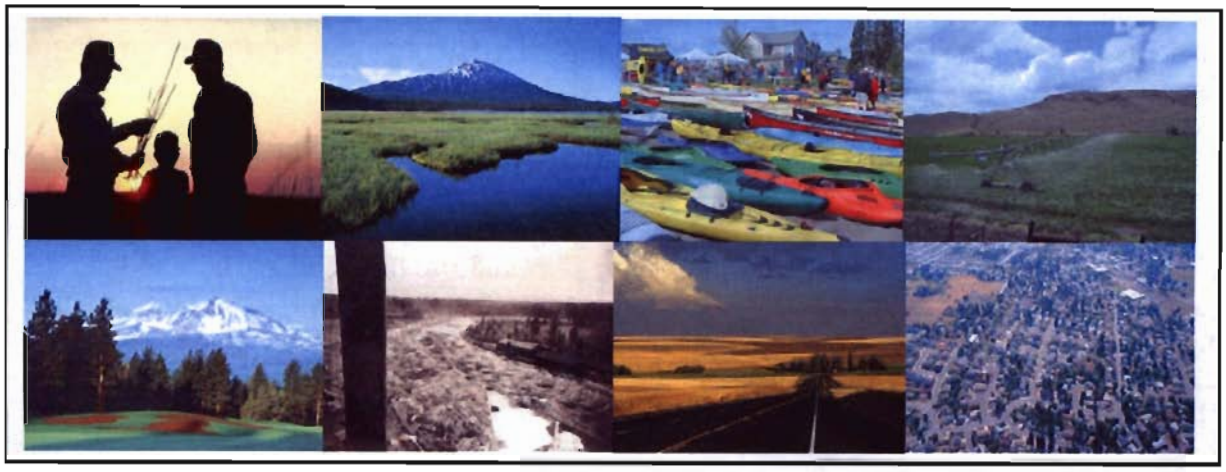
Deschutes Water Alliance

Balancing Water Uses for Agriculture, Cities and Rivers in the Deschutes Basin



Members of the Water Resources Commission

The Deschutes Water Alliance (DWA) includes the Deschutes Basin Board of Control (7 irrigation districts), Central Oregon Cities Organization (9 cities), the Deschutes River Conservancy (DRC) and the Confederated Tribes of Warm Springs.

The DWA is very supportive of the Deschutes Basin Mitigation Program and appreciates the commitment of the Commission and the department staff for their leadership to implement the program over this last five year period. Our members have direct and often daily involvement in the program and offer the following comments broken into four sections:

1. **General Program Comments**
2. **Specific Mitigation Program Near Term Recommended Action Items for Commission**
3. **Specific Technical comments on the 5 Year Program Evaluation Report**
4. **Potential Program Modifications to Consider within HB 3494 Report Process**

1. General Comments on 5 Year Program Evaluation Report and Program

The program is working!

As stated in the Five-Year Program Evaluation for the Deschutes Basin Ground Water Mitigation Program Draft Report and in OAR 690-505, the intent of the mitigation program is to:

- **Maintain flow for Scenic Waterways and senior water right holders, including instream water rights**

The report indicates that, based on modeling, stream flows have increased and the percentage of the time the instream flow requirements are met have stayed the same or have improved. Scenic waterway flows and instream water right flows in the Deschutes Basin continue to be met on at least an equivalent or more frequent basis as compared to the period of record (POR).

- **Facilitate restoration of flows in the middle reach of the Deschutes River and related tributaries**

The creation and successful operation of the state chartered Deschutes Water Exchange water bank (now doing business as the DWA Water Bank), has facilitated instream transfers and leases. The program and bank includes basin wide education about this program to current and prospective water users on how to participate in the program. Evidence shows that mitigation projects and mitigation credits are effective, reflecting the success of the mitigation program for the first five years and support for its continuation. Instream flows in the middle reach are improving.

- **Sustain existing water uses and accommodate growth through new ground water development**

New groundwater needs have been met as sixty-six (66) new ground water permits have been issued allowing up to 52 cubic feet per second (cfs) in ground water withdrawals since the inception of the mitigation program. Sustaining existing water uses has occurred in a variety of ways. Long and short term leases facilitated by the program keep beneficial uses intact; keep district assessments whole; while adding instream flow. Permanent transfers with irrigation districts now require payment of 20 years worth of assessments in the form of an exit fee to help districts cope with change.

Our Conclusion

Overall we believe the program is successful and we urge the Commission to continue the program and assist us as we continue to adaptively manage our water resources. We believe our basin is leading the state in meeting specific basin objectives as described in the program evaluation report and our collaborative efforts among water users and the Department are leading to a comprehensive Deschutes Basin water management plan.

2. Specific Mitigation Program Recommendations for Commission – Near Term

Start the HB 3494 Process

The DWA requests the Commission fund and create a facilitated process as required within HB 3494, and which is due to the Legislature in January 2009. Time is of the essence. The DWA basin stakeholders stand by to support this effort.

