwater Mitigation Program Review

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Dear Laura,

Thank you for this opportunity to provide comments on the WRD's Deschutes Groundwater Mitigation Five-year Review under HB 3623 (2011).

Background: In the Deschutes Basin, there is a hydraulic connection between groundwater and surface water flows. Because of this connection, groundwater withdrawals diminish surface water flows. Because State Scenic Waterway flows and instream water rights are not met the basin, Oregon law prohibits the Water Resources Department from issuing new groundwater rights unless the impacts to the river are mitigated.

The Deschutes Groundwater Mitigation Rules were adopted in 2002 to guide mitigation in the Deschutes River Basin. In 2005 the Oregon State Court of Appeals struck down the rules because they did not meet the mandates of the State Scenic Waterway Act---most notably the Act's requirement that year round streamflows be protected. Soon thereafter the 2005 Legislature adopted HB 3494, which allowed the mitigation program proceed despite the Court ruling. HB 3494 included some important sideboards including a report to the Legislature in 2009 and a repeal of the rules in 2014.

In 2009 the Water Resources Department submitted the required 2009 Report to the Legislature. The Report outlined a few opportunities for improvement that were identified by a workgroup convened to evaluate the program. That said, the issues were complicated and there was not adequate time to fully address them and thus "no consensus" was reached on any of the larger issues. WaterWatch was a member of the 2009 workgroup.

In 2011, the Legislature adopted HB 3623 which extended the sunset from 2014 to 2029. The bill also required periodic review, including but not limited to, the 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 measureable reductions of scenic waterway flows.

The Deschutes Groundwater Mitigation Program: Is it working?

WaterWatch believes that the results of the program are mixed. In the summer time the program is largely successful. During these months flows have increased in the Middle Deschutes River and remained steady in the Lower Deschutes. However, in the spring and fall months WRD models show that flows are decreasing (see attached tables). This is because the rules do not require mitigation water to match the timing of the impact (i.e. in the non-irrigation season there is little/no mitigation provided). The shoulder months that are experiencing negative impacts are important months for fish (see attached lifecycle chart). Of further concern is the fact that the WRD does not currently require mitigation in all streams that are being impacted, opting instead to only require mitigation in the "primary zone of impact". And finally, not all water right holders who should be mitigating are doing so (7j permits).

WaterWatch raised concerns about these issues in the 2009 review. Rather than reiterate the points in these comments, I will simply point the WRD to the Deschutes Ground Water Mitigation Program: House Bill 3494 Report, January 2009. Specifically, the issues that we feel still exist and should be addressed before the current 200 cfs cap is amended upwards and/or before the program is further extended include:

- Zones of impact
- Non-irrigation season mitigation
- 7(j) conditioned permits
- Water Quality

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To ensure that this 2015 review address these points, we ask that the 2009 Report to the Legislature be attached to this upcoming report and a short narrative be included in the body of the 2015 Report. To that end, we incorporate by reference the 2009 Report into our comments.

With regards to the 200 cfs cap currently found in rule, we anticipate that some will use this review to advocate for legislative lifting and/or amendment upwards of the cap. We would have three responses to such a request. First, WaterWatch would oppose the lifting of the cap without first addressing the outstanding issues identified in the 2009 Report.

Second, legislative amendment of the 200 cfs cap is wholly unnecessary to address any concerns. The existing 200 cfs cap is set in rule, as is a clear mechanism to lift the cap. See OAR 690-505-0400(2), attached. So again, legislative action to amend the cap is not necessary.

And third, it should be noted that thirteen years after instituting the program there is still room for water development under the existing cap. As of the end of 2013 the WRD had issued approximately 135 cfs under new permits and approved final orders, this leaves 65 cfs available for new rights. Major Central Oregon cities that needed groundwater have either received their water rights, or gotten their applications in, under the existing 200 cap. This includes the cities of Bend, Redmond, Sisters and Prineville, as well as major water providers such as Deschutes Valley Water District and Avion, and destination resorts such as Sunriver. The water available under the existing cap provides ample water for decades to come.

Conclusion: In conclusion, while the Deschutes Groundwater Mitigation Program is largely working during the summer months, there is still room for improvement. Before altering and/or lifting the current cap, outstanding issues identified in the WRD's 2009 Report to the Legislature should be fully addressed.

Thank you for the opportunity to provide comments.

Sincerely,



Kimberley Priestley
Senior Policy Analyst

Attachments

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Deschutes Ground Water Mitigation Program:

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House Bill 3494 Report

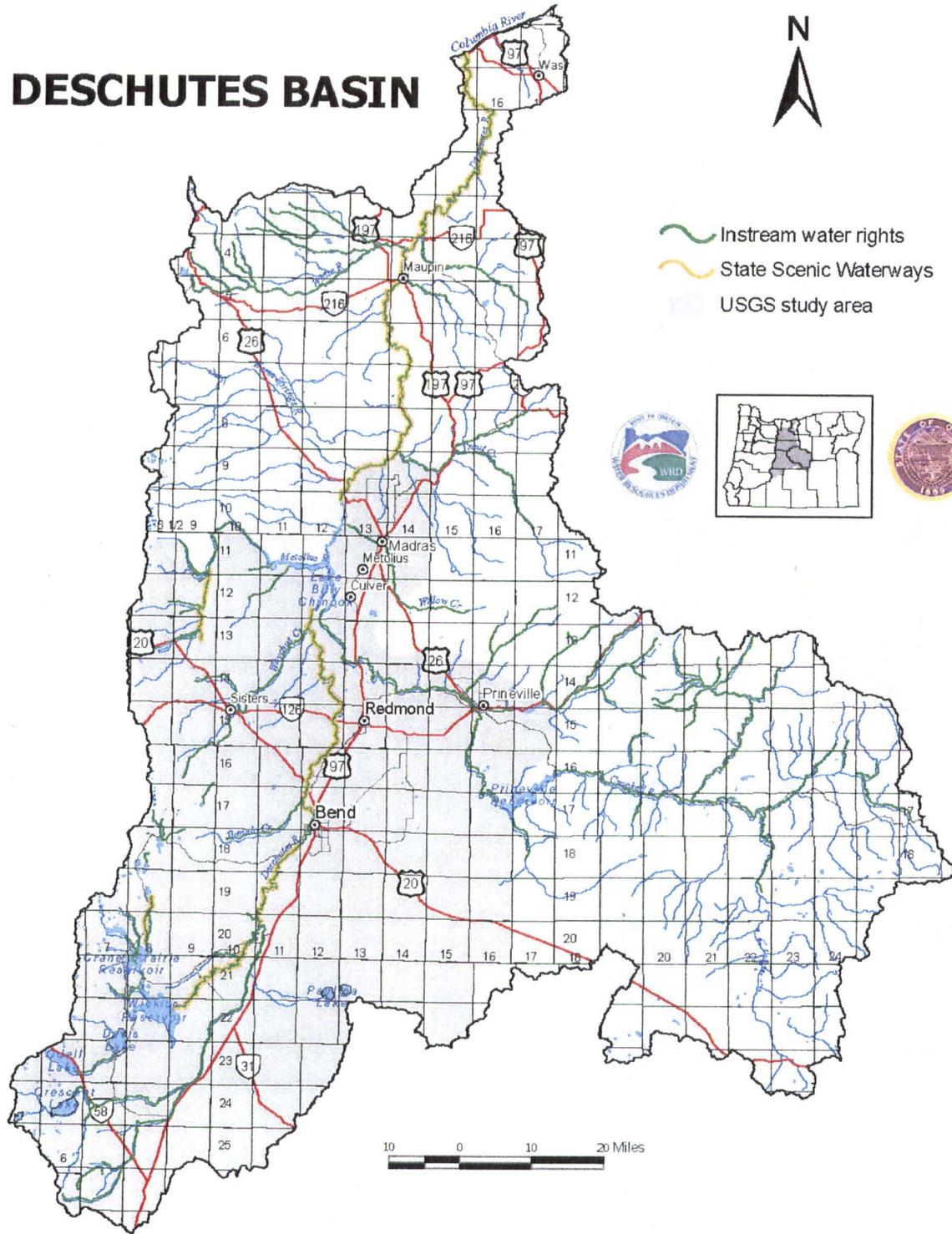


January 2009

State of Oregon
Water Resources Department



DESCHUTES BASIN



CWRD GIS (rh), 1/9/2008, des/fig/fig_LBGS_ISWR_SSW.mxd

Deschutes River Basin and Ground Water Study Area.

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*Special Thanks to All of the Members of the Deschutes Group for their Valuable Input
and Cooperative Efforts on this Review*

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Deschutes Ground Water Mitigation Program: House Bill 3494 Report

Executive Summary

Background

House Bill 3494 (Chapter 669, 2005 Oregon Laws) directs the Oregon Water Resources Department (OWRD) to report to the 75th Legislative Assembly, no later than January 31, 2009, on the implementation and operation of the Deschutes River Basin Ground Water Mitigation and Mitigation Bank Programs.

In the Deschutes Basin above Lake Billy Chinook, a US Geological Survey (USGS) study conducted in cooperation with OWRD and others indicated there is a hydraulic connection between ground water and surface water within the Deschutes Ground Water Study Area. Because of this connection, ground water withdrawals within this area are anticipated to affect surface water. Since scenic waterway flows and instream water rights in the Deschutes Basin are not always met, OWRD may not approve new ground water permits unless the impacts are mitigated with a similar amount of water being put instream. The Deschutes Mitigation Program provides a set of tools that applicants for new ground water permits within the study area can use to establish mitigation and, thereby, obtain new permits from OWRD. These programs are implemented under Oregon Administrative Rules (OAR) Chapter 690, Divisions 505 and 521.

The amount of new ground water use that can be approved under the program is limited to a total of 200 cubic feet per second (cfs). Since adoption of the Deschutes Mitigation rules in September 2002, OWRD has issued 67 new ground water permits with associated mitigation, totaling 52 cfs of water. In addition to the 52 cfs allocated, there is approximately 148 cfs in pending applications and approved final orders. Assuming all pending applications and final orders move forward as proposed, the 200 cfs "cap" will be met and no additional permits can be issued without the Water Resources Commission modifying its rules and adjusting the cap.

The Department maintains an accounting record of new ground water permits and associated mitigation with links between the ground water permits and their source of mitigation. Overall, for each year the program has been in place, there has been sufficient mitigation water available to meet the needs of the ground water permits issued under the program. However, there may not be sufficient supplies of mitigation water available to satisfy the mitigation needs of all currently pending ground water use requests. Additionally, there are areas of the basin where mitigation has not been available. To date, much of the mitigation water is temporary in nature (in the form of annual instream leases of existing

irrigation water rights). However, the amount of permanent mitigation water available has increased steadily each year of the program.

Deschutes Group

To assist with development of this report to the Legislative Assembly, in May 2008 the Department convened the Deschutes Group, a broad range of water users and organizations with an interest in water use in the Basin. This group was convened to review the implementation and operation of the Deschutes Mitigation Program. The Group met four times over five months. The Group identified where the program was being successfully implemented and where members of the group believed the program could be modified or improved.

In the first meeting the Group generally agreed that the Deschutes Mitigation Program is working and brainstormed a list of successes including:

- Transactions are occurring – OWRD has issued mitigation credits and water has been put back into the Middle Deschutes reach.
- All interests are aligned around an instream flow purpose. Everybody has to think about the river in terms of how new water rights can be acquired and what mitigation has to occur in order to provide for those new rights.
- Very few places in the West have capped consumptive use. Overall consumptive use in the Basin is neutral.
- The program has made a good strong start in achieving the goals of mitigation in the Basin. People want to keep improving it, but do not want the program eliminated or compromised.

In subsequent meetings, the Group focused their discussions on the following six issue areas:

- The zones of impact in which mitigation is provided;
- What is counted under the 200 cfs allocation cap on new ground water uses in the Deschutes Basin;
- Offset of impacts on surface water flows resulting in reduced mitigation requirements and incremental mitigation provided by municipal and quasi-municipal ground water permit holders;
- Potential water quality impacts of the Mitigation Program;
- Non-irrigation season mitigation and;
- Water right permits that were issued prior to rule adoption with a condition on their use to allow regulation to protect scenic waterway flows (called "7(j) conditioned water right permits").

Small work groups defined or "framed" these issues between meetings to provide context and background so that the Group could have an informed discussion of the issues at subsequent meetings.

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The following is a brief summary of each issue area and the recommendations developed by the Group.

Zones of Impact

Issue Statement: Some stakeholders are concerned about OWRD requiring mitigation only in the “primary” zone of impact when groundwater pumping may impact more than one zone of impact.

Recommendation: Recommend that the Department improve their analytical tools to be able to better assess the zones of impact.

What is Counted Under the 200 cfs Allocation Cap

Issue Statement: A requirement to count all final orders issued under the mitigation rules (even those with zero mitigation obligation, non-consumptive, and offset) appears to be an unintended consequence of the current rules. The issue is whether zero mitigation obligation or non-consumptive uses, such as a closed loop heat exchange, or permits issued under an offset, (defined in OAR 690-505.0610 (8)) should be counted under the 200 cfs cap.

Recommendation: Water allocated under the 200 cfs cap should be restored to the cap if the amount of water use authorized in the permit or final certificate is less than the amount originally approved in the final order.

Offset and Incremental Mitigation

Issue Statement: The mitigation rules allow municipal or quasi-municipal permit holders to meet a mitigation obligation by incrementally obtaining and providing mitigation using a combination of current and future instream leases, permanent instream transfers and the purchase of mitigation credits to satisfy the required mitigation over time. However, as currently written, the incremental mitigation rules do not cross-reference the offset provision, and therefore the rules currently do not allow for the use of “offset” as part of an incremental mitigation plan.

Recommendation: The rules should be modified so that the use of an offset as defined under the current rules would not be counted under the cap.

Recommendation: Recommend that the Mitigation Rules be modified so that offsets, as defined under the current rules, can be used in an incremental mitigation plan.

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Water Quality

Issue Statement: Springs and ground water inflow to surface water have an impact on water quality, including temperature. However, the current mitigation program addresses only the water quantity impacts of proposed new ground water uses. In addition, there is no current process for tracking or addressing the potential cumulative impacts on water quality of the mitigation program in combination with other programs in the basin. The key issue is whether there may be a "tipping point" where reduced spring and ground water inflow resulting from all water programs will cumulatively have a negative impact on water quality in the future.

Recommendation: No recommendation was reached by the Group on water quality; however the group did agree that more work is needed to address water quality in the context of an integrated water management plan for the Deschutes Basin. The group also agreed to continue discussions about water quality and the need for an integrated water management plan.

Non-Irrigation Season Mitigation

Issue Statement: Under the Deschutes Mitigation Rules, mitigation is calculated on the basis of the annual volume of consumptive use, rather than on a cubic foot per second basis. While the annualized volumetric approach in the rules addresses the volume of consumptive use, the rules do not address OWRD's estimate that ground water pumping impacts are uniformly distributed over all months of the year. Thus far, all mitigation water has been returned to the system during the irrigation season. While the additional flow to the system during the summer months is a positive effect, some have raised concerns about ground water pumping impacts on streamflow during the non-irrigation season.

Recommendation: While no consensus agreement could be reached, the group agreed that this issue should be addressed in a broader planning process. The group agreed to continue a dialogue about this issue beyond the forum convened for this report.

7(j) Conditioned Permits

Issue Statement: The term "7(j)" refers to a condition required by statute to be included in certain water right permits and certificates in the Deschutes Basin that were issued during the time period after Senate Bill 1033 was enacted in 1995 (amending the Scenic Waterway Act), but before the initial ground water study results were available in 1998. In the absence of technical information to determine whether a proposed use would "measurably reduce" scenic waterway flows, the statute allowed a new ground water permit to be

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issued with the condition that provided the ground water use could be regulated in the future if analysis of data available after permit issuance discloses the use will measurably reduce the protected scenic waterway flows. Studies completed in 2001 show a connection between ground water and surface water and, as a result, all new ground water right permits are now required to mitigate for the impacts of their use under the rules. The issue is whether the 7(j) condition has been triggered and, if so, how it should be implemented.

Recommendation: No consensus could be reached on this issue.

Conclusions

The Deschutes Basin Ground Water Mitigation program has been successful in meeting the key goals of the program: (1) to maintain flows for the Deschutes Scenic Waterway and instream water rights; (2) to facilitate restoration of flows in the middle reach of the Deschutes River below Bend; and (3) to accommodate growth through new ground water development. Since implementation of the program, the Department has issued new ground water permits while mitigating impacts to scenic waterway flows and instream water rights. In each year that the program has been in place, sufficient mitigation has been available to meet the needs of new ground water permits. And, the amount of mitigation available, overall, has increased annually. Through mitigation, scenic waterway and instream water right flows have been maintained and, in some areas, have been improved. The benefits of the program have been significant in some areas, such as the flows restored in the Deschutes River below Bend. Overall, as a result of the program, more than 39 cubic feet per second of instream flow has been restored to the Deschutes River and its tributaries.

The mitigation program is working well but, like all regulatory programs, has room for improvement. The Deschutes Group has identified a variety of opportunities to keep improving the program through rulemaking and by making new investments in the science that guides the program.

The water management issues in the Deschutes Basin are complex – municipal, instream, irrigation, and recreation interests all have a stake in successful outcomes. The Department's mitigation program is a small but important piece of overall Basin water management. As the recommendations of the Deschutes Group demonstrate, there is significant opportunity to resolve these complex water management issues in a larger basin water management context. This will require continued commitment and effort locally and investments by the State in supporting these efforts.

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1. Introduction

Background on the Deschutes Ground Water Mitigation Program

The Oregon Water Resources Commission adopted the Deschutes Ground Water Mitigation Rules (OAR Chapter 690, Division 505) and the Deschutes Basin Mitigation Bank and Mitigation Credit Rules (OAR Chapter 690, Division 521) in September 2002. The rules implement Senate Bill 1033 (1995, Legislative Assembly) codified as ORS 390.835 to provide for mitigation of impacts to scenic waterway flows and senior water rights while allowing additional qualifying appropriations of ground water within the Deschutes Ground Water Study Area (OAR 690-505-0600).

The goals of the Ground Water Mitigation Program are to:

- Maintain flows for 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 ground water development (OWRD, 2008).

The Mitigation Program has five basic elements:

- Requires mitigation for all new ground water permits in the Deschutes Ground Water Study Area;
- Identifies tools for providing mitigation water through either a mitigation project or by obtaining mitigation credits from an established mitigation project;
- Establishes a system of mitigation credits, which may be used to mitigate for new ground water permits;
- Provides the process to establish mitigation banks; and

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- Provides for adaptive management through annual evaluations and review of the Program every five years (OWRD, 2008).

House Bill 3494 Requirements

House Bill 3494 (Chapter 669, 2005 Oregon Laws) directs the Oregon Water Resources Department (OWRD) to report to the 75th Legislative Assembly, no later than January 31, 2009, on the implementation and operation of the Deschutes River Basin Ground Water Mitigation and Mitigation Bank Programs. The 2005 act requires that the report include a summary of:

- The cumulative rate of water appropriated under all ground water permits approved in the Deschutes River Basin after the effective date of the 2005 act;
- The volume of water, in acre-feet, provided for mitigation; and
- The measured stream flow of the Deschutes River and its major tributaries.

The report may also include information on the progress on restoring streamflows in the Deschutes River Basin to support anadromous fish and any statutory changes needed to accomplish needed streamflow restoration.

Deschutes Group

To assist with development of the report, in May 2008 the Department convened the Deschutes Group (Group), a broad range of water users and organizations with on-the-ground experience and an interest in water use in the Basin. This group was convened to review the implementation and operation of the Deschutes River Basin Ground Water Mitigation and Mitigation Bank Programs (Program). This review included identifying and discussing successful elements of the existing Program, opportunities to improve the Program in the future, and legislative or rule changes necessary to implement these improvements. Prior to the first meeting of the Group, interviews were conducted with each participant to

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gather a range of perspectives about the Program. The summary of these pre-meeting interviews is located in Appendix A.

The Group met four times over five months. In addition, subcommittees met between meetings to “frame” issues for discussion with the broader Group at each meeting. Approved agendas for each of the four meetings are located in Appendix B, and approved summaries of each of the meetings are located in Appendix C. This report provides a synthesis of the work and recommendations of the Deschutes Group. On December 10, 2008, the Department also hosted a public meeting in Bend to present the results of the draft report.