Strategic Rule Changes

As a bridge to the anticipated recommendations to be included in the HB 3494 report, we urge the Commission to direct staff to initiate a rulemaking to address the following:

While we understand that the 200 cfs cap was placed in the rules as a check-in point, the very nature of such a cap creates a false sense of scarcity. This sense of scarcity has bred speculation with the real result of leaving some water providers in the basin (that have a duty to serve under the law) currently unable to secure water supplies as the current applications in line today amount to more than 200 cfs. Department staff indicates they will not process any application over the 200 cfs limit. We believe in the short term the following actions are needed:

1. The Commission should direct staff to rigorously evaluate and process applications in the mitigation permit queue to weed out speculative applications and hold applicants to a strict schedule to keep the process moving.

2. The Commission should direct staff to initiate a rulemaking to clarify that the 200 cfs cap does not apply to final orders approving ground water applications using the "off-set" provision in OAR 690-505-0610(8) or that otherwise have no mitigation obligation because the use is non-consumptive.

Program Funding Required

We request $500,000 for the DWA Water Bank, the heart of the mitigation program. The long term feasibility of the program hinges on a stable, fully operational water bank for efficient water management which includes both temporary and permanent water transactions that meet all existing state statutes. A State contribution to the Bank is justified by cost savings to State water rights administration due to the Bank's activities, which has led to efficient and protective use of the resource. It is good to remember the DWA Water bank completes transactions for both restoration and mitigation.

3. Specific comments on the Five-Year Program Evaluation Report

In general, the evaluation report will assist water users and new participants in understanding the benefits of the program, what participation in it means, and the associated history and legislation. It is also provides a guide to other regions of the state interested in coordinated water resources management. In that light, we offer the following comments:

Permanent vs. Temporary Part of the Groundwater Mitigation Program

The report would be enhanced by explaining in more detail how *temporary* credits provide interim stability for eventual *permanent* credits. The addition of explanatory details about how these very separate pieces of the program work as a whole would be of benefit to all related stakeholders and would add to a more complete understanding of the mitigation program.

Mitigation Occurs ahead of Use

Water suppliers and water users in many cases are obtaining credits a number of years prior to actual use and need for the credits. It would be beneficial to show the actual annual pumping volume (in acre feet) of any groundwater rights granted under the program. For example, cities hold surface water rights they are planning to convert to credits now or in the future. These credits will eventually be associated with new groundwater uses and permit holders will grow into their rights incrementally over time. Larger permit holders in the program are mitigating years ahead of actual full beneficial use.

Scenic Waterway & Instream Water Right Flow Evaluation

It would be helpful to get a little more background or explanation of the numbers describing the Scenic Waterway & Instream Water Right Flow Evaluation. For example:

1. In Table 2, the second column is for "Base line % time instream requirements are met". Is this the average over the entire base period (i.e. 1966-1995). Daily, weekly or monthly data was averaged?
2. In Table 2, the third column is for "Change in percent of time instream requirements are met". It would be helpful to elaborate on the -0.36% decrease in the Deschutes River below Bend. This appears at first glance to contradict the statement in the fourth column that annual change in stream flow was 15.2 cfs. Was this a net increase in 15.2 cfs?
3. In Table 2, the fourth column is for "Annual change in stream flow". More explanation of this column would be helpful to help interpretation. Is this an increase in the average annual modeled stream flow when compared to the annual average stream flow for the base period? This also ties back to the Deschutes River below Bend data that indicates we are assuming an increase in average annual flow of 15.2 cfs.
4. It would be helpful to explain WHY stream flow records below Bend are able to detect changes due to mitigation activity. This is not clearly stated. Also Figure 13 was not very clear. What is the Period of Record (POR). Is it the same as the base period (1966-1995) or is this the monthly average for the last 30 years for each date

between April 1 and September 30? Spell out what the graph shows. Does it show that average flows increased in 2007 compared to the POR. Does the dip below the POR in April indicate that instream flows were not being met during that time? Is this tied to the modeling results for the Deschutes River below Bend comment in 2) above?

Additional History
The DWA has created a comprehensive chronology of the program that we recommend including as an appendix.

Page 2 – Deschutes Groundwater Study

Additional background information on the Deschutes Basin hydrology would be helpful. Specifically, we suggest including the following key conclusion from the USGS Summary and Conclusion at the end of the official report:

"The average annual rate of recharge from precipitation basin wide is about 3800 ft^3/s."

This is a staggering amount of water and referencing it would go a long way in fostering a better understanding that this is a complex and dynamic basin that is constantly recharging and discharging water in short and long distance hydraulically connected pathways throughout the basin. Much of the public may not be aware of the different hydrology of the Deschutes Basin relative to other aquifers that have typical depletion issues.

Page 20 – Table 1

We suggest showing the volume of water in acre feet, to complement the rates shown for allowable diversions. Also putting a column for the associated volume of mitigation required may be helpful. That may give a more complete look at the zones.

Statewide Water Availability Maps
Though not directly related to the program review at this time, we encourage the Commission to include the Deschutes Groundwater Study area on the same statewide map as the critical groundwater areas and related areas. We understand the differences and believe these differences can be easily categorized and delineated. By doing this, it will give the legislature and the public a full and complete picture of state water limitations and illustrate that the Deschutes has significant restrictions on groundwater development. It would also help demonstrate that ongoing development of groundwater in our basin is complex, costly and in need of financial support from the state.

4. Suggested Program Modifications to Consider within HB 3494 Report Process

Within a facilitated Deschutes Basin Task Force Report for HB3494, the DWA and its members would like to offer an initial select list of issues to begin discussion within that process in the hopes of offering adaptive program improvements in an associated rulemaking:

Speculation and Scarcity
Several issues listed below in broad categories are creating an artificial scarcity of water and related confusion, fueling speculative behavior and encouraging applications to be submitted in less than acceptable form. Speculation increases everyone's costs and diminishes the cap unrealistically. Speculation also has negative effects of accelerating land use changes ahead of more orderly state land use processes and causing related impacts to irrigation districts.

200 Cfs Cap – Tightening the Process
Presently, ground water permit applications can be filed with little definitive information regarding need for the permit. Therefore, it is relatively easy to submit an application and decrease the availability of water for other applicants. This contributes to an artificial water shortage and related speculative applications and thwarts sound resource planning. Developing specific new requirements for ground water permit applications within the program may be part of the solution.

Extension of Sunset Date
Extending the 2014 sunset date to better align with our regional planning period of 2030 would have significant benefits.

Qualified Buyers of Permanent Credits
There will need to be a discussion of what criteria defines a qualified buyer of permanent groundwater mitigation credits. Could credits be held with the intention of speculation? Should buyers be required to have a recognized mitigation obligation from the state? Determining the ultimate role of the chartered banks within this process will also be important to understand.

Conclusion: Adaptive Management for the Long Term

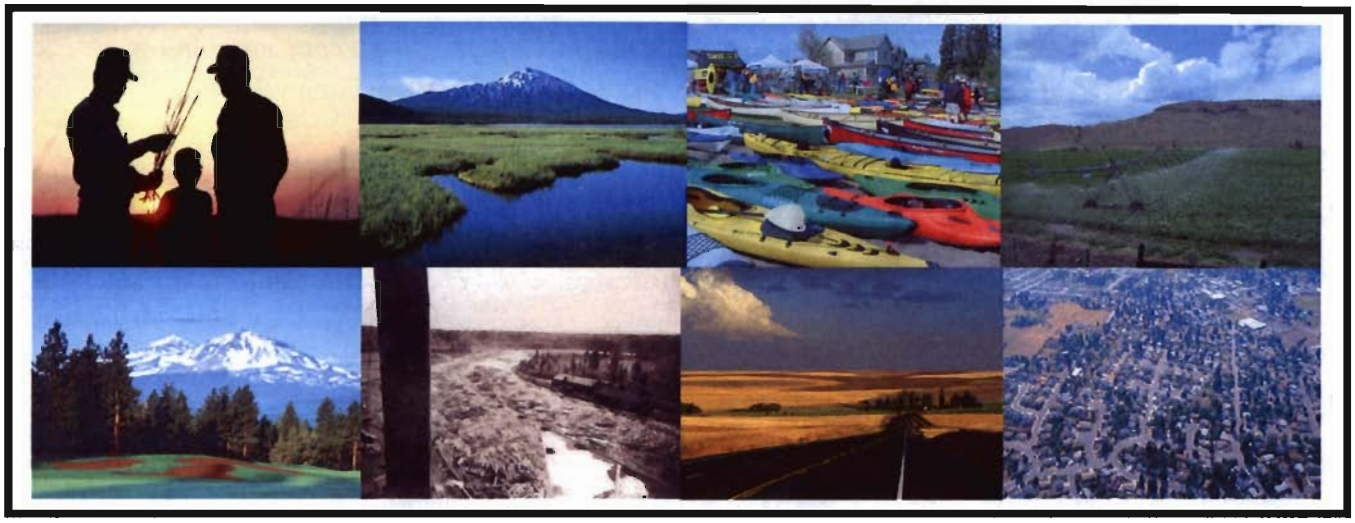
It is important to remember that the Groundwater Mitigation Program is one small but critical piece of a much larger whole. To meet the stated vision and mission of the DWA (see fact sheet sent under separate cover), many other program elements will be required over time and continually refined. The program has spawned many other beneficial relationships, projects, funding ideas and efficiencies. The DWA looks forward to continuing to meet the needs of all the basin stakeholders, now and in the future. The Commission and Department will continue to be an important partner.

Addendums to be forwarded separately

- Deschutes Basin Mitigation Program Chronology
- Deschutes Water Alliance Fact Sheet
- Additional technical comments to the report are also being considered by DWA Bank staff, the actual practitioners in the day-to-day processes within the program.

Deschutes Water Alliance

Balancing Water Uses for Agriculture, Cities and Rivers in the Deschutes Basin



Formation

In 2004, the Deschutes Water Alliance (DWA) was formed to plan for the future water management of the Deschutes River Basin. The Alliance firmly believes that it is possible to simultaneously meet new and existing demands for water in the Basin whether they are for agriculture, cities, or rivers. This will happen through cooperation and voluntary participation of the key water suppliers and users in the basin.