Deschutes Group members included:

- Robert Brunoe, The Confederated Tribes of the Warm Springs Reservation of Oregon;
- Tod Heisler, Deschutes River Conservancy;
- Steve Johnson, Central Oregon Irrigation District;
- Rick Kepler, Oregon Department of Fish and Wildlife;
- Michelle McSwain, U.S. Bureau of Land Management, Prineville District Office;
- Martha Pagel, Schwabe, Williamson, Wyatt;
- Kimberley Priestley, WaterWatch of Oregon;
- John Short, Deschutes Irrigation LLC;
- Adam Sussman, GSI Water Solutions, Inc.; and
- Jan Wick, Avion Water Company

In addition to the participants listed above, two alternates were appointed to the Deschutes Group: Jan Houck (Oregon Parks & Recreation Department) as an alternate for Rick Kepler, and Patrick Griffiths (City of Bend) as an alternate for Adam Sussman. OWRD representatives Debbie Colbert and Kyle Gorman also participated in the Deschutes



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Group meetings that were facilitated by Paul Hoobyar and Joanne Richter of Watershed Professionals Network (WPN).

2. Program Implementation and Operation

In addition to the data provided in this section, the WRC is required to evaluate the effectiveness of the Deschutes Mitigation Program every five years. Results from the most recent evaluation which was completed in February 2008 are available at:

http://www1.wrd.state.or.us/pdfs/Deschutes_Mitigation_5_Year_Review_Final_Report.pdf

Cumulative Rate of Water Appropriated in the Basin

Since adoption of the rules in September 2002, 67 new ground water permits with associated mitigation have been issued, totaling 52 cubic feet per second (cfs) of water (Figure 1). The quantity of water allocated to new permits and requested for new uses have been predominantly for municipal and quasi-municipal uses (Figure 2). The majority of permits, however, have been for irrigation use.

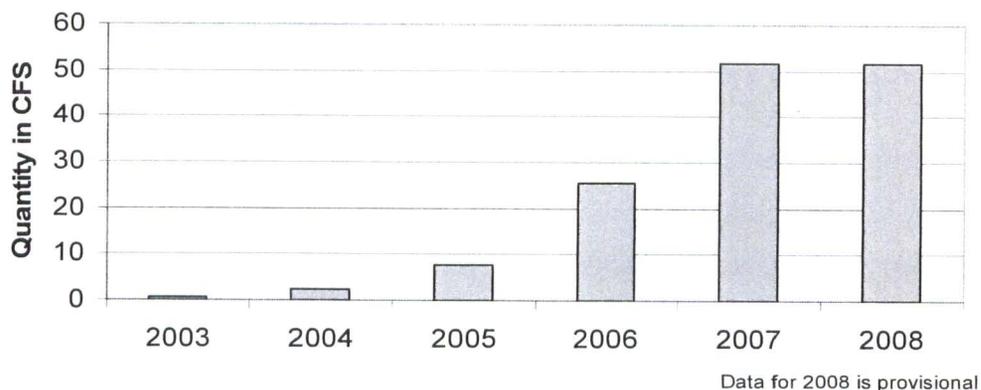


Figure 1. Cumulative amount of water issued under new ground water permits by year.

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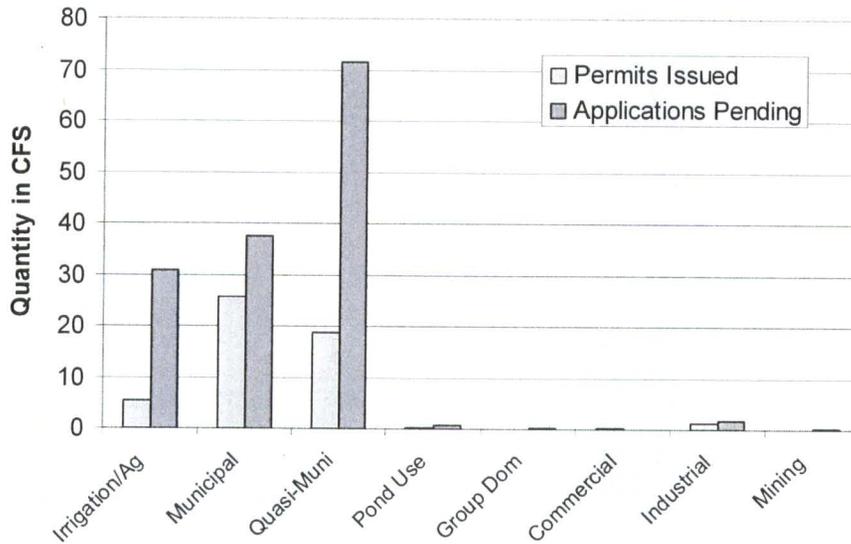


Figure 2. Quantity of water requested or permitted by type of use through September 2008.

Volume of Water Provided for Mitigation

The Department maintains an accounting record of new ground water permits and mitigation projects and mitigation credits with links between the ground water permits and their associated source of mitigation. Figure 3 shows the amount of mitigation available and the amount of mitigation used each year. Overall, there has been sufficient mitigation to meet the needs of ground water permits issued under the program.

While the program overall has had sufficient mitigation water for the permits issued, much of the mitigation is temporary in nature (in the form of annual instream leases of existing irrigation water right). Moreover, there are areas of the basin where mitigation has not been available or where there may not be sufficient supplies of mitigation to satisfy the mitigation needs of all currently

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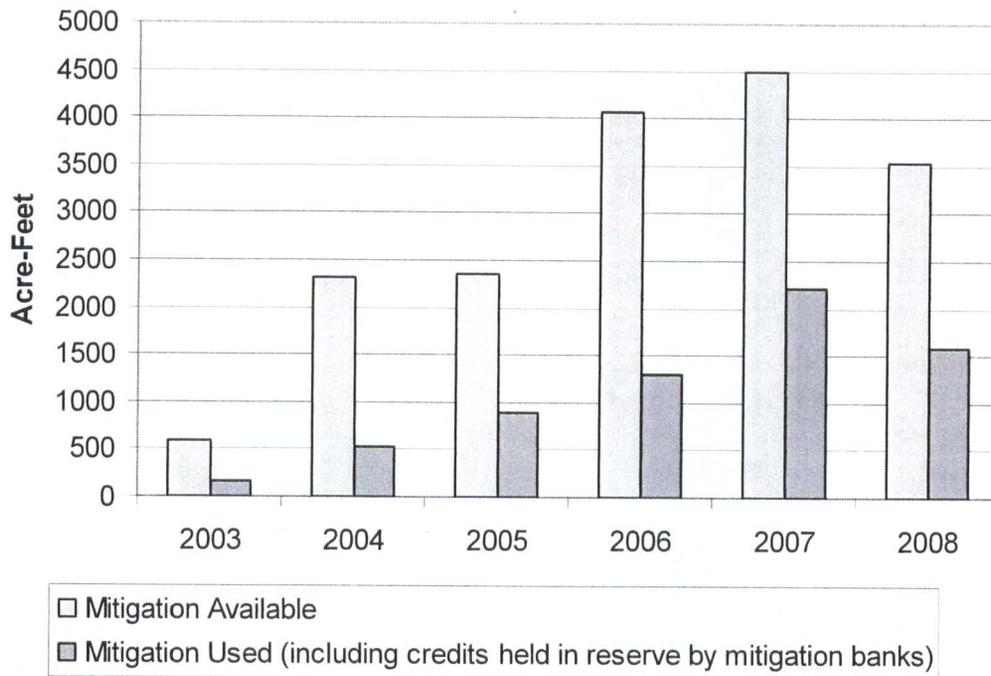


Figure 3. Total mitigation available and used by ground water permits and as bank "reserves" by year.

pending ground water use requests. As shown in Figure 4 below, the Metolius River zone of impact has no mitigation available, and to date no mitigation projects have been proposed in this zone. In addition, in the Upper Deschutes, Little Deschutes, Crooked River, and Whychus Creek zones of impact the amount of mitigation needed for pending ground water applications exceeds the amount of mitigation water presently available in each of these zones. The source of mitigation currently available in these zones is predominately through temporary mitigation (as described above) with no permanent mitigation presently available, except some in the Crooked River zone of impact. However, in each year that the program has been in place, the amount of mitigation water made available has generally increased.

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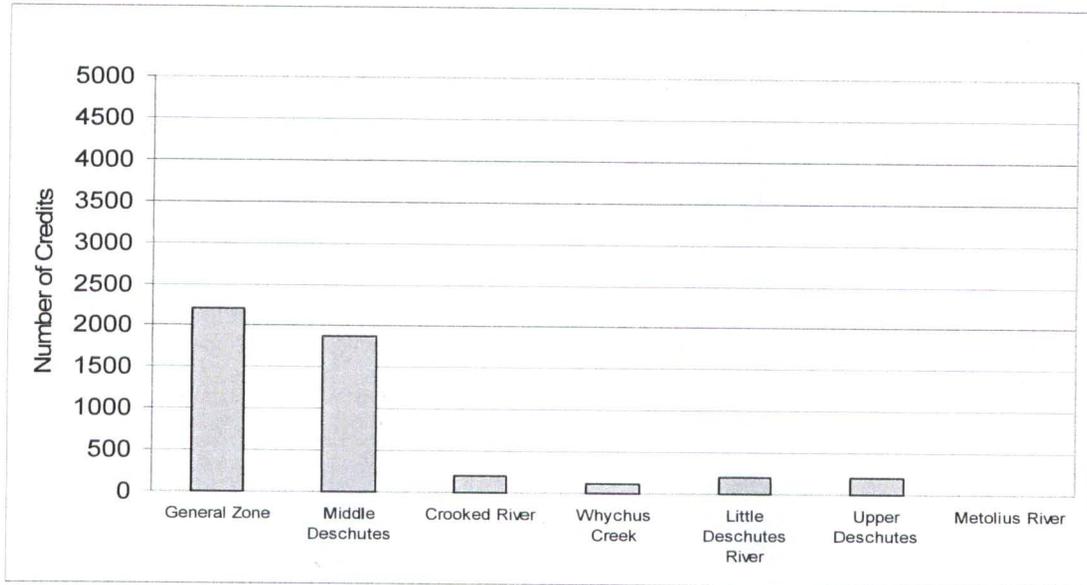


Figure 4. Mitigation credits remaining by zone of impact for 2007.

Sources of mitigation water have been primarily through conversion of existing irrigation rights to instream use through permanent instream transfers and instream leases. As shown in Figure 5, mitigation water has been largely provided through short term instream leases. However, the amount of permanent water provided through instream transfers has been steadily increasing each year.

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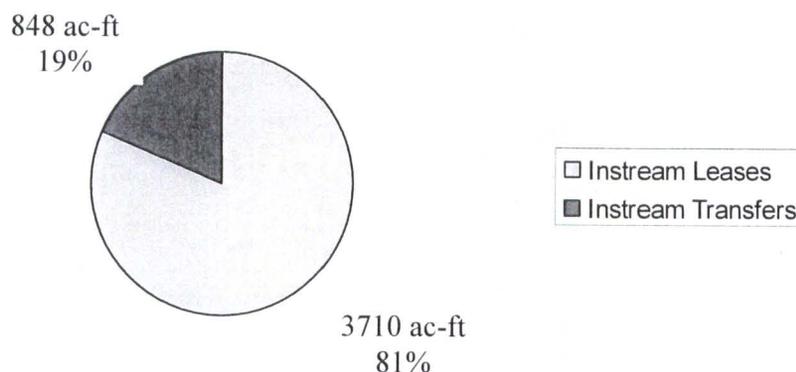


Figure 5. Distribution of mitigation water between instream leases and instream transfers with acre-feet and percent for each type shown.

Summary of Measured Stream Flow in the Deschutes River and Its Major Tributaries

OWRD and the U.S. Geological Survey operate 61 stream, canal, and reservoir gages in the Deschutes Basin. All but eight of those stations are within the Deschutes Ground Water Study Area. Tables of mean monthly flow in cubic feet per second for ten key stations are included in Appendix D. These key stations represent the flow of the Deschutes River and its major tributaries within the study area.

OWRD primarily uses a database and streamflow model to monitor the effectiveness of the mitigation program. Because of annual weather cycles, changes in climatic conditions, and other variables, measured streamflow data does not provide sufficient information on how the system is responding in the short period of time the program has been in place. It is not possible to correct real-time data for effects of year-to-year changes in weather (or other variables) with sufficient accuracy. In addition, it may be years before the effects of mitigation activities and ground water use reach equilibrium. For example, in

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many cases mitigation water is provided years ahead of consumptive use being initiated. Because of the system variability streamflow records will not be able to detect changes due to mitigation activities. The exception is the Deschutes River below Bend where a combination of mitigation, conservation, and flow restoration, and changes in water management are detectable (Figure 6).

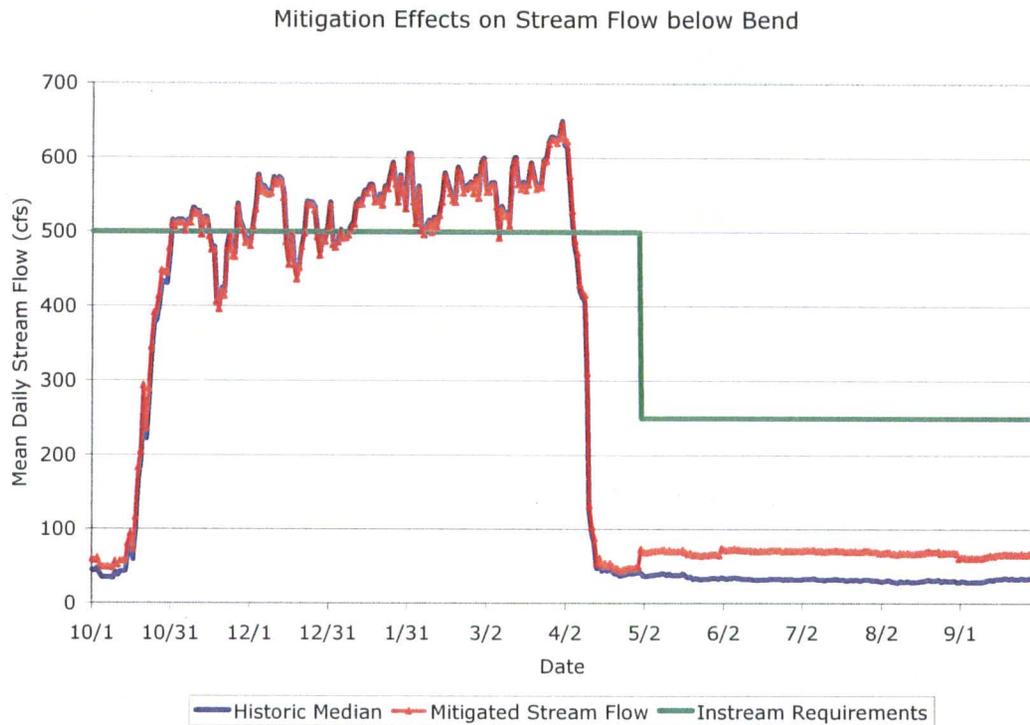


Figure 6. Historical median flows (base period flows) and mitigated streamflow in cubic feet per second on the Deschutes River below Bend compared to instream requirements.

To mathematically estimate impact of new ground water permits and mitigation on scenic waterway flow and instream water rights, OWRD developed a model using historic streamflow data. The model calculates the effects of new permitted ground water use and mitigation projects on streamflows. Table 1 shows a summary of the model results through mid-2007 for all gaging stations used in the model. Monthly calculations for these stations are reported in Appendix E. With only one exception, on an annual basis, it is calculated that

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instream requirements were met or improved compared to baseline conditions (base period from 1966 to 1995).

Table 1. Modeled results showing baseline and changes in the percent of time instream requirements are met. The annual changes in streamflow are based on mitigation water and new ground water permits issued under the mitigation program.

Gage Site	Base Line % Time Instream Requirements are met	Change in Percent of Time Instream Requirements are Met	Annual change in streamflow (cfs)
Deschutes River at Mouth	96.2	+0.02	1.17
Deschutes River below Pelton Dam	69.3	+0.59	1.17
Deschutes River Downstream of Bend	28.6	-0.36	15.2
Deschutes River Upstream of Bend	22.7	+2.34	27.3
Little Deschutes River at mouth	45.3	+3.55	8.74
Deschutes River below Fall River	63.5	0	0
Deschutes River below Wickiup	58.7	0	0
Metolius River at Lake Billy Chinook	99.7	0	0

3. Progress on Restoring Streamflows to Support Anadromous Fish

Anadromous Fish Reintroduction

An evaluation of streamflow restoration in the Deschutes Basin to support anadromous fish is not available at this time. Recent efforts have been focused on fish passage and reintroduction of anadromous fish to streams they once inhabited above the Pelton Round-Butte Hydroelectric Project (PRB). The Deschutes River Basin above Pelton Round-Butte was once home to native runs

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of summer steelhead, Chinook salmon, sockeye salmon, and Pacific lamprey. Efforts were made to provide fish passage and sustain the upper basin's salmon and summer steelhead runs when the hydroelectric project was constructed, but the efforts failed and were abandoned in 1969. There has long been an interest in reestablishing anadromous fish runs in the upper Deschutes River subbasin. The relicensing of PRB provided the opportunity to implement recent technological innovations in order to attempt to reestablish anadromous fish runs upstream. The Federal Energy Regulatory Commission (FERC) license includes mandatory conditions from the U.S. Fish and Wildlife Service ("USFWS") and the National Marine Fisheries Service ("NOAA Fisheries") to implement a fish passage plan to reinitiate fish passage through PRB.

In conjunction with these efforts, in 2008, Oregon Department of Fish and Wildlife and the Confederated Tribes of the Warm Springs Reservation published the "Reintroduction and Conservation Plan for Anadromous Fish In the Upper Deschutes River Sub-basin, Oregon." This Reintroduction Plan is intended to contribute to a successful reintroduction effort by identifying key fish management issues and how they will be resolved in an adaptive fashion. It discusses species and stocks to be reintroduced to areas above PRB where these species had originally inhabited, and provides general guidance on methods, release locations, numbers, timing, and adjustments in hatchery supplementation as populations become re-established. The goal of reintroduction is to restore self-sustaining and harvestable populations of native summer steelhead, Chinook salmon, and sockeye salmon in areas where they had originally inhabited in the Deschutes River and its tributaries upstream from PRB, and to reconnect native resident fish populations that are currently fragmented by PRB.

These reintroduction efforts are well underway with releases of steelhead fry in both 2007 and 2008 and chinook in 2008. Increased releases of fry as well as smolts are planned for spring 2009. The new selective water withdrawal and fish

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collection facility are scheduled to be completed and operational by May 2009. Full scale monitoring and evaluation of these facilities will likely take place in the spring of 2010. The earliest returns of adults expected at the Pelton trap and potentially being transported upstream would be 2011, but most likely 2012. Adults known to originate from upper basin releases will only be passed upstream once the 50% reservoir passage efficiency is met.

In addition to these efforts, the Deschutes Basin Board of Control (DBBC), Confederated Tribes of Warm Springs (CTWS), and others have been scoping a proposed multi-species Habitat Conservation Plan (HCP). They are currently trying to secure additional funds through US Fish and Wildlife Service and Congress to move forward with the next steps. Draft forms of the HCP are scheduled to be completed by 2011/2012 with the final HCP approved and released in 2014.

Efforts to Improve Streamflows

Over the past decade many organizations and agencies have been working in the Deschutes River Basin to restore natural stream flows and to improve water quality and aquatic habitat in the river and its main tributaries. As part of this ongoing work, the Deschutes Water Alliance (DWA) was formed in 2004 by the Deschutes River Conservancy (DRC), the Deschutes Basin Board of Control (DBBC; an association of irrigation districts), the Confederated Tribes of Warm Springs (CTWS), and the Central Oregon Cities Organization (COCO). The DWA's mission has three elements:

- Move stream flows toward a more natural hydrograph while securing and maintaining improved instream flows and water quality to support fish and wildlife;
- Secure and maintain a reliable and affordable supply of water to sustain agriculture in the Basin; and

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- Secure a safe, affordable, and high quality water supply for urban communities (DWA, 2006).