The Deschutes Water Alliance is comprised of the following stakeholders:

- **The Deschutes Basin Board of Control (DBBC), an association of irrigation districts:** North Unit, Central Oregon, Swalley, Tumalo, Three Sisters, Arnold, Ochoco
- **The Confederated Tribes of Warm Springs (CTWS):** Manage resources as sustainable assets available for cultural, subsistence, economic and social purposes
- **Deschutes River Conservancy (DRC):** with a mission to restore streamflow and improve water quality in the Deschutes Basin
- **Central Oregon Cities Organzation (COCO):** Bend, Culver, Madras, Maupin, Metolius, Prineville, Redmond, Sisters

Vision

The vision of the DWA is simple.

- The uses of water resources in the Deschutes Basin are balanced to serve and sustain agriculture, urban and ecosystem needs.

Mission

Our mission has three elements.

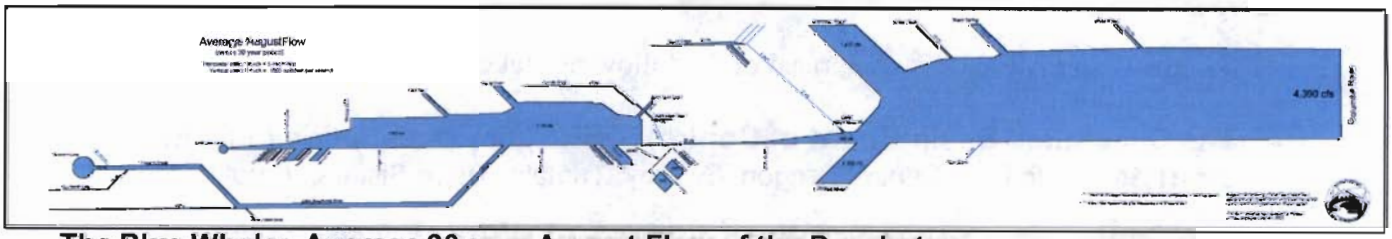
- Move stream flows toward a more natural hydrograph while securing and maintaining improved instream flows and water quality to support fish and wildlife
- Secure and maintain a reliable and affordable supply of water to sustain agriculture
- Secure a safe, affordable, and high quality water supply for urban communities

Current Challenges

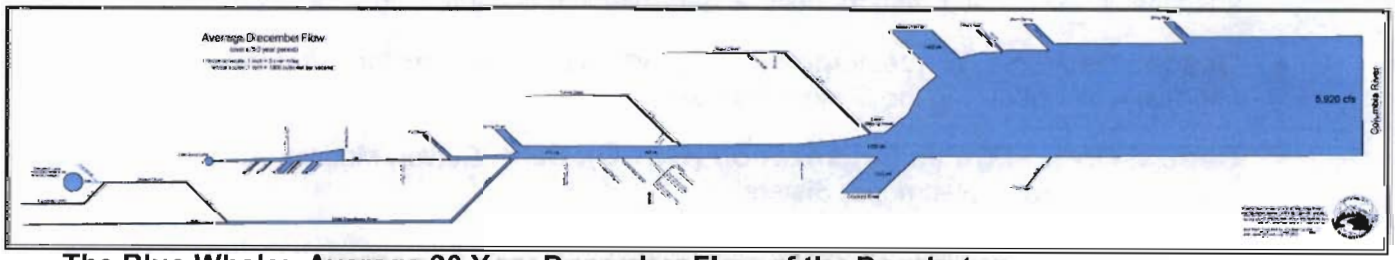
Like the Klamath Basin, the Deschutes River Basin faces numerous challenges that create high potential for conflict over water. The DWA embraces the recommendations of the Department of Interior's Water 2025 Report, understanding that foresight, strong leadership, and cooperation will prevent water crises.

The River

Long stretches of the Deschutes River and its tributaries suffer from low streamflow and degraded water quality due to numerous irrigation diversions in Bend that for decades have supported a rich tradition of family farming. Between Bend and Lake Billy Chinook near Madras, the Deschutes River runs at only 5% of its natural flow from May to September. Squaw Creek through Sisters, Tumalo Creek below Shevlin Park and the Crooked River below Prineville Reservoir also have reduced flows from diversions. In addition, the Upper Deschutes River experiences abnormally low stream flows in the winter as water is being stored in Wickiup and Crane Prairie Reservoirs. Furthermore, sections of the Deschutes River and its tributaries fail to meet water quality standards set by the Clean Water Act through Oregon's Department of Environmental Quality. These human altered stream conditions present significant threats to fish and wildlife and pose potential liabilities for irrigators.