In addition, the DRC, the Upper Deschutes Watershed Council (UDWC), the Crooked River Watershed Council (CRWC), and the Deschutes Land Trust (DLT) have created a strategic alliance to implement projects in the Middle Deschutes River, Metolius River, Lower Crooked River, and Whychus Creek to improve instream flows, water quality, and aquatic, riparian and upland habitat in these key subbasins where anadromous fish are being reintroduced. These collaborative efforts will take many years to implement, but ultimately will lead to healthier ecosystems and anadromous fish populations in the Basin.

4. Deschutes Group Results

The following is a summary of discussions and outcomes from each of the four meetings of the Deschutes Group held in July, September, October and November, 2008. The approved agendas from each of these meetings can be found in Appendix B, and the approved meeting summaries can be found in Appendix C of this report. Issue framing papers developed by Group subcommittees are included in the body of this report; attachments to issue framing papers are either provided in Appendix E or available on the OWRD website at www.wrd.state.or.us. The following description reflects the range of comments and perspectives shared by Group members at each meeting.

Successful Elements of the Ground Water Mitigation Program as Identified by the Deschutes Group

Below is a summary of what Deschutes Group members identified as the successful elements of the Ground Water Mitigation Program. These are comments captured during the meetings:

- Transactions are occurring – OWRD has issued credits and water has been put back into the Middle Deschutes reach.

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- Cities support having the regulatory program because it provides definitions and sideboards.
- The program has allowed municipalities and quasi-municipalities to mitigate incrementally, which has been very helpful.
- All interests are aligned around an instream flow purpose. Everybody has to think about the river in terms of how new water rights can be acquired and what mitigation has to occur in order to provide for those new rights.
- The program has helped educate the public about water issues in the Basin. Everybody is more knowledgeable about this water issue.
- The program has helped create a roadmap for the mitigation process, which is useful to all water users.
- The program provides a pilot project and creative solutions for water management in other basins (though concerns were expressed that details of the program may not be transferrable and only the concept and approach may be transferable).
- Using instream leases as a bridge to permanent mitigation is working well.
- Instream leasing can provide a stable source of mitigation credits, but we need to be cautious to not rely too much on temporary leases.
- OWRD can track transactions well (in terms of what mitigation is occurring and where the uses are located).
- OWRD has started doing a more robust review of the applications (making sure speculation is not happening).
- There are now market-based (market pricing, supply and demand oriented) solutions in the basin, and the market can respond quickly to changes.
- Very few places in the West have capped consumptive use. Overall consumptive use in the Basin is neutral.
- There is more water instream in the Middle Deschutes River in the summertime.
- The water banks and mitigation credits are linked with flows.

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- The program has made a good strong start in achieving the goals of mitigation in the Basin. People want to keep improving it, but don't want the program eliminated or compromised.

Primary Issues of Concern as Identified by the Deschutes Group

At their first meeting the Deschutes Group discussed key issues of concern about the implementation and operation of the Program, as well as bigger picture water issues in the Deschutes Basin.

The Deschutes Group brainstormed the following list of opportunities to improve the program:

- How applications are "counted" under the 200 cfs allocation cap ;
- Zones of impact determination;
- Non-irrigation season mitigation;
- 7(j) conditioned ground water rights;
- Need to improve analytical monitoring tools used by the Program;
- Program sunset dates;
- Net consumptive use in the basin;
- Need to shorten the length of time to process new ground water and mitigation project applications;
- Need to evaluate how transferable the program is;
- Need for monthly accounting of instream flows to be part of any report or analysis of the Program;
- The changing environment of the program;
- Location of mitigation (where water is actually transferred back instream);
- The need to address or develop ways to extend or improve alternative mitigation options;
- Limitations due to mitigation water not being available in all areas.

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OWRD staff and Deschutes Group members also brainstormed the following “big picture” water issues in the basin:

- Water quality impacts including potential impacts to springs;
- Other basin efforts such as the ongoing Habitat Conservation Planning (HCP) process;
- Broader restoration efforts and actions;
- Need to investigate ground water (aquifer) declines in certain areas in the basin;
- Need to determine net consumptive use in the basin;
- Understanding the impact of exempt wells;
- Winter flow restoration efforts and opportunities;
- Need to evaluate the sustainability of the Deschutes Water Alliance (DWA) Water Bank.

From the issues that the Group brainstormed above, the Group focused their discussions on the following six issue areas:

- The zones of impact in which mitigation is provided;
- What is counted under the 200 cfs allocation cap on new ground water uses in the Deschutes Basin;
- Offset of impacts on surface water flows resulting in reduced mitigation requirements and incremental mitigation provided by municipal and quasi-municipal ground water permit holders;
- Potential water quality impacts of the mitigation program;
- Non-irrigation season mitigation and;
- Water right permits that were issued prior to rule adoption with a condition on their use to allow regulation to protect scenic waterway flows (called “7(j) conditioned water right permits”).

Small work groups defined or “framed” these issues between meetings to provide context and background so that the Group could have an informed discussion of

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the issues at subsequent meetings. The remaining issues were not discussed further by the Group because of time constraints for reporting on the program.

The following sections on each focus issue are organized with a statement of the issue; recommendations agreed upon by the Group that address some aspect of the issue; the issue framing paper developed by the small work groups; and the range of discussion by the Group on each focus issue. Not all discussion points raised in the issue framing papers were discussed by the Group.

Zones of Impact

Issue Statement: Some stakeholders are concerned about the Department requiring mitigation only in the “primary” zone of impact when ground water pumping may impact more than one zone of impact.

Recommendation #1: Recommend that the Department improve their analytical tools to be able to better assess the zones of impact.

Issue Framing Paper

Background

The Deschutes Mitigation Rules adopted by the WRC require mitigation be provided within the zone of impact identified by the Department. The rules divide the required location of mitigation into two areas – (1) those in general zone and (2) those in local zones. The concept is that those in the general zone are developing water in the “regional aquifer” and their potential groundwater pumping impacts would be on the regional confluence areas of the Deschutes, Crooked and Metolius Rivers, hence they need only provide mitigation anywhere above the Madras gage on the Lower Deschutes River. For those wells determined by the Department to have a localized impact on surface water, mitigation must be provided in the local zone of impact. The local zones are

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generally described by rule as anywhere within the impacted subbasin of the Deschutes River as identified by the Department. The initial local zones of impact identified by the Department were the Middle Deschutes, Crooked River, Whychus Creek, Upper Deschutes River, Little Deschutes River, and Metolius River.

In its determination of local zones of impact, the Department considered subbasin boundaries, locations where instream water rights or scenic waterway flows were not being met, general ground water flow information, and other hydrogeologic information, including identification of where stream reaches were influenced by groundwater discharge.

Once the local zones were identified, the Department pinpointed the lower boundary within each local zone by one of two means: (1) the lower boundary of the zone being located below the lowest groundwater discharge area, and (2) the lower boundary of the zone being within the groundwater discharge area where instream requirements are not met above that point (http://www1.wrd.state.or.us/pdfs/Deschutes_Mitigation_5_Year_Review_Final_Report.pdf: see page 20 of 5-year evaluation report).

The rules require the Commission to review the general zones of impact identified by the Department every five years.

Issue Framing

Issues raised by stakeholders about the zones of impact, as they relate to the implementation and operation of the mitigation program, are described below.

A. Primary/Secondary Impact: This issue is highlighted in the October 31, 2007 letter from Director Ward (see Appendix E1). In short, some stakeholders have raised concerns with regards to the Department requiring mitigation only in the “primary” zone of impact when groundwater pumping may impact more than one zone of impact. This issue may raise the following discussion points.

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- Is OWRD's approach to the primary/secondary impact issue consistent with its rules?
- What is the extent of the primary/secondary issue? (i.e. how many applications have been approved/are in the queue that may impact more than one zone of impact? How does the OWRD determine the primary zone of impact when there may be more than one zone?)
- What are the implications for senior surface water rights and scenic waterway flows on any "secondary impact" streams?
- Is OWRD's current approach a problem?
- What is being done/can be done to monitor potential primary/secondary impacts?
- What can or should be done?
- Does the available information and scale of the program lend itself to a primary/secondary impact approach?
- Would a more detailed approach (multiple zones of impact) lend itself to a program that can be administered by OWRD?
- What are the implications of a primary/secondary approach?

B. Location of Mitigation Within a Local Zone: Again, focusing on location of impact vs. mitigation, some stakeholders would like more information regarding the potential impact from groundwater pumping vs. the location of mitigation being provided within a local zone. This issue may raise the following discussion points.

- Is mitigation being provided at or above the point of impact?
- Does the Department track, on a case-by-case basis how mitigation and potential impact match-up in the local zones as it indicated it could in a 2003 monitoring plan provided to the Commission?
- Can this issue be monitored for future review?
- Do changes need to be made?
- Should the Department refine the local zones of impact? (i.e. Tumalo Creek, Indian Ford Creek)

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- What are the implications of a different approach?
- How is the program working for local impacts on tributaries within a local zone? (i.e. Indian Ford Creek and Tumalo Creek)
- Is the Department undertaking identical injury determinations for senior consumptive and instream water rights?

C. Availability of Mitigation: As described in the Department's 5-year review report, not all zones of impact have mitigation water available and some that do may only have limited amounts of year-to-year temporary mitigation.

Stakeholders have raised concerns about the "lumpy" supply of mitigation in some zones and the lack of mitigation altogether in others. This issue may raise the following discussion points.

- What are the implications for the program if mitigation is not available in a particular zone?
- Are there ways to facilitate the development of mitigation where no or little mitigation is available today?
- What are the implications of the Fort Vannoy case on the availability of mitigation, if any?
- Others?

Discussion

The following represents the range of perspectives discussed by the Group on this focus issue. OWRD staff explained that the Department currently identifies only one zone of impact based on where most of the impact will occur using the Department's conceptual understanding of the ground water flow system (based on the USGS-OWRD Deschutes Basin Ground Water Study) and well construction information provided by the applicant (e.g., well depth, water table elevation). This information is then assessed in relation to regional ground water flow direction, areas of ground water discharge, and the proximity of the proposed well to those discharge zones.

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The Department's ground water permit review involves three separate findings: under Oregon Administrative Rules (OAR) Division 690-08, Division 690-09, and the Scenic Waterway. The Division 8 (groundwater availability) and Division 9 (groundwater / surface water interference) findings are recorded on a form called the "Public Interest Review for Ground Water Applications." Staff may identify specific stream reaches that would likely be impacted by the proposed ground water use on this form. Those stream reaches may or may not be in another "zone of impact". A "zone of impact" finding is strictly related to a scenic waterway review in the upper Deschutes Basin.

When the Department was moving forward with implementing the program, considerable thought focused on how to balance using the best information without making the review and process so complex as to overwhelm staff and applicants. The Department subsequently chose to use the conceptual approach instead of the regional flow model to make zone of impact findings in order to achieve a balance between the needed information and staff/applicant resources and capacities.

The Group raised questions about how precise / accurate the Department's conceptual approach is, and what physical (scientific) factors such as well depth and geology may influence the zone of impact decisions. Improving the analytical tools used by the Department to determine zones of impact, so that the best possible analysis can be made, was also discussed. The Group reached consensus agreement on this issue (see Recommendation #1 above).

Discussion of Splitting Zones of Impact

The Group discussed whether the Department should consider splitting zones of impact (and require mitigation in more than one zone) if their analysis shows significant impacts in more than one zone. Department staff clarified that in some cases the Department may be able to identify impacts in more than one zone. However, splitting by zone using the numerical model would be constrained by

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available staff resources and model uncertainty. Other group members also stated that because of its limitations, the existing model should not be used to determine quantitative splits of impacts into more than one zone. Other participants said that if the analytical tools could be improved, that it would be good to split out impacts into multiple zones. Another suggestion was to split impacts and mitigate in multiple zones if the analytical tools allow for this, subject to the availability of mitigation credits. Others did not like this suggestion that requiring mitigation in more than one zone would be subject to availability.

No consensus was reached on the proposal

Discussion of Unavailability of Mitigation in Some Areas

The Group discussed the lack of availability of mitigation water in all zones of impact. Participants pointed out that there is a perception that because the Program is in place, mitigation credits are available in every zone of impact. However, the general public and elected officials do not appear to understand that certain areas in the Basin currently have no known source of mitigation. The Group discussed whether the Department should identify those areas in the Basin where no mitigation is currently available so as to raise awareness, to educate and inform communities, and create better understanding of the issue. Discussion noted that the intent of the proposal was to inform the Legislature that the Program cannot function in certain areas in the Basin because no mitigation is available in certain zones.

The Group agreed on the need to clarify in this report that mitigation is not currently available in all zones.

Discussion of Proposal to Look for Alternatives if No Mitigation Water is Available

Another suggestion discussed by the Group was whether alternative forms of mitigation should be considered if no mitigation water is available in a zone as long as flows are not impaired. Some suggested that there needs to be a

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reasonable approach to determine if there are any other creative options to enhance flows that could be applied in those zones where permanent mitigation is not available. Others did not support this idea because it represented a fundamental change in the Program that currently takes a “bucket for bucket” approach to mitigation.

No consensus was reached on this proposal.

What is Counted Under the 200 cfs Cap

Issue Statement: A requirement to count all final orders issued under the mitigation rules (even zero mitigation obligation, non-consumptive, and offset) appears to be an unintended consequence of the current rules. The issue is whether zero mitigation obligation or non-consumptive uses, such as a closed loop heat exchange, or permits issued under an offset, should be counted under the 200 cfs cap.

Recommendation #2: Water allocated under the 200 cfs cap should be restored to the cap if the amount of water use authorized in the permit or final certificate is less than the amount originally approved in the final order.

Issue Framing Paper

Background

The Deschutes Mitigation Rules adopted by the WRC established a 200 cfs cap under OAR 690-505-0500(1). The purpose of the cap was to establish a check-in point for the Commission to evaluate the mitigation program and rules. The cap rule reads as follows:

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(1) Except for a cumulative total of 200 cubic feet per second (cfs) maximum rate for final orders approving ground water permit applications issued after the effective date of these rules, ground water in the Deschutes Ground Water Study Area is closed to further appropriation.

The Department's interpretation of this rule is that it applies to all groundwater permits issued in the Study Area – even those that are for a non-consumptive use or those that might be using the offset provision under OAR 690-505-0610(8). The offset provision reads as follows:

(8) Notwithstanding section (1) of this rule, if the impact of use under a ground water permit application is completely offset by a proposed voluntary cancellation of an existing ground water use subject to transfer, such that impact on surface waters from the new ground water use is the same as, or less than, impact on surface waters from the existing ground water use subject to transfer, the ground water permit application may be approved without additional mitigation once the proposed voluntary cancellation is complete.

Issue Framing

A requirement to count all permits issued under the mitigation rules (even non-consumptive or offset) appears to be an unintended result. The specific issue here is whether it makes sense to count non-consumptive uses, such as a closed loop heat exchange, or permits issued under an offset against the cap, and if not how can this be remedied?

According to the Department, to date, only one non-consumptive use permit for 0.22 cfs (heat exchange) has been issued. However, in the queue under the 200 cfs cap there is a pending permit for 15 cfs by Three Sisters Irrigation District for non-consumptive flow augmentation as part of a surface water/groundwater exchange.

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According to the Department, to date, no permits have been issued under the offset provision; however, one application in the queue is proposing a small amount of offset. In addition, applications in the queue where mitigation is not readily available (Crooked and Little Deschutes Zones of Impact for example) may ultimately use the offset provision when it is time to respond to the mitigation obligation calculated by OWRD.

Additional issues/questions as they relate to the implementation and operation of the mitigation program are described below.

- Does it make sense to have the cap based on rate (cfs) when the mitigation program is based on annual volume of consumptive use? This is particularly true for large rate permits with small volume authorizations.
- How does the offset provision get incorporated into the opportunity for municipal and quasi-municipal water providers to provide incremental mitigation?

Discussion

The Department's interpretation of the cap rule is that it applies to all final orders approving ground water permit applications issued in the Study Area – even those that are for a non-consumptive use, or those that might be using the offset provision under OAR 690-505-0610(8). The offset provision allows for a ground water use to be “completely offset by a proposed voluntary cancellation of an existing ground water use” so that the impact on stream flows from the new ground water use is the same, or less, than the impact on stream flows from the existing ground water use. See focus issue “Offset and Incremental Mitigation” section below.

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Discussion of Non-consumptive Uses under the Cap

The Group discussed whether non-consumptive uses that have no mitigation obligation should be counted under the 200 cfs cap. Specifically, the group considered the following proposal: *If a final order for a new ground water application has no mitigation obligation, it should not be counted under the 200 cfs cap.* Some were concerned that non-consumptive uses could have an impact on stream flows in the non-irrigation season. Members noted that details regarding this proposal would likely be resolved during the rule making process, if the Department chose to bring this proposal forward.

The Group agreed in concept that those uses with zero mitigation obligation should not be counted under the 200 cfs cap. However, the Group could not agree on the types of uses that would fall in this category.

The Group also discussed whether offset provisions and incremental mitigation used by municipal and quasi-municipal water purveyors to meet their long-term water supply commitments should be counted under the 200 cfs cap. Certain members felt that the rules need to be modified to clarify that offset can be used in an incremental mitigation plan (see "Offset and Incremental Mitigation" section below).

Discussion of Rate versus Volume

The Group discussed whether it made sense to base the cap on rate (cubic feet per second) versus volume (acre-feet) of water used. Members of the Group had varying opinions about this issue. A number supported the change, while others expressed concern about making decisions based on flows that are averaged over the water year (annualized volumes). Some expressed concern that flows in the Deschutes River vary considerably over the year, and others expressed concerns that low flows are getting lower in the river. Concern was also expressed that the Program may ultimately result in less flow in the winter because instream transfers do not occur outside of the irrigation season.

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No consensus was reached on this topic.

Discussion of Cap based on Final Orders or Applications

A final question addressed by the group was whether the 200 cfs cap should be based on final orders that are not developed or fully developed by the applicant. The Group reached consensus agreement on this issue (see Recommendation #2 above).

Offset and Incremental Mitigation

Issue Statement: The mitigation rules allow municipal or quasi-municipal permit holders to meet a mitigation obligation by incrementally obtaining and providing mitigation using a combination of current and future instream leases, permanent instream transfers, and the purchase of mitigation credits to satisfy the required mitigation over time. However, as currently written, the incremental mitigation rules do not cross-reference the offset provision, and therefore the rules currently do not allow for the use of “offset” as part of an incremental mitigation plan.

Recommendation #3: *The rules should be modified so that the use of an offset, as defined under the current rules, should not be counted under the cap.*

Recommendation #4: *Recommend that the Mitigation Rules be modified so that offsets, as defined under the current rules, can be used in an incremental mitigation plan.*

Issue Framing Paper

Introduction

At its September 5, 2008 meeting the HB 3494 work group discussed the “offset” provision under OAR 690-505-0610(8) and whether the offset rate included in the associated permit should be counted under the 200 cfs cap. There appears to

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be consensus that the associated permit rate should not be considered under the cap. There was also a brief discussion regarding the use of the offset provision in the context of incremental mitigation by a municipal or quasi-municipal water provider. This memorandum provides some additional background on these two topics.

Background

A. Offset Provision: If additional water supply is needed, a good option (in lieu of obtaining a new water right permit) may be the transfer of an existing water right. However, such a transfer may not be feasible or the amount of water in the transfer may only be a portion of what is needed for a new water supply. To provide for additional flexibility in addressing impact from “new” groundwater use, the Department incorporated the “offset” provision into the mitigation rules at OAR 690-505-0610(8).

(8) Notwithstanding section (1) of this rule, if the impact of use under a ground water permit application is completely offset by a proposed voluntary cancellation of an existing ground water use subject to transfer, such that impact on surface waters from the new ground water use is the same as, or less than, impact on surface waters from the existing ground water use subject to transfer, the ground water permit application may be approved without additional mitigation once the proposed voluntary cancellation is complete.

The following example describes how this provision could be used. Two distinct wells (A and B) appropriate water from different sources (aquifers), such as an alluvial aquifer and a basalt aquifer, but still have the same zone of impact designation. The water right at well A cannot be transferred to well B because the Department would determine such a transfer is a change in the source of water and is prohibited. However, under the offset provision, it may be possible to voluntarily cancel the water right at well A and use this offset to obtain a “new”

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permit at well B for the amount of water previously authorized at well A. Of course, such a transaction must be deemed by the Department to meet the rule requirements. This example and other uses of the offset provision provided needed flexibility, especially where mitigation is not readily available.

B. Incremental Mitigation and Offset: The mitigation rules at OAR 690-505-0625 allow municipal or quasi-municipal permit holders to meet a mitigation obligation by incrementally obtaining and providing mitigation. Under the incremental mitigation rule, the mitigation provided must meet specific criteria outlined in OAR 690-505-0610(2)-(5). Typically, an incremental mitigation plan describes how a combination of current and future instream leases, permanent instream transfers and the purchase of mitigation credits will satisfy the required mitigation over time.

Unfortunately, as written, the incremental mitigation rules do not cross-reference the offset provision, and the Department has preliminarily indicated that the incremental mitigation rules do not allow for the use of “offset” as part of an incremental mitigation plan. This means that the offset provision is only available for use (one time) at the time of permit application processing.

Municipal and quasi-municipal water providers are authorized to develop their permits over long periods of time. Incremental mitigation provides needed flexibility; however, the current rules do not appear to provide a way to include future offset opportunities into the water providers’ long-term plan for mitigation and permit development

Issues/Options:

- Should the incremental mitigation rules be modified to allow offset as part of an incremental mitigation plan?

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Discussion

The Group discussed whether the use of an offset in an incremental mitigation plan should be counted under the cap. It was clarified that there are limits to transferability and that the offset provision only applies to ground water permits. The Group reached consensus agreement on this issue (see Recommendation #3 above). Clarification was also provided that if an offset was used by a water provider as incremental mitigation later in time, it would be subtracted from the cap at that later date. OWRD staff also clarified that the Department would not rebate the offset until there was voluntary cancellation of the water right proposed as the offset. The Group reached consensus agreement on this issue (see Recommendation #4 above).

Water Quality

Issue Statement: Springs and ground water have an impact on water quality, including temperature; however, the current mitigation program addresses only the water quantity impacts of proposed new ground water uses. In addition, there is no current process for tracking or addressing the potential cumulative impacts on water quality of the mitigation program in combination with other programs in the basin. The key issue is whether there may be a "tipping point" where reduced spring and ground water inflow resulting from all water programs will cumulatively have a negative impact on water quality in the future.

Issue Framing Paper

Framework

- Potential impacts to water quality – including temperature – as a result of reduced spring and groundwater flow, are not considered in the Mitigation Program.
- Currently, there is no data that illustrates the effects of reduced spring and groundwater flow on water quality. However, water quality data collected by the ODEQ and BLM in the Middle Deschutes River, Lower Crooked

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River, and Whychus Cr. indicate that springs and groundwater inflow to these streams reduce water temperature and change chemical constituents in the rivers and creek.

- Other water programs operating in the basin, such as the Conserved Water Program that allows for lining and piping of canals, could also contribute to water quality impacts due to diminishment of groundwater discharge at springs.
- Currently, there is no coordinated mechanism for tracking potential impacts to water quality as a result of reduced inflow from groundwater discharges and springs due to new groundwater development and other water management programs.
- Although the current Mitigation Program may provide some water quality benefits by improving stream flows in severely impaired areas such as the Middle Deschutes River, there may be a “tipping point” where reduced spring and groundwater inflow resulting from all water programs will cumulatively have a negative impact on water quality in the future.
- More information is needed to identify whether or when such a “tipping point” will be reached, and how potentially negative impacts can be averted.

Issues

- There is a need to better understand the contributions of the springs and groundwater to water quality of the river, and how the chemical make-up and temperature of those sources affect aquatic life and other resource values.
- There is a need to better understand what level of development is acceptable and at what level of reduced spring and groundwater inflow will result in reduced water quality in the Deschutes River and tributaries, including the Lower Crooked River.

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- The OWRD and partner agencies should construct and maintain a broader evaluation of how the different water programs, not just the Mitigation Program, affects groundwater and spring flows to the streams.
- Explore the possibility of using the USGS groundwater model to estimate changes to key chemical constituents and water temperature from springs and groundwater sources.
- Consider options for funding – from a variety of sources -- for spring and groundwater studies, including the broader evaluation by OWRD of impacts to springs and groundwater flows resulting from implementing all water programs (i.e. Mitigation Program, conserved water program, etc.).
- Consider allowing applicants to satisfy part of their mitigation obligation through cash contributions or projects to address water quality.

Discussion

The group discussed potential water quality impacts related to implementation of the Program. It was generally agreed that more time, money and technical expertise is needed to better understand the Program's potential impact on water quality. It appears that spring inputs into the Middle Deschutes and Crooked Rivers are important, but not enough is known about the implications of this or how it relates to the Mitigation Program. Several Group members noted that the science needed to analyze effects on spring inputs is beyond the scope of the Program, and outside of the Department's general area of expertise. Others noted that the Program is not set up to solve this question, but that the Department could help leverage a better understanding of the issue by seeking funding to engage with other partner agencies in the Basin to look more closely at water quality issues.

It was also suggested that the USGS model could be used in a different capacity to help analyze the Program's impacts on water quality. In addition, the other activities in the basin that have effects on local ground water recharge (i.e. canal lining, piping, and other conservation measures) have an impact on springs.

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Further and more robust analysis to determine the causal relationships are outside of the scope of this review.

Another area of discussion concerned the apparent disconnect between the Program and other water quality issues related to the Clean Water Act such as 303(d) listings and the pending TMDL(s) for the Deschutes Basin. These need to be connected with other issues related to Program implementation.

It was also discussed that the current Program is not set up to address water quality issues in the Basin because it is regulatory / statutory by design and not conducive to taking a bigger picture look. However, the Group could recommend funding for a bigger picture scientific look at water quality to better understand water quality impacts. Several Group members agreed that the State needs to take a comprehensive look at the issues and begin to address impacts that are occurring in the streams today. Several Group members agreed that a comprehensive water management plan needs to be developed to better understand bigger picture water quality and water quantity issues in the Basin, including those related to the Clean Water Act. The Program could be left as it is, but integrated into this bigger picture of water management analysis.

No recommendation was reached by the Group on water quality. However, the group agreed that more work is needed to address water quality in the context of a water management plan for the Basin. The group also agreed to continue discussions about water quality and the need for an integrated water management plan.

A separate but related discussion took place around the limitations of the Mitigation Program in addressing the bigger picture of restoration needs in the Basin. Each mitigation request does not necessarily relate to bigger picture issues, but it may be possible to use the Program to fund bigger restoration efforts in the Basin using existing mechanisms like the Deschutes Water Alliance

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(DWA). Some members suggested that cash contributions to fund larger restoration efforts could possibly be set aside as part of the mitigation obligation. However, several members of the Group were not comfortable with the notion of cash contributions in lieu of flow mitigation and no agreement could be reached on this issue.

Non-Irrigation Season Mitigation

Issue Statement: Under the Deschutes Mitigation Rules, mitigation is calculated on the basis of the annual volume of consumptive use, rather than on a cubic foot per second basis. While the annualized volumetric approach in the rules addresses the volume of consumptive use, the rules do not address the OWRD's estimate that ground water pumping impacts are uniformly distributed over all months of the year. Thus far, all mitigation water has been returned to the system during the irrigation season. While the additional flow to the system during the summer months is a positive effect, some have raised concerns about ground water pumping impacts on streamflow during the non-irrigation season.

Issue Framing Paper

Background

The Scenic Waterway Act prohibits issuance of new ground water rights if the Department has determined that the new use will "measurably reduce" scenic waterway flows unless mitigation is provided to ensure the maintenance of the free-flowing character of the scenic waterway in quantities necessary for recreation, fish and wildlife. ORS 390.835(9). Under the Deschutes Basin Ground Water Mitigation Rules, mitigation is calculated on the basis of the annual volume of consumptive use, rather than on a cubic foot per second basis. OAR 690-505-0605(11) & (13). While the annualized volumetric approach in the rules addresses the volume of consumptive use, the rules do not address the Department's estimate that ground water pumping impacts are uniformly distributed over all months of the year, as described below. This annualized

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volumetric approach was among the issues raised by WaterWatch in challenging the legal sufficiency of the rules. (*WaterWatch of Oregon, Inc. v Water Resources Commission*, 199 Or App 59). In ruling for Water Watch on this issue, the Court of Appeals found that maintaining *flows* in quantities necessary for fish, recreation and wildlife uses is different from maintaining a certain yearly average *volume* of water in a system. *Id.* at p. 614.

In response to the Court of Appeals' May 2005 ruling, in July 2005 the Legislature passed HB 3494 that mandates that for the purposes of mitigation in the Deschutes Basin, the rules satisfy "requirements relating to mitigation" under the Scenic Waterway Act, the Instream Water Rights Act and the ground water permitting statutes. As a result, the annualized volumetric approach to mitigation has been approved in the current rules. However HB 3494 calls for rules to sunset in 2014. Water Watch and others have expressed continuing concerns about the fact that the rules do not address potential year-round impacts.

As noted in the Department's Deschutes Ground Water Mitigation Program Five-year Evaluation Report, as of February 2008, the OWRD had issued 66 new groundwater permits, totaling 52 cfs of water. The Department has developed a numeric model to estimate the effects of the consumptive use of these groundwater withdrawals, as well as associated mitigation projects. The DRAFT report outlining the numeric model and associated assumptions is Attachment 2 to the Department's staff report dated February 29, 2008 (*Assessing the Impact of Mitigation on Stream Flow in the Deschutes Basin*). To date, the DRAFT report has been reviewed internally at OWRD and peer reviewed by one staff person at the USGS.¹

¹ Since this issue framing paper was originally developed by the subgroup, the Department has finalized this report. The full report, *Assessing the Impact of Mitigation on Stream Flow in the Deschutes Basin*, is available at <http://www1.wrd.state.or.us/pdfs/DeschutesMitigationReport.pdf>.

Included in the Department's numeric modeling is a calculation of the "change in stream flow" by month (see tables in Appendix E). As the Five-year Report and the DRAFT numeric model report describe, the numeric model uses a uniform time series for ground water discharge – meaning effects from ground water pumping are uniformly distributed over all months of the year. Based on the current modeling approach, and as depicted in the Five-year Report tables mitigation debits (i.e. consumptive use of ground water) produce a decrease in streamflow that is uniformly distributed over all months of the year, while mitigation credits (i.e. instream leases, transfers, etc.) generally increase streamflow only during the irrigation season. Specifically, model results estimate monthly stream flows have generally increased from May to October, and have decreased from November to March.

From a legal standpoint, instream water rights and scenic waterway flows are set and protected, by month. While the additional flow to the system during the summer months is a positive effect, the potential negative impacts during the off-irrigation season raise concerns for those interested in protecting year-round scenic waterway flows and instream water rights. An additional concern raised by WaterWatch relates to the fact that the amount of impact during the non-irrigation season is not reflected in the OWRD model for determining water availability which could exacerbate the problem of impacts during the non-irrigation season by setting the stage for new water rights to be issued for storage projects on the basis of an inaccurate reflection of stream flows.

Issues

- Whether the mitigation rules should be changed to require year-round mitigation.
- Whether the existing data and magnitude of potential impact warrant changes to the mitigation rules at this time.
- Whether other actions should be taken to address estimated impacts outside of the irrigation season.

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- Whether OWRD water availability data should reflect mitigation deficits during the non-irrigation season.
- Assuming stored water from the upper basin was available to address this issue, what is the impact of the Pelton Round-Butte project.

Discussion

The group discussed aspects of this issue related to the accuracy of the models and stream gages used to measure flow in the Deschutes River below the Pelton Round Butte Complex. Some believe that the impact of mitigation credits and debits relative to river flows is small. Therefore, for most areas, stream gages currently used to measure flow in the Program area cannot measure the impact of the Program on stream flows in the Lower Deschutes River and therefore need to be "calculated" based on a model with a number of assumptions. Several members felt that this reduction in winter flow should be addressed before the 200 cfs cap is changed. A concern was also expressed that low winter flows being lowered further would be detrimental to aquatic species, and some members believed that this showed a trend.

While no consensus agreement could be reached, the group agreed that this issue should be addressed in a broader planning process. The group agreed to continue a dialogue about this issue beyond the forum convened for this report.

7(j) Conditioned Permits

Issue Statement: The term "7(j)" refers to a condition required by statute to be included in certain water right permits and certificates in the Deschutes Basin that were issued during the time period after SB 1033 was enacted in 1995, but before the ground water study results were available in 1998. In the absence of technical information to determine whether a proposed use would "measurably reduce" surface water flows, the statute allowed a new ground water permit to be issued with the condition that

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provided the ground water use could be regulated in the future if analysis of data available after permit issuance discloses the use will measurably reduce the protected scenic waterway flows. Studies completed in 2001 show a connection between ground water and surface water and, as a result, all new ground water rights are now required to mitigate their use under the rules. The issue is whether the 7(j) condition has been triggered and, if so, how it should be implemented.

Issue Framing Paper

Background

The term “7(j)” refers to a condition required to be included in water right permits and certificates issued for ground water use in the Deschutes Basin under provisions of SB 1033. The bill required the Department to review ground water applications and make a finding on whether proposed use will “measurably reduce” the flows necessary to maintain the free-flowing character of a scenic waterway in quantities necessary for recreation, fish and wildlife. A ground water use “measurably reduces” if it individually or cumulatively reduces streamflow by 1% of average daily flow or 1 cfs, whichever is less. If the measurable reduction standard is triggered, the statute requires the state to deny the application unless the applicant provides mitigation. If measurable reduction cannot be determined at the time the application is reviewed, the statute requires conditioning of permits to allow for regulation in the future if the “measurably reduce” standard is triggered. The “7(j)” or “Scenic Waterway Condition” reads:

Use of water under authority of this permit may be regulated if analysis of data available after the permit is issued discloses that the appropriation will measurably reduce surface water flows necessary to maintain the free-flowing character of scenic waterways in the quantities necessary for recreation, fish and wildlife in effect as of the priority date of the right or as those quantities may be subsequently reduced.

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From 1995 to 1998, the Department issued 187 permits/certificates for a total of 188.5 cfs that are conditioned with the 7(j) condition.

In 1998, based upon preliminary information developed for the USGS Study, the Department found that the ground water in the Deschutes Groundwater Study Area had the potential for substantial interference with surface water and that the measurably reduce standard had been triggered. New ground water applications were put on hold and the Department convened the Deschutes Basin Steering Committee develop a ground water mitigation plan for the Deschutes Basin. This group met from 1999 to 2001.

In 2001, the Department prepared, with the assistance and input of from the Deschutes Basin Steering Committee, a public review draft of the report "Ground Water Mitigation Strategy for the Deschutes Basin." In this draft report, the Department indicated that mitigation was required for: 1) existing ground water permits and their subsequent certificates issued since 1995 that include the "Scenic Waterway Condition"; 2) applications for new ground water permits currently pending before the Water Resources Department; and 3) future applications for new ground water permits.

The draft report stated:

A number of ground water permits have been issued by the Department since the Scenic Waterway Law change in 1995 and are thus subject to mitigation requirements. In most cases, these permits contain the Scenic Waterway Condition which alerts them to the possibility of future regulation. With the substantial completion of the Ground Water Study Area, the Department has clear evidence of the extent to which any given ground water use under such permits will "measurably reduce the surface water flows necessary to maintain the free-flowing character of [the] scenic waterway in quantities necessary for recreation, fish and wildlife." ORS 390.835(9)(a). This, in turn, triggers the requirement for mitigation by holders of existing permits with the Scenic Waterway condition.

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This draft report was never finalized. Instead, the Department, moved into a rulemaking process. During the rulemaking process, implementation of the 7(j) condition was one of several issues that became somewhat controversial. The final rules addressed the 7(j) conditioned water rights with the following provision:

Holders of existing ground water permits and associated certificates in the Deschutes Ground Water Study Area issue 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).

OAR 690-505-0600(4).

Before the rules were completed, four 7(j) applicants provided mitigation that was approved by the WRD and thus, per the above rule language, are not subject to regulation. However, none of the other 183 permit/certificate holders has provided mitigation for their use. Thus far, the Department has not curtailed these water right holders' use nor informed them that mitigation is required.

Issue

- Has the 7(j) conditioned been triggered?

Associated Issues

- If 7(j) has been triggered, how should it be implemented?
- If 7(j) has not been triggered, when and how would it be triggered?
- If triggered, is there sufficient mitigation water available to meet the consumptive use of the 7j conditioned water permits/certificates (permitted amount of 188 cfs)?

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- How do these outstanding 7(j) conditioned permits/certificates impact discussions regarding any amendments to the 200 cfs cap?

Discussion

The key question discussed by the Group was whether the 7(j) condition had been triggered, and if so, how will the Department implement the rule and what would the mitigation look like? Department staff clarified that if the 7(j) conditioned permits provide mitigation (through the existing rules) then OWRD would not regulate these permits. The Group discussed whether there might be some other way for a 7(j) permit holder to create mitigation and still avoid regulation.

No consensus could be reached on this issue.

5. Conclusions

The Deschutes Basin Ground Water Mitigation program has been successful in meeting the key goals of the program: (1) to maintain flows for the Deschutes Scenic Waterway and instream water rights; (2) to facilitate restoration of flows in the middle reach of the Deschutes River below Bend; and (3) to accommodate growth through new ground water development. Since implementation of the program, the Department has issued new ground water permits while mitigating impacts to scenic waterway flows and instream water rights. In each year that the program has been in place, sufficient mitigation has been available to meet the needs of new ground water permits. And, the amount of mitigation available, overall, has increased annually. Through mitigation, scenic waterway and instream water right flows have been maintained and, in some areas, have been improved. The benefits of the program have been significant in some areas, such as the flows restored in the Deschutes River below Bend. Overall, as a result of the program, more than 39 cubic feet per second of instream flow has been restored to the Deschutes River and its tributaries.

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The mitigation program is working well but, like all regulatory programs, has room for improvement. The Deschutes Group has identified a variety of opportunities to keep improving the program through rulemaking and by making new investments in the science that guides the program.

The water management issues in the Deschutes Basin are complex – municipal, instream, irrigation, and recreation interests all have a stake in successful outcomes. The Department’s mitigation program is a small but important piece of overall Basin water management. As the recommendations of the Deschutes Group demonstrate, there is significant opportunity to resolve these complex water management issues in a larger basin water management context. This will require continued commitment and effort locally and investments by the State in supporting these efforts.

6. References

- Oregon Water Resources Department. 2008. Deschutes Ground Water Mitigation Program, Five-Year Program Evaluation Report, February 29, 2008. Available at http://www1.wrd.state.or.us/pdfs/Deschutes_Mitigation_5_Year_Review_Final_Report.pdf
- R.M. Cooper, Assessing the Impact of Mitigation on Stream Flow in the Deschutes Basin. November 2008. Available at <http://www1.wrd.state.or.us/pdfs/DeschutesMitigationReport.pdf>

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Appendix A

Summary of Pre-Meeting Interviews

In order to gain better insight and understanding of the range of perceptions that different stakeholder representatives hold about the Ground Water Mitigation and Mitigation Bank Programs (Program), what issues would be most controversial, and where agreement may exist among these constituent groups, the WPN consultants conducted interviews of the stakeholder representatives as one of the first official tasks under the contract. The list of interview questions was developed in concert with OWRD staff to ensure that the Department was supportive of the interview questions, and supported the role and intent of the interviews. These confidential interviews were conducted in person or by telephone, and a summary of generalized responses was prepared as follows.

Has the Ground Water Mitigation Program been successful?

- Deschutes Group members defined success in many ways. Multiple participants said that more protected water has been put back into the Middle Deschutes which helps improve fisheries habitat.
- Multiple participants said that they've seen an increase in knowledge, focus and involvement in water related issues in the Basin, as well as increased planning and collaboration among Basin water users.
- Multiple participants said that the Program has helped educate water users that new water rights require mitigation, shown them how to get additional water supplies, and thus has provided for economic growth in the Basin.
- Several participants said the Program has created an alignment of development and environmental interests around understanding the importance of river restoration.

What are the greatest benefits from the Program?

- Multiple participants said the Program has established a structure and framework to acquire water rights, which has helped maintain a reasonable cost for mitigation, and help avert "chaos" in the Basin.
- Several participants said the Program helped spark development of the Deschutes Water Alliance, which has helped reallocate irrigation water for municipal / residential uses.
- Several participants said the Program is protecting the aquifer and has "capped" consumptive use in the Basin.

What aspects of the Program need improvement?