The Blue Whale: Average 30 year August Flow of the Deschutes



The Blue Whale: Average 30 Year December Flow of the Deschutes

The recent settlement agreement negotiated as part of the relicensing of the Pelton Round Butte Hydroelectric Project will provide for fish passage past the dams near Warm Springs, Culver and Madras. For the first time in more than fifty years, steelhead and salmon will be spawning in the

upper reaches of the Deschutes Basin. Restoring flows in the Middle Deschutes is of paramount importance to the survival of these fish and will improve water quality at the same time.

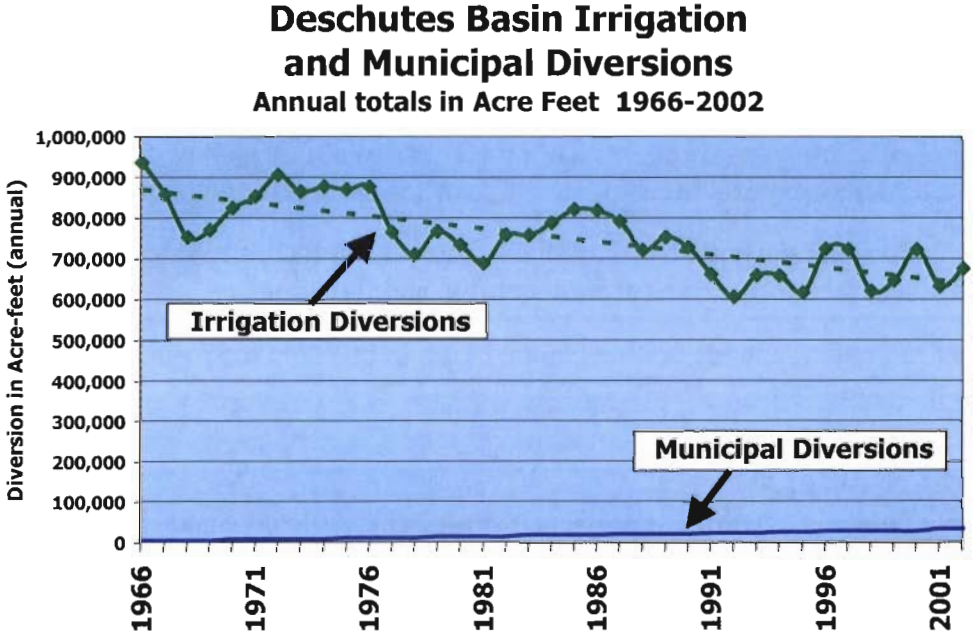
While the problems of the river are significant, they are not insurmountable. In the Deschutes River only about 5 -10% of its annual flow is consumed. The problems of the Deschutes are not so much of a basic water deficiency as they are localized distribution problems with serious stream flow degradation at certain times of the year. The solution in many respects is a reallocation of the water to bring the Deschutes back to something approaching the natural hydrograph. It is clear there is enough water in the Basin to meet environmental, agricultural and municipal needs if we use our water wisely, reduce waste, and emphasize stream restoration.

The Irrigators

Water use for irrigation has declined over the last 30 years, but remains the largest single use of water in the Deschutes Basin. On average, over 660,000 acre feet have been diverted in each of the last 6 years, down from historic levels. Original water rights issued in the early 1900's still allow over half of what is diverted from the Deschutes near Bend, to be lost before it ever reaches the fields due to antiquated, leaky delivery systems.

Stream flows and water use aside, challenging agricultural economics, rapid population growth and demographic change are altering the character of farming and irrigation in much of the Deschutes Basin. Particularly in Deschutes County, large acreage commercial farms have given way to smaller farms established for lifestyle rather than crop production. Today, in the Central Oregon Irrigation District 87% of the farms are 20 acres or less. This farm fragmentation has increased the number and cost of water deliveries in the district.

In addition, the irrigation districts are challenged by urbanization. Some farmers are converting their farms to urban development, a trend that could erode assessment revenue and threaten the financial sustainability of the districts. Furthermore, urbanization jeopardizes water deliveries to those customers that remain in the district.



The Cities

Central Oregon cities are the fastest growing in the State. Currently, all the cities combined divert about 30,000 acre feet of water per year. This amounts to slightly more than 4% of all current irrigation diversions. Some cities have implemented water conservation measures and the results are beginning to take hold. For example, Bend has reduced residential per capita water use by 10%. New groundwater supplies will be required to meet new peak demands, because conservation alone, will not be sufficient. Even using the highest growth projections, water use by cities will remain a small fraction of overall water use in the basin.

Concern about the connection between surface and groundwater throughout the basin are adding new challenges to securing new groundwater permits. In 2002 the Deschutes Groundwater Mitigation rules were issued and new groundwater permits are now allowed if mitigation is provided. Mitigation requires the transfer of surface water back to the stream, a very important means of restoring streamflow in several reaches of the Deschutes Basin.

Tribal

The Confederated Tribes of Warm Springs (CTWS), through its Natural Resource Branch, manage resources as sustainable assets available for cultural, subsistence, economic and social purposes or opportunities in perpetuity consistent with the Confederated Tribes sovereign and treaty status. Their treaty, sovereign status and land and water rights ownership put them in a unique position to take a long term view of the Deschutes River Basin. With co-ownership of the Pelton Hydro Project with PGE, they are cooperatively working to fulfill new FERC license obligations and see how they can enhance other related efforts throughout the basin. The CTWS also hold significant tribal water rights in the basin, both for on and off reservation use.