- Multiple participants mentioned procedure "tweaks" they'd like to see made to the Program including standardizing and streamlining the application process; spending less time on processing temporary leases; modifying the way mitigation credits could be created; allowing for a

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- refund of credits if more were purchased than needed; and creating more certainty for acquiring mitigation credits for new projects.
- Multiple participants said the 200 cfs cap and the 2014 Rule sunset date are creating too much risk for applicants, creating problems for long-term water supply planning, and leading to speculation.
 - Multiple participants had concerns about how the primary and secondary Zones of Impact have been defined; whether mitigation water is available within all of the Zones; and whether there may be greater impacts in certain zones, or sub-areas of certain zones, than in others.
 - Several participants said they would like to see a more strategic watershed approach to mitigation with clear instream targets for Scenic Waterways and fish needs, and greater flexibility to “move water around.”
 - Several participants expressed concerned that many permanent, long-term ground water rights are mitigated for by temporary water leasing in the summer months, and that we need to identify a source for year-round mitigation.
 - Several participants said that OWRD needs to improve the analysis of Program impacts, review the Program more frequently, and use improved analytical tools to evaluate the Program.
 - Several participants were concerned about the cumulative effects from the Program including a possible net increase in the consumptive use of water in the Basin.

What are the greatest challenges and shortcomings of the Program?

- Many responses repeated those issues brought up in the previous question including: concerns about the 200 cfs cap, the 2014 sunset date, the year-round mitigation issue, lack of certainty regarding availability of mitigation credits, Zones of Impact issues, and leases versus permanent water rights.
- Several participants expressed concern that the potential water quantity and water quality impacts of the Program can't be accurately measured at this point because the Program is a broad scale approach to regulatory requirements, and it's difficult to rely on models to manage the Program at the stream gage level.

What can OWRD do to enhance the success of the Program?

- Multiple participants mentioned administrative changes such as streamlining the application process, increasing the efficiency of the transactions, improving the paperwork flow, and cutting down on processing time.
- Several participants suggested that OWRD should show more leadership, be “at the table” as an advocate for the Program, and be more involved in doing more education and outreach about the Program.
- Several participants said that the Zone of Impact map needs to be improved, and that OWRD needs to be more transparent about the land use and market implications of the Zone of Impact map.

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- Several participants suggested that OWRD should work to improve analytical Program assessment tools, and invest in tracking and analyzing the program more frequently than every five years (on-going analysis needed).
- Several participants suggested that OWRD fund a regional water governance group that would help change the focus from just looking at instream rights to a more holistic, Basin-wide approach.
- Several participants suggested that conservation (canal lining) and piping efficiency issues need to be addressed in the context of mitigation. The rules say lining and piping projects are an acceptable form of mitigation, but no projects of this type have been brought forward. Should they be allowed to generate mitigation credits?

Other issues of concern with the Program:

- Multiple participants expressed concern that the Program is vulnerable to being used in a larger political land use debate, that mitigation banks are vulnerable to market manipulation, and that proposed destination resorts could have impacts on the Program and water use in the Basin.
- Several participants brought up 7(j) conditioned water right permits as an issue.
- Several participants suggested that the question of whether the Program should establish priority water rights for municipal and quasi-municipal uses needs to be assessed.

Other "Big Picture" water issues in the Basin:

- Multiple participants expressed concern about the reintroduction of endangered species into Basin, and how ESA, TMDLs, and stormwater issues may come into play.
- Multiple participants talked about the need to look at how ground water withdrawals authorized under the Program may be affecting cold water spring discharge and water quality (temperature) in the Middle Deschutes.
- Several participants expressed concern about water management / mismanagement in the Basin: how water reservoir management practices (winter storage) can create artificial scarcities; that we need to create incentives for the agricultural community to use less water or use water more efficiently; that we need to look for ways to "move water around" to increase instream flows; and that we need to look at using flood-event flows to recharge ground water supplies.
- Several participants said that we need to have a better understanding of Basin hydrology: how much water is actually being used for consumptive purposes in the Basin (including exempt wells), and how much is available for continued development and instream needs.

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Appendix B1

OWRD Ground Water Mitigation Stakeholder Group

Agenda

First Meeting—July 17th, 10:00 am-2:00 pm

Meeting Place: City of Bend Public Works Facility
62975 Boyd Acres Road (see attached map)

This Draft agenda has been developed on the assumption that the group will meet four times over the course of approximately three months. Please review the proposed agenda and bring any suggestions for changes to the first meeting.

	<i>Time</i>
Introductions/Welcome	30 min
<ul style="list-style-type: none">• Brief introductions and affiliations from all participants• Purpose of the stakeholder process• Purpose of today's meeting and what we hope to accomplish in future meetings	
Process Overview / Meeting Mechanics	60 min
<ul style="list-style-type: none">• Agenda review/approval• Meeting agreements• Meeting process<ul style="list-style-type: none">○ What decision-making process will be used?○ How will the media be addressed?○ How will "Issues Bin" tool be used?○ Process for taking public comments at end of meetings○ Time management / role of facilitators• Questions and answers	
LUNCH (working lunch with a short break)	15 min
Synopsis of Pre-Meeting Interviews with Participants	35 min
<ul style="list-style-type: none">• Major issues identified through interviews• Other issues that need to be addressed?• Questions and answers	
Setting the Context for the HB 3494 Report	45 min
<ul style="list-style-type: none">• OWRD staff overview<ul style="list-style-type: none">○ HB 3494 requirements○ Sideboards for discussion in these meetings○ Other issues / topics to address outside of this process• Questions and answers	

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HB 3494 Part 1: Discussion of Mitigation Program 30 min
• Program implementation successes (what's working)

Public Comments 10 min

Next Steps 15 min
• Issues Bin review / decisions / items for the next agenda
• Process check in with group
• Number and schedule of meetings (**bring your calendars!**)
• Homework /check in with constituents

Adjourn

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Appendix B2
OWRD Ground Water Mitigation Stakeholder Group
Agenda

Second Meeting—September 5th, 10:00 am-2:00 pm

Meeting Place: City of Bend Public Works Facility
62975 Boyd Acres Road

This Draft agenda has been developed based on the discussion and decisions reached at our first Deschutes Group meeting. Please review the proposed agenda and bring any suggestions for changes to the September 5th meeting.

	<i>Time</i>
Introductions/Welcome	45 min
<ul style="list-style-type: none">• Brief introductions and affiliations from all participants• Purpose of today's meeting; review and approve agenda• Review Meeting Agreements• Discuss suggested changes to Draft Meeting Summary from the July 17th meeting• Approve summary from the July 17th meeting• Media contact check-in	
Public Comment Period	5 min
Issue Framing Discussions	70 min
<ul style="list-style-type: none">• Zones of Impact• 7(j) Conditioned Water Right Permits	
LUNCH (working lunch with a short break)	15 min
Continuation of Issue Framing Discussions	70 min
<ul style="list-style-type: none">• Applications Counted under 200 cfs Cap• Potential Water Quality Impacts from the Program	
Public Comment Period	5 min
Next Steps	30 min
<ul style="list-style-type: none">• Issues Bin review / decisions / items for the next agenda• Process check in with group• Schedule for future• Homework /check in with constituents	
Adjourn	

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Appendix B3
OWRD Ground Water Mitigation Stakeholder Group
Agenda

Third Meeting—October 22, 10:00 am-2:00 pm
Meeting Place: City of Bend Public Works Facility
62975 Boyd Acres Road

This Draft agenda has been developed based on the discussion and decisions reached at our first Deschutes Group meeting. Please review the proposed agenda and bring any suggestions for changes to the October 22nd meeting.

	<i>Time</i>
Introductions/Welcome	45 min
<ul style="list-style-type: none">• Brief introductions and affiliations from all participants• Purpose of today's meeting; review and approve agenda• Review Meeting Agreements• Discuss suggested changes to Draft Meeting Summary from the September 5th meeting• Approve summary from the September 5th meeting• Media contact check-in	
Public Comment Period	5 min
Issue Framing Discussions (follow-up from last meeting)	60 min
<ul style="list-style-type: none">• Offset / Incremental Mitigation• Potential Water Quality Impacts from the Program	
LUNCH (working lunch with a short break)	20 min
Continuation of Issue Framing Discussions	65 min
<ul style="list-style-type: none">• Follow-up on proposals tabled at last meeting• Non-irrigation Season Mitigation• Other outstanding issues?	
Discussion elements of Draft Final Report and Sequence for Report Production	20 min
Public Comment Period	5 min
Next Steps	20 min
<ul style="list-style-type: none">• Issues Bin review / decisions / items for the next agenda• Process check in with group• Schedule for last meeting (need to move November 14th meeting)• Schedule date for public meeting in December• Homework /check in with constituents	

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Adjourn

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Appendix B4
OWRD Ground Water Mitigation Stakeholder Group
Agenda

Final Meeting—November 14th, 10:00 am-2:00 pm

Meeting Place: City of Bend Public Works Facility
62975 Boyd Acres Road (see attached map)

This Draft agenda has been developed based on the discussion and decisions reached at our previous Deschutes Group meeting. Please review the proposed agenda and bring any suggestions for changes to the November 14th meeting.

	<i>Time</i>
Introductions/Welcome	40 min
<ul style="list-style-type: none"> • Brief introductions and affiliations from all participants • Purpose of today's meeting • Approve draft Agenda • Review Meeting Agreements • Approve Meeting Summary from the October 22nd meeting • Media contact check-in 	
Public Comment Period	5 min
Legislative Concept Discussion	30 min
<ul style="list-style-type: none"> • Review Washington State Watershed Assessment document (forwarded by Tod) as a model for a Legislative Concept of a proposed Water Management Plan • Discussion 	
Review of Draft Summary Report	45 min
<ul style="list-style-type: none"> • Review/discuss Draft Summary Report (especially Section #4 that summarizes Group meetings/discussions/recommendations) 	
LUNCH (working lunch with a short break)	15 min
Review of Draft Summary Report (cont'd)	45 min
Public Meeting Design	30 min
<ul style="list-style-type: none"> • Discussion on design, format, roles of public meeting to be held December 10th from 6:30-8:30 in Bend 	
Public Comments	5 min
Next Steps	25 min
<ul style="list-style-type: none"> • Issues Bin review / decisions • Draft edits/next steps • Schedule public meeting and group member involvement 	

Adjourn

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Appendix C1
OWRD GROUND WATER MITIGATION PROJECT
SUMMARY OF JULY 17, 2008
DESCHUTES GROUP MEETING
(As approved at the September 5, 2008 meeting)

Deschutes Group Members Present: Debbie Colbert, Kyle Gorman, Tod Heisler, Steve Johnson, Rick Kepler, Michelle McSwain, Martha Pagel, Kimberley Priestley, John Short, and Adam Sussman

Deschutes Group Members Absent: Jan Wick, Robert Brunoe

Guests Present: Mary Meloy (State Water Resources Commissioner), Jeremy Giffin (OWRD Water Master), Patrick Griffiths (City of Bend)

Meeting Facilitators: Paul Hoobyar and Joanne Richter, Watershed Professionals Network

After group introductions, Paul Hoobyar gave an explanation of the stakeholder process, discussed the purpose of the meeting, and what OWRD and members of the group had indicated as goals for future meetings. After approval of the agenda, Paul provided an overview and led discussions of specific meeting mechanics including suggested Meeting Agreements, the decision-making process, the "Issues Bin," public comments, time management, and the role of the facilitators. Following are specific procedures the group agreed to.

Meeting Agreements: The group approved the following Meeting Agreements:

- Honor the agenda and only change by agreement from the group.
- Stay focused on issues, not on people or personalities.
- Listen carefully to speakers.
- Avoid interruptions of speakers.
- Monitor speaking time.
- Be recognized before speaking.
- Avoid side conversations.
- Respect differing opinions.

Decision Making: The group agreed that they would strive for consensus, but if that can't be reached they would fall back to having a vote. No decision was reached as to whether the group would employ a simple majority (51%) or a super majority (66-75%) voting process. If consensus cannot be reached on an issue, a request was made to present both the majority and minority opinions in the final report to the Legislature.

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Media: The group agreed to a number of specifics in responding to media requests including:

- Kyle Gorman was nominated as the primary media spokesman for the Deschutes Group. If requested by the media, he will explain the purpose of the stakeholder review process, background information on the Deschutes Ground Water Mitigation Program, and HB 3494 requirements.
- If other members of the group are contacted by the media, they may refer the caller to Kyle, or share their own view of the issues but not represent anyone else's views.
- The group agreed to **not** discuss with the media the specific content of what is discussed in the meetings.

Public Comments: Public comments will be taken both at the beginning and end of the meeting. The time allowed for public comments may vary depending on the number of people who show up at the meetings. Generally five minutes at the beginning and end of the meeting will be reserved for public comment.

Pre-Meeting Interview Summary: Joanne Richter provided a synthesis of comments collected by the facilitators during the Pre-Meeting Interviews, including comments on the following:

- Whether the Ground Water Mitigation Program has been successful.
- What the greatest benefits provided by the Program.
- What aspects of the Program need improvement.
- What are the greatest challenges and shortcomings of the Program.
- What can OWRD do to enhance the success of the Program.
- Other issues of concern with the Program.
- Other "big picture" water issues in the Basin.

Group members identified issues discussed with the facilitators but not captured in the Summary document. Otherwise the group thought the Summary of Pre-Meeting Interviews handout, with the noted amendments, adequately reflected the comments made to the facilitators during the interviews.

OWRD Staff Role: Debbie Colbert and Kyle Gorman identified their role as providing technical support and being advocates for completing the required five-year evaluation of the Program. They showed a brief Power Point presentation that outlined HB 3494 requirements and the goals of the Ground Water Mitigation Program, and provided summary data related to implementation of the Program. Issues of concern related to the Program, and other "big picture" water management issues were also discussed, and group members added a few more items to Debbie and Kyle's list of issues.

Program Successes: The facilitators led a discussion of the Mitigation Program successes (i.e. what the group perceived as working with the Program). Participants'

comments clarified those recorded during the Pre-Meeting Interviews, and will be included in the draft report.

Primary Issues of Concern: The group discussed some of the issues of concern that OWRD staff had identified in their Power Point presentation, and developed an agenda of items for the next meeting based on these, as well as the additional issues identified by the group. Small work groups agreed to help define or frame the following issues by the end of August (prior to the next Deschutes Group meeting on September 5th). The next agenda will include the following:

- How applications are counted under the 200 cfs cap (Adam Sussman to frame).
- Further discussion of the Zones of Impact (Kimberley Priestley, John Short and Adam Sussman to frame).
- Issues related to the 7J Conditioned ground water rights (Kimberley Priestley and Martha Pagel to frame).
- Potential water quality impacts from the Program (Tod Heisler, Rick Kepler, Michelle McSwain and Martha Pagel to frame).
- Discussion of non-irrigation season (winter) mitigation (full group).

Issues Bin: Other issues of concern raised by the group include the following:

- Revisit 200 cfs cap and Program sunset dates.
- Need to improve analytical Program monitoring tools.
- Improve length of time to process applications.
- Need to evaluate how transferable the Program is.
- Need for monthly accounting of instream flows to be part of any report or analysis of the Program.
- Need to investigate aquifer declines in the Basin.
- Evaluate potential impacts to springs.
- Determine net consumptive use in the Basin.
- Look at exempt wells and what can / should be done with them.
- Need to evaluate sustainability of DWA Water Bank.

Future Meeting Dates: September 5th, October 10th and November 14th. The October 10th meeting date may need to be revisited because Jan Wick will be unable to attend that day.

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Appendix C2
OWRD GROUND WATER MITIGATION PROJECT
SUMMARY OF SEPTEMBER 5, 2008
DESCHUTES GROUP MEETING
(As approved at the October 22, 2008 meeting)

Deschutes Group Members Present: Debbie Colbert, Kyle Gorman, Tod Heisler, Steve Johnson, Rick Kepler, Michelle McSwain, Martha Pagel, Kimberley Priestley, Adam Sussman, and Jan Wick

Deschutes Group Members Absent: Robert Brunoe and John Short

Guests Present: Mary Meloy (State Water Resources Commissioner), Jeremy Giffin (OWRD Water Master), Ken Lite (OWRD Hydrologist), Patrick Griffiths (City of Bend), and Mark Yinger (consultant)

Meeting Facilitators: Paul Hoobyar and Joanne Richter, Watershed Professionals Network

After group introductions, Paul Hoobyar discussed the purpose of the meeting, the group approved the agenda, and Paul reviewed the Meeting Agreements with the group and asked whether there had been any media contacts (there were none). The group then discussed proposed changes to the Draft Meeting Summary from the July 17th meeting, and approved those changes.

Zone of Impact Issue Framing Discussion: Kimberley presented an overview of the issue framing paper that she, Adam and John had worked on. Adam added a key question they were concerned about: How does the Department interpret their own rules regarding zone of impact determinations? Ken Lite discussed in some detail how he makes zone of impact findings and clarified technical issues for the group. Main questions raised by the group, Ken's responses, and additional information provided by the Department after the meeting are shown below:

- How does Ken pick the primary zone of impact? Response: OWRD currently identifies one zone of impact based on where most of the impact is going to occur. To identify the primary zone of impact, Ken uses the Department's conceptual understanding of the ground water flow system (based on the USGS-OWRD Deschutes Basin Ground Water Study) and well construction information provided by the applicant (e.g., well depth, water table elevation). He relates that to regional ground water flow direction, areas of ground water discharge, and the proximity of the proposed well to those discharge zones.
- Does the Department account for possible impacts in other zones? Response: Ken's review of an application for a groundwater permit involves three separate findings: under Division 690-08, Division 690-09, and the Scenic Waterway.

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The Division 8 (groundwater availability) and Division 9 (groundwater / surface water interference) findings are recorded on a form called the "Public Interest Review for Ground Water Applications." There is a place on that form where Ken may identify specific stream reaches that would likely be impacted by the proposed ground water use. Those stream reaches may or may not be in another "zone of impact". A "zone of impact" finding is strictly related to a scenic waterway review in the upper Deschutes Basin.

- Why does the Department use a conceptual understanding of the system instead of the regional flow model to make zone of impact findings? Response: When the Department was moving forward with implementing the program, there was considerable thought about how to balance using the best information without making the review and process so complex as to overwhelm staff and applicant. That is why the Department chose to go with the conceptual approach to making these findings.
- Does the Department think its zone of impact implementation is consistent with the rules? Response: Yes
- Based on input from its AG, can the Department require mitigation in more than one mitigation zone? Response: Based on the rules, the Department could require mitigation in more than one zone.

Proposal (agreed upon by DG): Request that the Legislature give the Department funding to develop and refine the analytical tools used to determine the Program's impact in the Basin, including the development of a water budget for the Basin. This might include funding to run simulations of the ground water flow model that could be compared to the findings developed using the conceptual approach.

Proposal (tabled by DG): If OWRD's analysis shows a significant impact in more than one zone, the Department should look at splitting zones of impact and requiring mitigation in more than one zone. Staff indicated that in **some** cases the Department may be able to identify impacts in more than one zone. However, the Department noted that splitting by zone using the numerical model would be constrained by available staff resources and, in some cases, model uncertainty. This proposal was tabled for now because several members stated that the existing model should not be used to determine quantitative splits of impacts into more than one zone.

The Group also discussed the availability (or lack thereof) of mitigation in all zones of impact. The general public and elected officials don't seem to understand that mitigation water for new ground water permits is not available everywhere in the Basin.

Proposal (tabled by DG): Identify areas in the Basin where no permanent mitigation is currently available (Whychus, Metolius, Crooked River) so as to raise awareness and create better understanding of the issue. The proposal was tabled for now, but a request was made that the Final Report clarify that the mitigation available in all zones (shown in

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Five Year Report) is based on the availability of temporary water rights, not permanent mitigation.

Proposal (tabled by DG): Look at other alternatives for mitigation if no mitigation water is available in certain zones of impact. The proposal was tabled for now so that the group could have more discussion about the range of mitigation options that might be available and acceptable to them.

Several members of the Group wanted to discuss issues related to the location of mitigation (where water is actually transferred back instream), but agreed to table the discussion until the next meeting.

7(j) Conditioned Permits Issue Framing Discussion: Kimberley presented an overview of the issue framing paper that she and Martha had worked on. A key question is whether 7(j) has been triggered, and if so how will the Department implement the rule and what would the mitigation look like? OWRD staff stated that if 7(j) conditioned permit holders can provide mitigation through the existing rules than the Department won't regulate them. Another key question is whether different types of mitigation could be applied to 7(j) conditioned permits?

Proposal (agreed upon by DG): Table the discussion of this issue for now, and move on to other issues that the Group may be able to positively affect.

What is Counted under the 200 cfs Cap Issue Framing Discussion: Adam presented an overview of the issue framing paper he had prepared. The cap is based on water right permits issued, not on perfected water rights. The cap also includes non-consumptive uses and uses that have been offset. The group discussed whether these should be included against the cap. Another key question is whether it makes sense to base the cap on rate instead of volume? Also, how do incremental mitigation and offset provisions used by municipal and quasi-municipal water providers to meet their long-term water supply commitments fit under the 200 cfs cap?

Proposal (tabled by DG): Modify the rule so that final orders for non-consumptive uses and uses associated with offsets are not counted under the cap and have no mitigation obligation. The proposal was tabled for now because members needed more discussion of what non-consumptive use really means. Adam agreed to further clarify offset provisions and why he believes they could be used for incremental mitigation.

Proposal (agreed upon by DG): Water allocated under the 200 cfs cap can be restored to the cap if not perfected under the permit.

Proposal (tabled by DG): Cap overall demand in terms of volume, not rate (cfs). This proposal was tabled for now because members felt that low flow periods are important for fish, and you need to look at more than just an averaged volume. Concern was also expressed that the Program may ultimately result in less flow in the winter because instream transfers do not occur outside of the irrigation season.

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Topics for Next Meeting: The Group agreed that the following topics should be discussed at the next DG meeting:

- Water quality issue framing paper (discuss existing paper).
- Offset / incremental mitigation. Adam agreed to frame this issue by October 3rd.
- Non-irrigation season mitigation (winter flow restoration). Martha, Kimberley, Adam and Steve agreed to work on framing this issue by October 3rd. They will also try to tie in discussions of rate versus volume and timing of impacts.
- Kimberley offered to frame the net consumptive use issue. Martha agreed to help frame this issue. The group recognized they may not have time to discuss this topic given the other items that still need to be discussed.
- Follow up on proposals (above) that were tabled by the Group and needed further discussion.
- Discuss what the draft final report should contain / consist of.

Issues Bin: Additional issues of concern raised by the group include the following:

- Need to address or develop ways to extend or improve alternative mitigation options.
- Location of Zones of Impacts and availability of mitigation water need to be addressed.

Future Meeting Dates: October 22nd and November 14th

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Appendix C3
OWRD GROUND WATER MITIGATION PROJECT
SUMMARY OF THE OCTOBER 22, 2008
DESCHUTES GROUP MEETING
(As approved at the November 14, 2008 meeting)

Deschutes Group Members Present: Debbie Colbert, Kyle Gorman, Tod Heisler, Steve Johnson, Rick Kepler, Michelle McSwain, Martha Pagel, Kimberley Priestley, John Short, Adam Sussman, and Jan Wick

Deschutes Group Members Absent: Robert Brunoe

Guests Present: Gary Eder (Basin resident), Jeremy Giffin (OWRD Water Master), Nunzie Gould (Basin resident), Patrick Griffiths (City of Bend), Sandy Lonsdale (Basin resident), Jack Remington (Basin resident), Don Southern (Basin resident), and Mark Yinger (consultant)

Meeting Facilitators: Paul Hoobyar and Joanne Richter, Watershed Professionals Network

After group introductions, Paul Hoobyar discussed the purpose of the meeting and the group approved the agenda. The group then discussed proposed changes to the Draft Meeting Summary from the September 5th meeting, and approved those changes. Paul reiterated the Meeting Agreements with the group, and asked whether there had been any media contacts (there had been none). Paul also asked the group whether they would like to see the approved meeting summaries posted on the Department's web site. There was agreement that the approved summaries should be posted.

Offset and Incremental Mitigation Issue Framing Discussion: Adam provided an overview of the background and issue framing paper that he had prepared. The group first discussed details of the offset provision as it is defined in the current Mitigation Rules, and Adam's suggestion that use of the offset should not be counted under the 200 cfs cap. It was clarified that there are limits to transferability and that the offset provision only applies to canceling the existing or qualifying ground water rights. Following discussion, the group agreed to the following proposal:

Proposal (approved by DG): *The rules should be modified so that the use of an offset as defined under the current rules should not be counted under the cap.*

The group also discussed the use of incremental mitigation as defined in the Rules, and specifically whether offset should be allowed as part of an incremental mitigation plan. After some discussion the group agreed to the following proposal:

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Proposal (approved by DG; Rick Kepler not present for the vote): *Recommend that the Mitigation Rules be modified so that offset can be used in an incremental mitigation plan.*

Water Quality Issue Framing Discussion: Michelle provided an overview of the water quality issue paper prepared by Martha, Tod and herself. She also showed a brief Power Point presentation illustrating the importance of spring inputs into the Crooked and Middle Deschutes Rivers above the Pelton Round Butte complex. There is a need to better understand the contributions of springs and ground water to water quality in the rivers, though existing data show that flows are substantially increased and river temperatures decreased from spring inputs. Water quality parameters also appear to be influenced by spring discharge.

The group had a long discussion about the issue, with the general consensus being that more time, money and technical expertise is needed to better understand the Program's potential affect on water quality; that currently there's a disconnect between the Program and other water quality issues related to the Clean Water Act such as 303(d) listings and the pending TMDL(s) for the Deschutes Basin; that the Program is not set up to address bigger water quality issues in the Basin; and that a comprehensive water management plan needs to be developed to better understand water quality and quantity issues in the Basin, including those related to the Clean Water Act. The group agreed to the following proposal:

Proposal (approved by DG): *Recommend to the Legislature that funding be provided to State Agencies and their Basin partners, in coordination with affected stakeholders, to develop an Integrated Water Management Plan for the Deschutes Basin that would address water quality and quantity issues, with the goal of finishing the plan by 2012.*

Follow-up on Proposals Tabled at the September 5th Meeting: The group revisited each of the proposals that were tabled at the last DG meeting. The discussion on each proposal is summarized as follows:

- Proposal from September meeting: *If OWRD's analysis shows a significant impact in more than one zone, the Department should look at splitting zones of impact and requiring mitigation in more than one zone.* Some members of the group thought that the Department should split the impacts into more than one zone, to the extent that that's possible given the limitation of the analytical tools. However, no consensus was reached on the proposal and it was permanently tabled. The draft final report will present the range of perspectives that were discussed by the group on this issue.
- Proposal from September meeting: *Identify areas in the Basin where no permanent mitigation is currently available (Whychus, Metolius, Crooked River) so as to raise awareness and create better understanding of the issue.* The group discussed that the intent of the proposal was to inform the Legislature that the

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Program cannot function in certain areas in the Basin because no mitigation is available in certain zones. The conversation then shifted to the question of whether alternative forms of mitigation should be considered in those zones where no permanent mitigation water is available. No consensus could be reached, but the draft final report will present the range of perspectives that were discussed by the group on this issue.

- Proposal from September meeting: *Look at other alternatives for mitigation if no mitigation water is available in certain zones of impact.* This proposal was addressed by the group in the previous discussion and no consensus could be reached.
- Proposal from September meeting: *Modify the rule so that final orders for non-consumptive uses, and uses with no mitigation obligation, are not counted under the cap.* A proposal was put forth, and the group discussed whether non-consumptive uses that don't require mitigation (zero mitigation obligation) should be counted under the cap or not. Specifically, the group considered the following proposal: *If a final order for a new ground water application has no mitigation obligation, it should not be counted under the 200 cfs cap.* Most members of the group supported this proposal, but consensus agreement could not be reached because several members needed to understand the details of the proposal better. The draft final report will present the range of perspectives that were discussed by the group on this issue, and suggest that details regarding this proposal could be resolved during rule making.
- Proposal from September meeting: *Cap overall demand in terms of volume, not rate(cfs).* This tabled proposal was not discussed further due to lack of time.

Non-Irrigation Season Mitigation Issue Framing Discussion: Kimberley presented information that was contained in the issue framing paper prepared by herself, Adam, Martha and Steve. After accounting for the mitigation program, OWRD modeled results estimate monthly stream flows have generally increased from May to October, and have decreased from November to March. There was a concern expressed that low winter flows being lowered further would be detrimental to aquatic species.

The group discussed aspects of this issue related to the accuracy of the models and stream gages that are used to measure flow in the Deschutes River below the Pelton Round Butte Complex. A range of perspectives were discussed, including that the issue of flow depletion during the non-irrigation season needs to be addressed before the 200 cfs cap is changed. No consensus could be reached, but the draft final report will present the range of perspectives that were discussed by the group on this issue.

Public Comments: Nunzie Gould (Basin resident) commented on the role science plays in supporting this type of program and in evaluating the limits of the program.

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Issues Bin Review: At the September 5th meeting several members of the group wanted to discuss issues related to the location of mitigation (where water is actually transferred back instream), and whether the Department should be refining the zone of impact analysis to look at sub-zone or local zone impacts. It was agreed to table that discussion until the October 22nd meeting, but the group again ran out of time to discuss this issue. However, it was agreed that the topic may be partially addressed by the proposal (approved at the September meeting) to recommend development of more refined analytical tools that can be used to determine the Program's impact in the Basin.

Topic for Final DG Meeting: The Group will review a draft of the final project report, as well as a Legislative Concept for a proposed Water Management Plan for the Deschutes Basin that will be prepared by Adam, Kimberley, Martha and Tod.

Next Meeting Date: November 14th, 10 am – 2 pm, City of Bend Boyd Acres Facility

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Appendix C4
OWRD GROUND WATER MITIGATION PROJECT
SUMMARY OF THE NOVEMBER 14, 2008
DESCHUTES GROUP MEETING

(This summary has been reviewed but not approved by the Deschutes Group due to lack of time)

Deschutes Group Members Present: Debbie Colbert, Kyle Gorman, Tod Heisler, Steve Johnson, Rick Kepler, Michelle McSwain, Martha Pagel, Kimberley Priestley, John Short, Adam Sussman, and Jan Wick

Deschutes Group Members Absent: Robert Brunoe

Guests Present: Patrick Griffiths (City of Bend) and Mary Meloy (Water Resources Commissioner)

Meeting Facilitators: Paul Hoobyar and Joanne Richter, Watershed Professionals Network

After group introductions, Paul Hoobyar discussed the purpose of the meeting and the group approved the agenda. The group then discussed proposed changes to the Draft Meeting Summary from the October 22nd meeting, and approved those changes. Paul reiterated the Meeting Agreements with the group, and asked whether there had been any media contacts (there had been none).

Legislative Concept for Water Management Plan: The Group discussed a possible concept for the integrated water management plan that had been proposed at the October 22nd Deschutes Group meeting. It was generally agreed that this plan should be as comprehensive as possible, and focus on current and pending water management challenges in the Basin related to water quality and quantity, endangered fish populations, reservoir storage, increased water demands from population growth, and projected land use actions. It was also generally agreed that this planning process should be led by a task force of public and private stakeholders; that it should establish priorities and plans for water management in the Basin; and that it be coordinated with other on-going planning processes in the Basin. The Group also discussed where funding might come from to sustain the work of the task force, and agreed that it was imperative to get city and county elected officials appointed to, and involved in, the task force. Mary Meloy agreed to facilitate a subgroup consisting of Tod Heisler, Steve Johnson, Martha Pagel, Adam Sussman and Jan Wick who agreed to explore and refine how a water management planning process for the Basin might be developed and possibly funded.

General Comments on Section 4 of the Draft Report: There was general agreement that Section 4 needed to be reorganized so that each focus issue discussion include:

- A brief introduction of the issue;
- Any consensus recommendation approved by the Group;

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- The issue framing paper prepared by the subgroup; and
- The range of perspectives discussed by the Group on that issue.

It was also suggested that the focus issues discussed in Section 4 be reordered to put those that the Group had recommendations for first in the section.

The Group also agreed that a two to three page Executive Summary be developed for legislative review that would include a brief introduction of each focus issue discussed by the group, followed by the consensus recommendations approved by the Group. It was also suggested that this summary include a brief discussion of those issues not addressed by the Group (e.g. the 200 cfs cap), and how the Department might pursue these issues and other potential changes to the Mitigation Program.

Changes to Recommendations in Draft Report: The Group discussed consensus recommendations that had been approved in previous meetings, and made the following changes to those recommendations that are listed in Section 5 of the draft report:

- **Recommendation #1** was changed to: *Recommend that the Department improve their analytical tools to be able to better assess the zones of impact.*
- **Recommendation #2** was changed to: *Water allocated under the 200 cfs cap should be restored to the cap if the amount of water use authorized in the permit or final certificate is less than the amount originally approved in the final order.*
- **Recommendation #3** was changed to: *The rules should be modified so that the use of an offset, as defined under the current rules, should not be counted under the cap.*
- **Recommendation #4** was changed to: *Recommend that the Mitigation Rules be modified so that offsets, as defined under the current rules, can be used in an incremental mitigation plan.*
- **Recommendation # 5** was eliminated because no consensus could be reached regarding a proposed water management plan for the Basin that would address water quality and quantity issues. However, the Group was interested in pursuing this concept outside the context of the Ground Water Mitigation Program review, as discussed above under *Legislative Concept for Water Management Plan.*

Other Changes to Section 4 of the Draft Report: The Group discussed the remainder of Section 4, and suggested specific language changes that will be reflected in the final draft report that will be submitted to the Department for their review by December 1, 2008.

Design of December 10th Public Meeting: The Group discussed in general a design for the December 10th Public Meeting that will be held in the Deschutes County Services Building in Bend. It was suggested that the Department begin with an overview of the Ground Water Mitigation Program followed by a short (20 minute) question and answer

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session facilitated by Paul Hoobyar. The Group then discussed two other possible formats for the meeting: 1) having an open house format with Department staff available at several stations where the public could get more information about the Program (from maps, charts, etc.); or 2) having a panel discussion where members of the Deschutes Group could field questions from the public. No agreement could be reached by the Group on either approach, but the Department will continue to work on a meeting design. It was clarified that the draft report will be made available to the public at the December 10th public meeting.

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Appendix D

Mean Monthly Flows at Key Deschutes Basin Gages

**Deschutes River near Madras, Discharge, cubic feet per second,
Monthly mean in cfs**

YEAR	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2002	3,935	4,375	4,473	4,842	4,480	4,302	4,268	3,934	4,238	3,895	3,796	3,827
2003	4,090	4,209	4,391	4,500	4,755	4,386	4,330	3,812	3,890	3,709	3,677	3,739
2004	4,066	4,143	4,682	4,716	4,699	5,481	4,892	4,438	4,208	3,923	3,900	3,909
2005	4,144	4,286	4,525	4,329	4,161	4,203	4,177	4,725	3,916	3,717	3,711	3,802
2006	4,132	4,360	4,710	7,670	5,845	5,300	7,436	5,356	4,898	4,162	3,879	3,914
2007	4,210	4,753	5,297	5,570	5,047	5,442	4,711	4,183	4,105	3,886	3,843	4,129
2008	4,649	4,654	4,724	4,387	4,399	4,655	4,607	4,985	4,656	4,172	3,946	3,958
Mean	4,175	4,397	4,686	5,145	4,769	4,824	4,917	4,490	4,273	3,923	3,822	3,897
Max	4,649	4,753	5,297	7,670	5,845	5,481	7,436	5,356	4,898	4,172	3,946	4,129
Min	3,935	4,143	4,391	4,329	4,161	4,203	4,177	3,812	3,890	3,709	3,677	3,739
Instream Requirements	3,800	3,800	3800/4500	4,500	4,500	4500/4000	4,000	4,000	4,000	4,000	3,500	3500/3800

**Deschutes River at Moody, Discharge, cubic feet per second,
Monthly mean in cfs**

YEAR	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2002	4,414	4,889	5,399	6,065	5,249	5,222	6,204	5,473	5,548	4,615	4,272	4,300
2003	4,587	4,710	4,982	5,732	6,311	5,804	5,602	4,651	4,558	4,240	4,127	4,110
2004	4,439	4,579	5,294	6,143	6,836	7,170	6,382	5,512	5,157	4,650	4,467	4,406
2005	4,600	4,670	5,037	4,933	4,760	4,891	4,992	5,731	4,491	4,231	4,151	4,310
2006	4,790	5,177	6,451	12,240	8,113	6,484	9,675	7,305	5,868	4,684	4,392	4,421
2007	4,739	5,760	7,072	7,671	6,531	7,133	5,923	5,095	4,915	4,528	4,362	4,668
Mean	4,590	4,960	5,710	7,130	6,300	6,120	6,460	5,630	5,090	4,490	4,300	4,370
Max	4,790	5,760	7,072	12,240	8,113	7,170	9,675	7,305	5,868	4,684	4,467	4,668
Min	4,414	4,579	4,982	4,933	4,760	4,891	4,992	4,651	4,491	4,231	4,127	4,110
Instream Requirements	3,800	3,800	3800/4500	4,500	4,500	4500/4000	4,000	4,000	4,000	4,000	3,500	3500/3800

**Deschutes River near Culver, Discharge, cubic feet per second,
Monthly mean in cfs**

YEAR	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2002	730.8	960.9	995.3	1,051	952.6	985.8	796.9	514.3	637	480.2	470.5	483.4
2003	706.6	873.1	903.1	1,032	1,087	1,007	865.8	536.8	568.7	504.4	501.5	502.1
2004	732.4	894.4	980	924.1	949.1	951.5	713.7	543.6	580.8	535.6	534.4	521.8
2005	785.6	856.4	987.5	940.7	869.4	916.8	621.2	642.9	541.5	515.3	507.7	526.2
2006	761.8	883.7	930.7	1,298	1,091	1,023	983.9	709.6	835.7	659.6	550.3	558.6
2007	780.1	1,139	1,334	1,322	1,300	1,403	805.1	565.9	596.4	542.6	546.9	558.1
Mean	750	935	1,020	1,090	1,040	1,050	798	586	627	540	519	525
Max	786	1,139	1,334	1,322	1,300	1,403	984	710	836	660	550	559
Min	707	856	903	924	869	917	621	514	542	480	471	483
Instream Requirements	250/500	500	500	500	500	500	500/250	250	250	250	250	250

****Instream requirement** indicates flows associated with an instream water right, a scenic waterway, or a treaty with the Warm Springs tribes – whichever is largest for that month at that location.**

Note that 2008 data is preliminary and subject to review: Data users are cautioned to consider carefully the nature of the information before using it for decisions that concern personal or public safety or the conduct of business that involves substantial monetary or operational consequences.