Harbingers of Success

In many western water basins the battle lines have been drawn in their wars over water. The dynamic in the Deschutes Basin has been different for decades. Cooperative efforts abound to protect and restore the environment that make the Basin such an attraction to those who live in it. Traditional adversaries in other basins, such as irrigators and environmentalists, have joined in the Deschutes River Conservancy and other organizations to make a positive difference. A number of factors are at work in the Basin that make significant restoration achievable.

- The groundwater mitigation program will protect existing rights, allow for new groundwater uses and create new opportunities for stream flow restoration throughout the Deschutes Basin.
- Irrigators understand the potential liabilities associated with Clean Water Act and Endangered Species Act and are motivated to prevent conflict and litigation.
- Significant mitigation and restoration capital exists to invest in instream restoration, mitigation and efficiency projects.

Near Term Strategy

Our near term strategy is to carry out projects that are achievable now and will show concrete results to residents in the basin. At the same time, we will conduct the Water Supply and Demand Study and develop the institutional framework that will enable us to understand the effects of large scale projects and give us the means to carry them out.

The Deschutes Water Alliance will conduct the following study in order to more clearly understand the cumulative impact of a series of potential water management alternatives that would satisfy this diverse group's common objectives. Each water management scenario will be evaluated on their efficiency and cost effectiveness as well as on their overall impact and benefit to the entire Deschutes River.

DWA Planning Study

Synthesis of Water Supply & Demand: this report comprised of the sections listed below, will summarize and prioritize data to create a template for future water management.

A. **Irrigation District Water Conservation Analysis:** how much water can be conserved at what cost within each district
B. **Impacts of Urbanization on Irrigable Lands:** what planning strategies will assist districts in dealing with the effects of urbanization and changing patron demand for smaller farm sizes.
C. **Reservoir Optimization & Water Quality Analysis:** identify the opportunities to optimize and manage water rights that currently require the use of water stored in reservoirs.
D. **Municipal Water Supply & Demand to 2055:** provide a cumulative future municipal water demand forecast with supply alternatives.
E. **Measurement, Monitoring and Evaluation:** what are the methodologies that will best measure restoration and reallocation for all water users.

Pilot Projects

1. **Deschutes River Water Bank:** create one institution where water users can find available water for restoration, irrigation, groundwater mitigation and municipal uses. The bank will comprise a set of services to efficiently move water from one purpose to another purpose in a voluntary, non-regulatory manner.
2. **Deschutes On-Farm Conservation Program**: eliminating flood irrigation and improving on-farm efficiencies can bring significant water savings for the basin
3. **Other Pilots**: Additional pilot projects may be identified and implemented during the study period

Long Term Strategy

As the DWA proceeds forward it will grow, adding like-minded organizations that share our vision of a sustainable future. Our successes will demonstrate to all in the Basin that we can make significant improvements. It will encourage the community to support the even greater efforts that it will take to achieve our vision. We invite you to join us.

For more information contact:

Steve Johnson – Central Oregon Irrigation District (DWA Chair)	541-548-6047
Bobby Brunoe – Confederated Tribes of Warm Springs	541-553-2015
Tod Heisler – Deschutes River Conservancy	541-382-4077
Patrick Griffiths – Water Resource Coordinator	541-317-3008

Water 2025: Fact Sheet Summary
Preventing Crises and Conflict in the West

Water is the lifeblood of the American West and the foundation of its economy. It is also the scarcest resource in some of the fastest growing areas of the country. Water 2025 is intended to focus attention on the reality that explosive population growth in western urban areas, the emerging need for water for environmental and recreational uses, and the national importance of the domestic production of food and fiber from western farms and ranches is driving major conflicts between these competing uses of water.

In some areas of the West, existing water supplies are, or will be, inadequate to meet the demands for water for people, cities, farms, and the environment even under normal water supply conditions.

Water 2025 recognizes that states, tribes, and local governments should have a leading role in meeting these challenges, and that the Department of the Interior should focus its attention and resources on areas where scarce federal dollars can provide the greatest benefits to the West and the rest of the Nation.

Water 2025 provides the basis for a public discussion in advance of water crises and sets forth a framework to focus on meeting water supply challenges in the future. This framework includes:

Six Principles

- Recognize and respect state, tribal, and federal water rights, contracts, and interstate compacts or decrees of the United States Supreme Court that allocate the right to use water.
- Maintain and modernize existing water facilities so they will continue to provide water and power.
- Enhance water conservation, use efficiency, and resource monitoring to allow existing water supplies to be used more effectively.
- Use collaborative approaches and market based transfers to minimize conflicts.
- Improve water treatment technology, such as desalination, to help increase water supply.
- Existing water supply infrastructure can provide additional benefits for existing and emerging needs for water.