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**Metolius river near Grandview, Discharge, cubic feet per second,
Monthly mean in cfs**

YEAR	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2002	1,329	1,371	1,449	1,504	1,360	1,421	1,798	1,717	1,764	1,600	1,451	1,386
2003	1,328	1,298	1,319	1,494	1,540	1,538	1,508	1,426	1,453	1,371	1,316	1,283
2004	1,268	1,263	1,402	1,418	1,531	1,635	1,642	1,642	1,587	1,465	1,397	1,337
2005	1,289	1,275	1,327	1,287	1,254	1,301	1,362	1,445	1,321	1,274	1,245	1,213
2006	1,209	1,244	1,361	2,049	1,738	1,470	1,593	1,773	1,694	1,515	1,410	1,355
2007	1,309	1,544	1,691	1,716	1,581	1,686	1,579	1,546	1,487	1,426	1,369	1,334
Mean	1,290	1,330	1,420	1,580	1,500	1,510	1,580	1,590	1,550	1,440	1,360	1,320
Max	1,329	1,544	1,691	2,049	1,738	1,686	1,798	1,773	1,764	1,600	1,451	1,386
Min	1,209	1,244	1,319	1,287	1,254	1,301	1,362	1,426	1,321	1,274	1,245	1,213
Instream Requirements	1,080	1,140	1,110	1,150	1,150	1,160	1,160	1,240	1,200	1,170	1,140	1,100

**Crooked River below Opal Springs near Culver, Discharge, cubic feet per second,
Monthly mean in cfs**

YEAR	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2002	1,310	1,291	1,284	1,306	1,283	1,276	1,245	1,185	1,195	1,177	1,205	1,280
2003	1,351	1,293	1,286	1,302	1,318	1,288	1,302	1,223	1,207	1,200	1,206	1,282
2004	1,334	1,332	1,348	1,426	1,525	2,461	2,085	1,691	1,471	1,339	1,354	1,375
2005	1,341	1,357	1,358	1,359	1,336	1,325	1,541	1,934	1,367	1,255	1,246	1,377
2006	1,436	1,403	1,611	3,217	2,086	2,143	4,248	2,065	1,619	1,288	1,326	1,406
2007	1,488	1,344	1,453	1,663	1,451	1,751	1,715	1,335	1,327	1,274	1,269	1,413
Mean	1,380	1,340	1,390	1,710	1,500	1,710	2,020	1,570	1,360	1,260	1,270	1,360
Max	1,488	1,403	1,611	3,217	2,086	2,461	4,248	2,065	1,619	1,339	1,354	1,413
Min	1,310	1,291	1,284	1,302	1,283	1,276	1,245	1,185	1,195	1,177	1,205	1,280
Instream Requirements	Presently, the instream water right is protested											

**Deschutes River below Bend near Bend, Discharge, cubic feet per second,
Monthly mean in cfs**

YEAR	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2002	269	435	445	472	404	441	252	45	42	47	48	61
2003	236	365	380	454	479	452	364	58	55	55	56	53
2004	243	386	452	406	430	455	247	59	73	78	84	73
2005	293	345	446	411	351	430	141	70	85	77	77	88
2006	289	390	416	649	490	468	459	134	106	100	93	100
2007	266	487	685	736	716	804	269	92	113	93	98	88
2008	291	423	469	416	469	534	227	148	107	117	124	102
Mean	270	404	470	506	477	512	280	86	83	81	83	81
Max	293	487	685	736	716	804	459	148	113	117	124	102
Min	236	345	380	406	351	430	141	45	42	47	48	53
Instream Requirements	250/500	500	500	500	500	500	500/250	250	250	250	250	250

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**Deschutes River below Wickiup Reservoir, near Lapine, Discharge, cubic feet per second,
Monthly mean in cfs**

YEAR	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2002	335	30	33	35	30	29	466	1,118	1,254	1,495	1,401	1,114
2003	293	29	31	32	29	35	301	1,078	1,347	1,461	1,266	1,063
2004	387	36	40	44	38	30	448	1,063	1,286	1,474	1,368	1,092
2005	466	37	33	30	30	32	466	679	1,275	1,439	1,469	1,142
2006	234	31	31	30	31	32	203	860	939	1,375	1,427	1,152
2007	375	101	190	290	309	350	658	1,421	1,331	1,563	1,515	1,141
2008	242	40	47	70	127	137	549	990	1,015	1,466	1,391	1,256
Mean	333	43	58	76	85	92	441	1,030	1,207	1,467	1,405	1,137
Max	466	101	190	290	309	350	658	1,421	1,347	1,563	1,515	1,256
Min	234	29	31	30	29	29	203	679	939	1,375	1,266	1,063
Instream Requirements	500	400	400	400	400	400	500	500	500	500	500	500

**Little Deschutes River near Lapine, Discharge, cubic feet per second,
Monthly mean in cfs**

YEAR	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2002	34	58	84	108	78	108	341	204	141	83	132	108
2003	39	52	66	121	183	182	217	184	118	81	145	102
2004	31	48	91	72	95	151	223	230	150	99	127	98
2005	49	53	111	73	62	90	109	148	86	119	106	90
2006	35	79	78	191	149	154	295	567	319	113	111	94
2007	40	107	132	101	123	194	232	165	112	117	125	100
2008	69	107	92	72	73	112	146	485	376	154	146	86
Mean	42	72	93	105	109	142	223	283	186	109	127	97
Max	69	107	132	191	183	194	341	567	376	154	146	108
Min	31	48	66	72	62	90	109	148	86	81	106	86
Instream Requirements	116	164	196	200	200	236	240	240	200	126	75	92

**Whychus Creek at Sisters, Discharge, cubic feet per second,
Monthly mean in cfs**

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2002	22	39	54	66	45	39	39	29	95	12	3	3
2003	26	36	43	89	81	53	25	14	25	9	5	4
2004	29	47	53	48	48	37	11	33	48	18	12	9
2005	35	43	58	61	38	38	19	54	12	8	7	7
2006	25	47	69	122	66	35	23	70	153	81	15	14
2007	43	109	122	100	83	66	34	20	26	17	13	13
2008	38	100	94	52	47	32	17	58	99	87	20	11
Mean	31	60	70	77	58	43	24	40	65	33	11	9
Max	43	109	122	122	83	66	39	70	153	87	20	14
Min	22	36	43	48	38	32	11	14	12	8	3	3
Instream Requirements	50	30	30	30	20	20	20	20	20	20	20	20/30

**Deschutes River at Benham Falls near Lapine, Discharge, cubic feet per second,
Monthly mean in cfs**

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2002	823	501	529	551	510	535	1,165	1,747	1,788	1,908	1,835	1,619
2003	791	497	511	579	635	618	912	1,618	1,808	1,906	1,748	1,489
2004	818	451	517	502	539	399	1,001	1,674	1,755	1,901	1,808	1,479
2005	894	447	509	468	453	480	955	1,212	1,697	1,848	1,854	1,589
2006	690	480	478	723	604	596	892	1,789	1,650	1,849	1,888	1,657
2007	863	614	763	855	856	975	1,281	1,940	1,879	1,971	1,898	1,607
2008	763	538	521	523	608	701	1,119	1,864	1,785	1,968	1,909	1,729
Mean	806	504	547	600	601	615	1,046	1,692	1,766	1,907	1,849	1,596
Max	894	614	763	855	856	975	1,281	1,940	1,879	1,971	1,909	1,729
Min	690	447	478	468	453	399	892	1,212	1,650	1,848	1,748	1,479
Instream Requirements	1,000	660	660	660	660	1,000	1,000	1,600	1,600	1,600	1,600	1,600

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Appendix E – Issue Framing Attachment

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Oregon

Theodore R. Kulongoski, Governor

Water Resources Department
North Mall Office Building
725 Summer Street NE, Suite A
Salem, OR 97301-1266
503-986-0900
FAX 503-986-0964

October 31, 2007

Governor Theodore Kulongoski
State Capital
Salem, OR 97301-4047

Dear Governor Kulongoski:

Thank you for your July 13, 2007 letter directing the Water Resources Department (WRD) to evaluate whether the existing laws and rules that it administers are adequate to ensure that new destination resort development in or near the Metolius Basin would result in no reduction of stream flows in the Metolius River. We have completed that evaluation and offer the following for your consideration.

WRD has a number of programs in place to administer laws that ensure existing water rights and public values are protected, while allowing for new development. In the Deschutes Basin, of which the Metolius is a part, the Deschutes Mitigation Program is the strongest program available to the department to address protection of streamflow in the Metolius River.

The Deschutes Mitigation Program was established in 2002 as a result of a multi-year ground water research study conducted by WRD and the United States Geological Survey (USGS). The study confirmed that ground and surface water are directly connected within the Deschutes study area, including the Metolius sub-basin. This means any new ground water use would impact stream flow that is already fully appropriated in the Deschutes Basin.

The mitigation program divides the Upper Deschutes Basin into seven sub-basins or "zones of impact" and requires bucket for bucket mitigation for any new ground water use to protect streamflow in the primary zone of impact. Water right applicants purchase credits from a mitigation bank as needed to balance their new use. The credits are generally derived from existing out-of-stream water rights that are left instream. The program has been successful at protecting streamflow in the Deschutes Basin and at the same time allowing for economic growth in the region. While mitigation credits are available for most sub-basins, there are no credits currently available for the Metolius zone due to the lack of historic water development in that area.

Any new development would likely rely on ground water to meet its water supply needs. The study found that ground water is connected to surface water beyond the sub-basin boundary where the wells are constructed. This means that ground water withdrawal outside of the Metolius sub-basin could have an impact on stream flow in the Metolius River.

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Governor Theodore Kulongoski
October 31, 2007
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The Deschutes Mitigation Program will ensure no diminishment of flow in the Metolius River when the primary zone of impact of the new development is the Metolius sub-basin. The mitigation program, as currently administered, does not provide that same level of protection of the Metolius River when the Metolius sub-basin is not the primary zone of impact.

One option to strengthen these protections would be to require mitigation for new ground water use in all zones where state scenic waterways are impacted. The Metolius River is a designated state scenic waterway from its source at river mile 41.2 downstream to Candle Creek at river mile 29. We've been advised by the Attorney General's office that mitigation could be required for impacts to multiple zones involving state scenic waterways. This option however, could have far reaching effects that could potentially eliminate most new ground water development in portions of the Deschutes Basin. For example, using this broader "mitigate everywhere" approach could seriously constrict the economic growth in the Sisters area, since withdrawal from wells near Sisters could affect flows in the Metolius sub-basin and require mitigation where credits are not available.

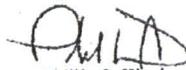
A second option would be to close the Metolius Basin to new appropriations of water. This could be done by Water Resource Commission (WRC) or legislative action, however this option would not provide protection against ground water use by proposed development located outside of the Metolius sub-basin.

A third option would be for the WRC to withdraw designated areas from particular ground water uses. This would limit where new development could withdraw ground water. The difficulty with this option would be hydrologically justifying the withdrawal boundaries.

If implemented, option one could have significant consequences on economic development in the region. Option two does not provide additional protection beyond what the existing mitigation program provides. Option three would limit the development of ground water in designated areas, but without a strong hydrologic basis for delineating those areas, actions under this option would likely be subject to legal challenge.

It is the department's view that the Deschutes Mitigation Program has been successful at balancing streamflow protection with economic development in the Deschutes Basin. For this reason, we recommend this program continue to operate as it is currently administered.

Sincerely,


Phillip C. Ward
Director

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Appendix E – Issue Paper Attachment Change in Stream Flow Tables - Modeled²

For September, 2007

To monitor the impact of new ground water permits and mitigation on scenic waterway flows and instream water right flows, the Department developed a streamflow monitoring model using historic streamflow data. The streamflow model was constructed using a base period of flows from 1966 to 1995 at selected gaging stations around the basin. This base period represents river flows during a period of time after all of the dams were constructed and before the Scenic Waterway Act was amended to include consideration of ground water impacts.

The model considers the effects of new permitted ground water use and mitigation projects on streamflows. The following tables show the monthly model results through mid-2007 for all gaging station sites most closely representing each zone of impact and areas of special interest. With only one exception, instream requirements are met or improved compared to base line conditions when averaged annually. Based on modeled results, streamflow overall has improved by as much as 27 cfs in some areas due to mitigation.

This document includes tables for the following locations:

Deschutes River at the Mouth – Station #14103000
Deschutes River below Pelton Dam – Station #14092500
Metolius River at Lake Billy Chinook – Station #14091500
Deschutes River downstream of Bend – Station #14070500
Deschutes River upstream of Bend – Station #14070500 + four canals
Little Deschutes River at mouth – Station #14063000
Deschutes River below Fall River – Station #14056500 and 14057500
Deschutes River below Wickiup Dam – Station #14056500

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² September 2007 data based on R.M. Cooper, Assessing the Impact of Mitigation on Stream Flow in the Deschutes Basin. November 2008. Available at www.wrd.state.or.us

Deschutes River at Mouth

Gaging Station 14103000

Change In Percent Of Time Instream Requirements Are Met As A Result Of Mitigated Groundwater Use

Month	Base Line	Mitigated	Change in	Percent Change
	Percentage	Percentage	Percentage	
	%	%	%	%
January	93.2	93.1	-0.11	-0.12
February	90.8	90.4	-0.35	-0.39
March	95.3	95.1	-0.22	-0.23
April	99.9	99.8	-0.11	-0.11
May	99.1	99.1	0.00	0.00
June	98.0	98.7	0.67	0.68
July	91.0	92.0	1.08	1.17
August	100	100	0.00	0.00
September	98.1	98.1	0.00	0.00
October	97.4	97.3	-0.11	-0.11
November	99.9	99.9	0.00	0.00
December	91.7	91.1	-0.64	-0.71
Annual	96.2	96.2	0.02	0.02

Change In Mean Stream Flow As A Result Of Mitigated Groundwater Use

Month	Base Line	Mitigated	Change in	Percent Change
	Stream Flow*	Stream Flow*	Stream Flow	
	cfs	cfs	cfs	%
January	6910	6900	-17.4	-0.25
February	7080	7060	-17.4	-0.25
March	7250	7230	-17.3	-0.24
April	6640	6630	-4.63	-0.07
May	5800	5820	16.6	0.28
June	5200	5220	24.6	0.47
July	4590	4610	23.3	0.50
August	4380	4400	22.6	0.51
September	4430	4450	16.9	0.38
October	4710	4710	0.29	0.01
November	5390	5380	-17.4	-0.32
December	6190	6170	-17.4	-0.28
Annual	5710	5710	1.17	0.02

*Stream flows have been rounded to three significant figures.

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Deschutes River below Pelton Dam

Gaging Station 14092500

Change In Percent Of Time Instream Requirements Are Met As A Result Of Mitigated Groundwater Use

Month	Base Line	Mitigated	Change in	Percent Change
	Percentage	Percentage	Percentage	
	%	%	%	%
January	64.7	64.1	-0.64	-1.01
February	63.0	62.2	-0.83	-1.33
March	67.8	66.9	-0.97	-1.45
April	71.4	71.3	-0.11	-0.16
May	58.8	62.9	4.09	6.50
June	55.6	59.1	3.56	6.02
July	41.0	42.7	1.72	4.03
August	98.2	99.0	0.86	0.87
September	66.8	67.6	0.78	1.15
October	81.1	80.3	-0.75	-0.94
November	97.2	97.2	0.00	0.00
December	66.1	65.5	-0.64	-0.99
Annual	69.3	69.9	0.59	0.85

Change In Mean Stream Flow As A Result Of Mitigated Groundwater Use

Month	Base Line	Mitigated	Change in	Percent Change
	Stream Flow*	Stream Flow*	Stream Flow	
	cfs	cfs	cfs	%
January	5240	5230	-17.4	-0.33
February	5190	5180	-17.4	-0.34
March	5520	5500	-17.3	-0.31
April	5130	5130	-4.63	-0.09
May	4420	4440	16.6	0.37
June	4230	4250	24.6	0.58
July	4020	4040	23.3	0.58
August	3940	3960	22.6	0.57
September	3980	3990	16.9	0.42
October	4190	4190	0.290	0.01
November	4680	4670	-17.4	-0.37
December	5030	5010	-17.4	-0.35
Annual	4630	4630	1.17	0.03

*Stream flows have been rounded to three significant figures.

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Metolius River at Lake Billy Chinook

Gaging Station 14091500

Change In Percent Of Time Instream Requirements Are Met As A Result Of Mitigated Groundwater Use

Month	Base Line	Mitigated	Change in	Percent Change
	Percentage	Percentage	Percentage	
	%	%	%	%
January	97.7	97.7	0.00	0.00
February	99.2	99.2	0.00	0.00
March	99.8	99.8	0.00	0.00
April	100	100	0.00	0.00
May	100	100	0.00	0.00
June	100	100	0.00	0.00
July	100	100	0.00	0.00
August	100	100	0.00	0.00
September	100	100	0.00	0.00
October	100	100	0.00	0.00
November	100	100	0.00	0.00
December	100	100	0.00	0.00
Annual	99.7	99.7	0.00	0.00

Change In Mean Stream Flow As A Result Of Mitigated Groundwater Use

Month	Base Line	Mitigated	Change in	Percent Change
	Stream Flow*	Stream Flow*	Stream Flow	
	cfs	cfs	cfs	%
January	1510	1510	0.00	0.00
February	1560	1560	0.00	0.00
March	1560	1560	0.00	0.00
April	1520	1520	0.00	0.00
May	1560	1560	0.00	0.00
June	1590	1590	0.00	0.00
July	1490	1490	0.00	0.00
August	1400	1400	0.00	0.00
September	1350	1350	0.00	0.00
October	1330	1330	0.00	0.00
November	1370	1370	0.00	0.00
December	1450	1450	0.00	0.00
Annual	1470	1470	0.00	0.00

*Stream flows have been rounded to three significant figures.

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Deschutes River Downstream of Bend

Gaging Station 14070500

Change In Percent Of Time Instream Requirements Are Met As A Result Of Mitigated Groundwater Use

Month	Base Line	Mitigated	Change in	Percent Change
	Percentage	Percentage	Percentage	
	%	%	%	%
January	60.5	58.7	-1.83	-3.11
February	63.8	62.1	-1.65	-2.66
March	68.3	67.7	-0.54	-0.79
April	23.6	23.8	0.22	0.94
May	1.29	1.40	0.11	7.69
June	2.11	3.11	1.00	32.1
July	0.11	0.54	0.43	80.0
August	0.86	1.40	0.54	38.5
September	3.67	4.11	0.44	10.8
October	13.0	13.5	0.54	3.97
November	52.2	50.4	-1.78	-3.52
December	56.3	54.5	-1.83	-3.35
Annual	28.6	28.3	-0.36	-1.26

Change In Mean Stream Flow As A Result Of Mitigated Groundwater Use

Month	Base Line	Mitigated	Change in	Percent Change
	Stream Flow*	Stream Flow*	Stream Flow	
	cfs	cfs	cfs	%
January	683	679	-4.03	-0.59
February	705	701	-4.03	-0.57
March	714	710	-4.03	-0.57
April	299	306	7.32	2.39
May	51.2	83.1	31.9	38.4
June	50.5	88.9	38.4	43.2
July	42.6	80.9	38.4	47.4
August	46.2	84.4	38.2	45.3
September	61.0	93.5	32.5	34.8
October	222	236	14.2	6.01
November	551	547	-4.03	-0.74
December	614	610	-4.03	-0.66
Annual	335	350	15.2	4.33

*Stream flows have been rounded to three significant figures.

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Deschutes River Upstream of Bend

Gaging Station 14070500 + 4 Canals*

Change In Percent Of Time Instream Requirements Are Met As A Result Of Mitigated Groundwater Use

Month	Base Line	Mitigated	Change in	Percent Change
	Percentage	Percentage	Percentage	
	%	%	%	%
January	37.3	37.3	0.00	0.00
February	40.0	40.0	0.00	0.00
March	24.8	24.8	0.00	0.00
April	33.3	33.7	0.33	0.99
May	6.45	8.92	2.47	27.7
June	17.7	24.3	6.67	27.4
July	27.1	35.2	8.06	22.9
August	4.95	12.0	7.10	58.9
September	1.78	3.78	2.00	52.9
October	15.2	16.3	1.18	7.24
November	29.0	29.0	0.00	0.00
December	35.7	35.7	0.00	0.00
Annual	22.7	25.0	2.34	9.34

Change In Mean Stream Flow As A Result Of Mitigated Groundwater Use

Month	Base Line	Mitigated	Change in	Percent Change
	Stream Flow**	Stream Flow**	Stream Flow	
	cfs	cfs	cfs	%
January	712	712	-0.118	-0.02
February	738	738	-0.118	-0.02
March	781	780	-0.118	-0.02
April	877	885	8.37	0.95
May	1180	1230	54.5	4.42
June	1360	1420	61.0	4.30
July	1440	1500	61.0	4.08
August	1290	1350	60.9	4.51
September	1090	1150	55.5	4.85
October	721	746	24.8	3.33
November	590	590	-0.118	-0.02
December	650	650	-0.118	-0.02
Annual	953	980	27.3	2.78

* The four canals are the DCMID (14068500), the North Unit Main (14069000), the North (14069500), and the Swalley (14070000).

**Stream flows have been rounded to three significant figures.

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APR 13 2015

SALEM, OR

Little Deschutes River at mouth
Gaging Station 14063000

**Change In Percent Of Time Instream Requirements Are Met
As A Result Of Mitigated Groundwater Use**

Month	Base Line	Mitigated	Change in	Percent Change
	Percentage	Percentage	Percentage	
	%	%	%	%
January	22.9	22.9	0.00	0.00
February	37.3	37.3	0.00	0.00
March	27.4	27.4	0.00	0.00
April	45.2	45.2	0.00	0.00
May	55.9	57.3	1.40	2.44
June	56.6	67.9	11.3	16.7
July	85.1	98	12.9	13.2
August	93.9	96.1	2.26	2.35
September	72	79.7	7.67	9.62
October	11.6	18.5	6.88	37.2
November	14.7	14.7	0.00	0.00
December	20.3	20.3	0.00	0.00
Annual	45.3	48.8	3.55	7.27

**Change In Mean Stream Flow
As A Result Of Mitigated Groundwater Use**

Month	Base Line	Mitigated	Change in	Percent Change
	Stream Flow*	Stream Flow*	Stream Flow	
	cfs	cfs	cfs	%
January	162	162	-0.038	-0.02
February	183	183	-0.038	-0.02
March	219	219	-0.038	-0.02
April	262	262	-0.038	-0.01
May	329	334	4.89	1.46
June	298	323	25.3	7.82
July	230	256	25.3	9.90
August	200	222	21.8	9.85
September	144	162	18.6	11.5
October	76.7	85.4	8.69	10.2
November	108	108	-0.038	-0.04
December	142	142	-0.038	-0.03
Annual	196	205	8.74	4.26

*Stream flows have been rounded to three significant figures.

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APR 13 2015

SALEM, OR

Deschutes River below Fall River

Gaging Stations 14056500 + 14057500

Change In Percent Of Time Instream Requirements Are Met As A Result Of Mitigated Groundwater Use

Month	Base Line	Mitigated	Change in	Percent Change
	Percentage	Percentage	Percentage	
	%	%	%	%
January	29.7	29.7	0.00	0.00
February	30.1	30.1	0.00	0.00
March	33.5	33.5	0.00	0.00
April	68.4	68.4	0.00	0.00
May	97.8	97.8	0.00	0.00
June	98.8	98.8	0.00	0.00
July	100	100	0.00	0.00
August	100	100	0.00	0.00
September	99.8	99.8	0.00	0.00
October	56.8	56.8	0.00	0.00
November	20.9	20.9	0.00	0.00
December	24.7	24.7	0.00	0.00
Annual	63.5	63.5	0.00	0.00

Change In Mean Stream Flow As A Result Of Mitigated Groundwater Use

Month	Base Line	Mitigated	Change in	Percent Change
	Stream Flow*	Stream Flow*	Stream Flow	
	cfs	cfs	cfs	%
January	329	329	0.00	0.00
February	331	331	0.00	0.00
March	319	319	0.00	0.00
April	654	654	0.00	0.00
May	1220	1220	0.00	0.00
June	1500	1500	0.00	0.00
July	1690	1690	0.00	0.00
August	1530	1530	0.00	0.00
September	1260	1260	0.00	0.00
October	561	561	0.00	0.00
November	246	246	0.00	0.00
December	280	280	0.00	0.00
Annual	829	829	0.00	0.00

*Stream flows have been rounded to three significant figures.

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APR 13 2015

SALEM, OR

Deschutes River below Wickiup Dam
Gaging Station 14056500

**Change In Percent Of Time Instream Requirements Are Met
As A Result Of Mitigated Groundwater Use**

Month	Base Line Percentage %	Mitigated Percentage %	Change in Percentage %	Percent Change %
January	26.0	26.0	0.00	0.00
February	27.6	27.6	0.00	0.00
March	22.8	22.8	0.00	0.00
April	57.3	57.3	0.00	0.00
May	95.9	95.9	0.00	0.00
June	98.2	98.2	0.00	0.00
July	99.8	99.8	0.00	0.00
August	100	100	0.00	0.00
September	99.2	99.2	0.00	0.00
October	47.0	47.0	0.00	0.00
November	10.1	10.1	0.00	0.00
December	18.6	18.6	0.00	0.00
Annual	58.7	58.7	0.00	0.00

**Change In Mean Stream Flow
As A Result Of Mitigated Groundwater Use**

Month	Base Line Stream Flow* cfs	Mitigated Stream Flow* cfs	Change in Stream Flow cfs	Percent Change %
January	201	201	0.00	0.00
February	204	204	0.00	0.00
March	189	189	0.00	0.00
April	518	518	0.00	0.00
May	1080	1080	0.00	0.00
June	1360	1360	0.00	0.00
July	1550	1550	0.00	0.00
August	1400	1400	0.00	0.00
September	1130	1130	0.00	0.00
October	428	428	0.00	0.00
November	115	115	0.00	0.00
December	151	151	0.00	0.00
Annual	696	696	0.00	0.00

*Stream flows have been rounded to three significant figures.

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APR 13 2015

SALEM, OR

**CHANGE IN PERCENT OF TIME INSTREAM REQUIREMENTS ARE MET
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE**

Effective Date: 9/30/2013

Deschutes River at Mouth

Time: 12.41

Date: 01/09/2015

Month	Base Line Percentage	Mitigated Percentage	Change in Percent
January	93.20	93.10	-0.11
February	90.80	90.40	-0.35
March	95.30	95.10	-0.22
April	99.90	99.60	-0.33
May	99.10	99.10	0.00
June	98.00	98.70	+0.67
July	91.00	92.70	+1.72
August	100.00	100.00	0.00
September	98.10	98.10	0.00
October	97.40	97.40	0.00
November	99.90	99.90	0.00
December	91.70	91.10	-0.64
Annual	96.20	96.30	+0.06

**CHANGE IN MEAN STREAM FLOW (CFS)
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE**

Effective Date: 9/30/2013

Deschutes River at Mouth

Time: 12.41

Date: 01/09/2015

Month	Base Line CFS	Mitigated CFS	Change in CFS	Percent Change
January	6910.00	6890.00	-24.30	-0.35
February	7080.00	7050.00	-24.30	-0.34
March	7250.00	7220.00	-24.30	-0.34
April	6640.00	6630.00	-9.78	-0.15
May	5800.00	5810.00	+7.33	+0.13
June	5200.00	5220.00	+22.10	+0.42
July	4590.00	4620.00	+26.60	+0.58
August	4380.00	4410.00	+25.80	+0.58
September	4430.00	4450.00	+17.20	+0.39
October	4710.00	4710.00	+6.23	+0.13
November	5390.00	5370.00	-24.00	-0.45
December	6190.00	6160.00	-24.30	-0.40
Annual	5710.00	5700.00	-2.03	-0.04

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SALEM, OR

CHANGE IN PERCENT OF TIME INSTREAM REQUIREMENTS ARE MET
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE

Effective Date: 9/30/2013

Deschutes River below Pelton Dam

Time: 12:33

Date: 01/09/2015

Month	Base Line Percentage	Mitigated Percentage	Change in Percent
January	64.70	64.10	-0.64
February	63.00	62.20	-0.83
March	67.80	66.90	-0.97
April	71.40	70.70	-0.78
May	58.80	62.30	+3.44
June	55.60	59.10	+3.56
July	41.00	43.90	+2.90
August	98.20	99.00	+0.86
September	66.80	67.60	+0.78
October	81.10	81.10	0.00
November	97.20	97.20	0.00
December	66.10	65.50	-0.64
Annual	69.30	70.00	+0.65

CHANGE IN MEAN STREAM FLOW (CFS)
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE

Effective Date: 9/30/2013

Deschutes River below Pelton Dam

Time: 12:40

Date: 01/09/2015

Month	Base Line CFS	Mitigated CFS	Change in CFS	Percent Change
January	5240.00	5220.00	-24.30	-0.47
February	5190.00	5170.00	-24.30	-0.47
March	5520.00	5500.00	-24.30	-0.44
April	5130.00	5120.00	-9.78	-0.19
May	4420.00	4430.00	+7.33	+0.17
June	4230.00	4250.00	+22.10	+0.52
July	4020.00	4050.00	+26.60	+0.66
August	3940.00	3960.00	+25.80	+0.65
September	3980.00	3990.00	+17.20	+0.43
October	4190.00	4200.00	+6.23	+0.15
November	4680.00	4660.00	-24.00	-0.51
December	5030.00	5010.00	-24.30	-0.49
Annual	4630.00	4630.00	-2.03	-0.04

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SALEM, OR

**CHANGE IN PERCENT OF TIME INSTREAM REQUIREMENTS ARE MET
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE**

Effective Date: 9/30/2013

Metolius River at Lake Billy Chinook

Time: 12:42

Date: 01/09/2015

Month	Base Line Percentage	Mitigated Percentage	Change in Percent
January	97.70	97.70	0.00
February	99.20	99.20	0.00
March	99.80	99.80	0.00
April	100.00	100.00	0.00
May	100.00	100.00	0.00
June	100.00	100.00	0.00
July	100.00	100.00	0.00
August	100.00	100.00	0.00
September	100.00	100.00	0.00
October	100.00	100.00	0.00
November	100.00	100.00	0.00
December	100.00	100.00	0.00
Annual	99.70	99.70	0.00

**CHANGE IN MEAN STREAM FLOW (CFS)
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE**

Effective Date: 9/30/2013

Metolius River at Lake Billy Chinook

Time: 12:42

Date: 01/09/2015

Month	Base Line CFS	Mitigated CFS	Change in CFS	Percent Change
January	1510.00	1510.00	0.00	0.00
February	1560.00	1560.00	0.00	0.00
March	1560.00	1560.00	0.00	0.00
April	1520.00	1520.00	0.00	0.00
May	1560.00	1560.00	0.00	0.00
June	1590.00	1590.00	0.00	0.00
July	1490.00	1490.00	0.00	0.00
August	1400.00	1400.00	0.00	0.00
September	1350.00	1350.00	0.00	0.00
October	1330.00	1330.00	0.00	0.00
November	1370.00	1370.00	0.00	0.00
December	1450.00	1450.00	0.00	0.00
Annual	1470.00	1470.00	0.00	0.00

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APR 13 2015

SALEM, OR

**CHANGE IN PERCENT OF TIME INSTREAM REQUIREMENTS ARE MET
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE**

Effective Date: 9/30/2013

Deschutes River at Lake Billy Chinook

Time: 12:43

Date: 01/09/2015

Month	Base Line Percentage	Mitigated Percentage	Change in Percent
January	100.00	100.00	0.00
February	100.00	100.00	0.00
March	100.00	100.00	0.00
April	97.10	99.60	+2.44
May	100.00	100.00	0.00
June	100.00	100.00	0.00
July	100.00	100.00	0.00
August	100.00	100.00	0.00
September	100.00	100.00	0.00
October	94.40	99.80	+5.38
November	100.00	100.00	0.00
December	100.00	100.00	0.00
Annual	99.30	99.90	+0.66

**CHANGE IN MEAN STREAM FLOW (CFS)
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE**

Effective Date: 9/30/2013

Deschutes River at Lake Billy Chinook

Time: 12:43

Date: 01/09/2015

Month	Base Line CFS	Mitigated CFS	Change in CFS	Percent Change
January	1300.00	1290.00	-7.01	-0.54
February	1320.00	1310.00	-7.01	-0.53
March	1300.00	1290.00	-7.01	-0.54
April	843.00	850.00	+7.53	+0.89
May	552.00	575.00	+23.10	+4.01
June	606.00	642.00	+35.40	+5.51
July	550.00	590.00	+39.70	+6.74
August	519.00	558.00	+38.90	+6.96
September	537.00	568.00	+30.30	+5.34
October	725.00	745.00	+19.90	+2.67
November	1130.00	1120.00	-7.01	-0.63
December	1220.00	1210.00	-7.01	-0.58
Annual	881.00	894.00	+13.40	+1.50

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SALEM, OR

**CHANGE IN PERCENT OF TIME INSTREAM REQUIREMENTS ARE MET
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE**

Effective Date: 9/30/2013

Deschutes River at Lower Bridge

Time: 12:43

Date: 01/09/2015

Month	Base Line Percentage	Mitigated Percentage	Change in Percent
January	60.50	59.00	-1.51
February	63.80	62.50	-1.30
March	68.30	67.80	-0.43
April	23.60	24.10	+0.56
May	1.29	1.29	0.00
June	2.11	3.11	+1.00
July	0.11	0.54	+0.43
August	0.86	1.40	+0.54
September	3.67	4.00	+0.33
October	13.00	14.20	+1.18
November	52.20	50.90	-1.33
December	56.30	55.90	-0.43
Annual	28.60	28.60	-0.07

**CHANGE IN MEAN STREAM FLOW (CFS)
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE**

Effective Date: 9/30/2013

Deschutes River at Lower Bridge

Time: 12:44

Date: 01/09/2015

Month	Base Line CFS	Mitigated CFS	Change in CFS	Percent Change
January	683.00	682.00	-1.42	-0.21
February	705.00	704.00	-1.42	-0.20
March	714.00	712.00	-1.42	-0.20
April	299.00	312.00	+13.10	+4.21
May	51.20	79.00	+27.90	+35.30
June	50.50	87.20	+36.70	+42.10
July	42.60	82.10	+39.50	+48.10
August	46.20	85.10	+39.00	+45.80
September	61.00	91.60	+30.60	+33.40
October	222.00	243.00	+21.40	+8.81
November	551.00	549.00	-1.42	-0.26
December	614.00	613.00	-1.42	-0.23
Annual	335.00	352.00	+16.90	+4.80

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SALEM, OR

**CHANGE IN PERCENT OF TIME INSTREAM REQUIREMENTS ARE MET
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE**

Effective Date: 9/30/2013

Deschutes River above Diversion Dam at Bend

Time: 12:45

Date: 01/09/2015

Month	Base Line Percentage	Mitigated Percentage	Change in Percent
January	37.30	37.20	-0.11
February	40.00	39.60	-0.47
March	42.90	42.30	-0.64
April	73.20	73.40	+0.22
May	97.00	97.50	+0.54
June	100.00	100.00	0.00
July	100.00	100.00	0.00
August	100.00	100.00	0.00
September	97.00	97.80	+0.78
October	54.60	56.20	+1.61
November	29.00	28.80	-0.22
December	35.70	35.50	-0.22
Annual	67.40	67.50	+0.13

**CHANGE IN MEAN STREAM FLOW (CFS)
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE**

Effective Date: 9/30/2013

Deschutes River above Diversion Dam at Bend

Time: 12:45

Date: 01/09/2015

Month	Base Line CFS	Mitigated CFS	Change in CFS	Percent Change
January	712.00	711.00	-1.39	-0.19
February	738.00	737.00	-1.39	-0.19
March	781.00	779.00	-1.39	-0.18
April	877.00	881.00	+4.38	+0.50
May	1180.00	1190.00	+11.20	+0.94
June	1360.00	1370.00	+15.40	+1.12
July	1440.00	1450.00	+18.30	+1.26
August	1290.00	1310.00	+17.70	+1.36
September	1090.00	1110.00	+14.20	+1.28
October	721.00	729.00	+8.56	+1.17
November	590.00	589.00	-1.39	-0.24
December	650.00	648.00	-1.39	-0.21
Annual	953.00	960.00	+6.95	+0.72

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SALEM, OR

CHANGE IN PERCENT OF TIME INSTREAM REQUIREMENTS ARE MET
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE

Effective Date: 9/30/2013

Deschutes River at Benham Falls

Time: 12:45

Date: 01/09/2015

Month	Base Line Percentage	Mitigated Percentage	Change in Percent
January	43.40	43.30	-0.11
February	54.50	54.50	0.00
March	32.50	31.40	-1.08
April	69.60	69.30	-0.22
May	78.10	78.10	0.00
June	92.60	92.60	0.00
July	96.80	96.80	0.00
August	94.50	94.60	+0.11
September	67.80	67.90	+0.11
October	54.00	54.00	0.00
November	35.90	35.70	-0.22
December	44.60	44.60	0.00
Annual	63.70	63.60	-0.12

CHANGE IN MEAN STREAM FLOW (CFS)
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE

Effective Date: 9/30/2012

Deschutes River at Benham Falls

Time: 12:46

Date: 01/09/2015

Month	Base Line CFS	Mitigated CFS	Change in CFS	Percent Change
January	814.00	813.00	-1.34	-0.16
February	845.00	844.00	-1.34	-0.16
March	901.00	900.00	-1.34	-0.15
April	1240.00	1240.00	-1.34	-0.11
May	1850.00	1850.00	+0.597	+0.03
June	2100.00	2100.00	+1.82	+0.09
July	2200.00	2210.00	+4.73	+0.22
August	2040.00	2040.00	+4.18	+0.20
September	1730.00	1740.00	+3.65	+0.21
October	1000.00	1010.00	+3.08	+0.31
November	685.00	684.00	-1.34	-0.19
December	752.00	750.00	-1.34	-0.18
Annual	1350.00	1350.00	+0.855	+0.06

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SALEM, OR

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SALEM, OR

**CHANGE IN PERCENT OF TIME INSTREAM REQUIREMENTS ARE MET
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE**

Effective Date: 9/30/2013

Little Deschutes River at mouth

Time: 12:48

Date: 01/09/2015

Month	Base Line Percentage	Mitigated Percentage	Change in Percent
January	22.90	20.80	-2.15
February	37.30	34.60	-2.72
March	27.40	27.10	-0.32
April	45.20	44.90	-0.33
May	55.90	55.80	-0.11
June	56.60	57.20	+0.67
July	85.10	87.50	+2.47
August	93.90	94.30	+0.43
September	72.00	73.30	+1.33
October	11.60	12.90	+1.29
November	14.70	14.00	-0.67
December	20.30	19.70	-0.64
Annual	45.30	45.20	-0.05

**CHANGE IN MEAN STREAM FLOW (CFS)
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE**

Effective Date: 9/30/2013

Little Deschutes River at mouth

Time: 12:49

Date: 01/09/2015

Month	Base Line CFS	Mitigated CFS	Change in CFS	Percent Change
January	162.00	161.00	-1.33	-0.83
February	183.00	182.00	-1.33	-0.73
March	219.00	218.00	-1.33	-0.61
April	262.00	261.00	-1.33	-0.51
May	329.00	329.00	+0.602	+0.18
June	298.00	300.00	+1.82	+0.61
July	230.00	235.00	+4.74	+2.02
August	200.00	204.00	+4.18	+2.05
September	144.00	147.00	+3.66	+2.49
October	76.70	79.80	+3.09	+3.87
November	108.00	107.00	-1.33	-1.24
December	142.00	141.00	-1.33	-0.94
Annual	196.00	197.00	+0.861	+0.44

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APR 13 2015

SALEM, OR

CHANGE IN PERCENT OF TIME INSTREAM REQUIREMENTS ARE MET
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE

Effective Date: 9/30/2013

Deschutes River above Little Deschutes River

Time: 12:50

Date: 01/09/2015

Month	Base Line Percentage	Mitigated Percentage	Change in Percent
January	29.70	29.70	0.00
February	30.10	30.10	0.00
March	33.50	33.50	0.00
April	68.40	68.40	0.00
May	97.80	97.80	0.00
June	98.80	98.80	0.00
July	100.00	100.00	0.00
August	100.00	100.00	0.00
September	99.80	99.80	0.00
October	56.80	56.80	0.00
November	20.90	20.90	0.00
December	24.70	24.70	0.00
Annual	63.50	63.50	0.00

CHANGE IN MEAN STREAM FLOW (CFS)
IN THE DESCHUTES BASIN AS A RESULT OF MITIGATED GROUNDWATER USE

Effective Date: 9/30/2014

Deschutes River above Little Deschutes River

Time: 12:51

Date: 01/09/2015

Month	Base Line CFS	Mitigated CFS	Change in CFS	Percent Change
January	329.00	329.00	0.00	0.00
February	331.00	331.00	0.00	0.00
March	319.00	319.00	0.00	0.00
April	654.00	654.00	0.00	0.00
May	1220.00	1220.00	0.00	0.00
June	1500.00	1500.00	0.00	0.00
July	1690.00	1690.00	0.00	0.00
August	1530.00	1530.00	0.00	0.00
September	1260.00	1260.00	0.00	0.00
October	561.00	561.00	0.00	0.00
November	246.00	246.00	0.00	0.00
December	280.00	280.00	0.00	0.00
Annual	829.00	829.00	0.00	0.00

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**LIFE HISTORY PERIODICITY CHART
FOR FISH SPECIES IN THE LOWER DESCHUTES RIVER**

SPECIES/LIFE HISTORY PHASE	LIFE STAGE PRESENCE AND ACTIVITY PERIODS											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
CHINOOK SALMON												
UPSTREAM MIGRATION												
SPAWNING												
INCUBATION												
REARING												
DOWNSTREAM MIGRATION												
STEELHEAD TROUT												
UPSTREAM MIGRATION												
SPAWNING												
INCUBATION												
REARING												
DOWNSTREAM MIGRATION												
RAINBOW TROUT												
SPAWNING												
INCUBATION												
REARING												

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