Five Realities

- Explosive population growth in areas of the West where water is already scarce.
- Water shortages occur frequently in the West.
- Over-allocated watersheds can cause crisis and conflict.
- Water facilities are aging.
- Crisis management is not effective in dealing with water conflicts.

Four Key Tools

- Conservation, Efficiency, and Markets
- Collaboration
- Technology
- Remove Institutional Barriers and Increase Interagency Cooperation

Water 2025 will:

- Facilitate a more forward-looking focus on water-starved areas of the country;
- Help to stretch or increase water supplies to satisfy the demands of growing populations, protect environmental needs, and strengthen regional, tribal and local economies;
- Provide added environmental benefits to many watersheds, rivers, and streams;
- Minimize water crises in critical watersheds by improving the environment and addressing the effects of drought on important economies; and,
- Provide a balanced, practical approach to water management for the next century.

Chronology of the Deschutes Basin Groundwater Mitigation Program And Mitigation Rule Highlights January 3, 2006

This document is a compilation of various Water Resource Department memos and testimony that provides a condensed history of the Deschutes Groundwater Mitigation program. Major portions of this document appeared as supplemental testimony on June 8, 2005 on House Bill 3494 written by Adam Sussman, then the Legislative Coordinator with the Water Resources Department before the House Water Committee. Subsequent passage of HB 3494 occurred and its language is added at the end of this document.

- 1970 - Oregon Scenic Waterway Act was adopted by ballot initiative. The Act declares that the "highest and best use of the waters within a scenic waterway are recreation, fish and wildlife uses." The Act requires the State to maintain the "free flowing character of these waters in quantities necessary for recreation, fish and wildlife uses." The Act designated as a Scenic Waterways various portions of the Deschutes River and Basin tributaries, including the Lower Deschutes River from Pelton Dam to its confluence with the Columbia River.

- 1987 - State instream water right law was enacted.

- 1988 - Oregon Supreme Court, in *Diack v. City of Portland*, interpreted the Scenic Waterway Act to mean that "no diversion of water that otherwise would enter a scenic waterway may be permitted unless the requirements of [the Act] are met." The Department was required to determine that scenic waterway flows will not be impaired before issuing new water rights.

- 1991 - Scenic waterway flows ranging from 3,500 cubic feet per second (cfs) in August to 4,500 cfs in winter months were established on the Lower Deschutes Scenic Waterway after public hearing by the Water Resources Commission.

- 1993 – U.S. Geological Survey (USGS) initiated a comprehensive ground water study in cooperation with the Department, local governments, tribes, Bureau of Reclamation, and Environmental Protection Agency. The objective was to provide a quantitative understanding of ground water hydrology in the Upper Deschutes Basin.

- 1995 - Legislature passed Senate Bill 1033, codified as ORS 390.835, to authorize reasonable and appropriate uses of ground water while not jeopardizing flow protection for State Scenic Waterways. The Department was required to review ground water applications and make a finding on whether proposed use will "measurably reduce" the flows necessary to maintain free flowing character of a scenic waterway in quantities necessary for recreation, fish and wildlife. A use "measurably reduces" if it individually or cumulatively reduces streamflow by 1% of average daily flow or 1 cfs, whichever is less. The statute requires conditioning of permits to allow for regulation in the future if the "measurably

reduce" standard is triggered, and requires mitigation by new ground water applicants once the measurably reduce standard is triggered.

- 1996 - Department issued two instream water right certificates on the Lower Deschutes River, one with an October 2, 1989, priority date, for 3,000 to 3,500 cfs (matching the minimum flows required under the Federal Energy Regulatory Commission license for Pelton Dam); and the other with a January 16, 1991, priority date, for 3,500 to 4,500 cfs (matching the Scenic Waterway flows established by the Water Resources Commission).

- 1998 - Preliminary results from USGS/Department study show ground water originating in or flowing through Upper Deschutes Basin discharges into the lower reaches of Deschutes, Metolius and Crooked Rivers above and within Lake Billy Chinook. These conclusions are consistent with previous studies in 1931 and 1968. Based on these initial study results, Department staff determined ground water use in the study area has the potential for substantial interference with surface water and the "measurably reduce" standard in ORS 390.835 is triggered. New ground water applications were put on hold and the Department convened a diverse group of stakeholders to develop mitigation strategies to offset impacts on Lower Deschutes while accommodating new uses and restoring the Middle Deschutes. The committee, known as the Deschutes Basin Steering Committee continued to meet monthly from early 1999 to early 2001.

- June 2001 – House Bill 2184, authorizing a system of mitigation credits and banking arrangements is enacted into law.

- In September 2001, based in part on the work of the Deschutes Basin Steering Committee, the Department developed and distributed draft rules proposing to implement a mitigation program for the Deschutes Basin. Based on testimony at four public hearings and over 75 written comments the Department developed a second hearing draft of the rules in April 2002. Public input on the second hearing draft was extensive. Approximately 30 individuals provided testimony at the April 2002 hearing in Bend and over 160 written comments were submitted representing more than 250 individuals/organizations.

- September 2002 – The Water Resources Commission adopted Deschutes Basin Ground Water Mitigation and Mitigation Credit and Bank rules.

- November 2002 - WaterWatch and thirteen others filed a petition for review with the Oregon Court of Appeals.

- May 2005 – The Court of Appeals finds the rules invalid.

- HB 3494 was passed which ratifies the challenged rules and was signed by Governor and put into law on July 29, 2005. It includes additional reporting provisions to the legislature and a sunset provision which repeals Section 2 of the bill in January of 2014.

Groundwater Mitigation Rule Highlights

Deschutes Basin Program (Deschutes Ground Water Mitigation Rules) (Division 505)

- Except for a cumulative total of 200 cubic feet per second (cfs), ground water in the Study Area is closed to further appropriation. **(See OAR 690-505-0500(1))**

- Upon future evaluation of rule implementation, the Commission may lift or modify the 200 cfs cap. Based on public comments the final rules require (1) Commission evaluation upon reaching 150 cfs of the proposed 200 cfs allocation cap or January 1, 2008, whichever comes first, (2) Commission evaluation on subsequent five year intervals, and (3) annual Department evaluation and reporting on the implementation of the rules in cooperation with the Oregon Department of Fish and Wildlife (ODFW), Oregon Parks and Recreation Department (OPRD), Oregon Department of Environmental Quality (DEQ), and Division of State Lands (DSL). **(See OAR 690-505-0500(2) and (3))**

- Many commenters urged the Department to articulate actions that will be taken if the mitigation rules are unsuccessful. Based on these comments, the rules require the Commission to initiate proceedings to declare all or part of the Deschutes Study Area a critical ground water area, close all or part of the Basin to additional ground water use, or take other administrative action(s) if evaluation of rule implementation shows that Scenic Waterway flows and instream water rights are being met less frequently than compared to long-term, representative base period flows due to new ground water appropriations. **(See OAR 690-505-0500(5))**

- Based on public input, the options for fulfilling a mitigation obligation were narrowed. All mitigation obligations must be satisfied through individual mitigation projects such as the transfer of a water right to an instream use or by securing mitigation credits. The "payment-to-provide" option was eliminated from the rules. **(See OAR 690-505-0610(2) and (3))**

- In response to public comment regarding "mitigation standards," the rules specify that (1) mitigation water must be provided within the same general zone of impact as the use, (2) mitigation water must be legally protected instream prior to permit issuance, (3) mitigation must be committed and maintained for the life of the permit, and (4) the amount of mitigation water must be equivalent to the amount of consumptive use. **(See OAR 690-505-0605 (5) and 690-505-0610(4) and (5))**

- The rules set out the process for the Department to coordinate with ODFW, DEQ, OPRD, and DSL to maximize the resource benefits of mitigation projects and mitigation water. **(See OAR 690-505-0615 (1) – (7))**

- The rules provide for conditioning final orders approving ground water applications and subsequent permits and certificates. In response to public input regarding long-term maintenance of mitigation, the rules specifically provide for regulation and/or cancellation if the required mitigation is not maintained. **(See OAR 690-505-0620(1)(f))**

- A number of commenters questioned the adequacy of review of permit applications and mitigation projects in the Study Area. In response, the rules require the Department to work with numerous state natural resource agencies in an interagency team review process to seek input on ground water permit applications and mitigation projects in the Study Area. **(See OAR 690-505-0630 (2))**

Deschutes Basin Mitigation Bank & Mitigation Credit Rules (Division 521)

- The rules provide that any person may establish mitigation credits and that valid credits may be assigned by any person or mitigation bank to any person or other mitigation bank. They also identify who can establish mitigation credits, the types of projects that may qualify for mitigation credits, the process for the Department to notify the public of a person's intent to establish mitigation credits, and the process for the Department to coordinate with ODFW, DEQ, OPRD, and DSL to maximize the resource benefits of mitigation and mitigation water. **(See OAR 690-521-0300)**

- The rules set out the process and requirements for establishing a mitigation bank. Based on public input the rules require that mitigation bank charters must be approved or denied by the Commission following public notice and an opportunity for comment. **(See OAR 690-521-0500)**

Copy of House Bill 3494 – As Enrolled (final version) as signed by Governor

SECTION 1. Section 2 of this 2005 Act is added to and made a part of ORS 537.505 to 537.795.

SECTION 2. The Legislative Assembly declares that rules adopted by the Water Resources Commission for the Deschutes basin ground water study area and certified effective by the Secretary of State on September 27, 2002, satisfy the requirements relating to mitigation under ORS 390.805 to 390.925, 537.332 to 537.360 and 537.505 to 537.795.

SECTION 3. (1) The Water Resources Department shall report to the Seventy-fifth 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 report may include information on the progress on restoring stream flows in the Deschutes River Basin to a point sufficient to support anadromous fish and information on any statutory changes necessary to accomplish the needed stream flow restoration. In formulating the report, the department shall consult with Deschutes River Basin water users and organizations with an interest in water use in the basin. The department shall work with basin water users and organizations with an interest in water

use in the basin to seek funding for a facilitated process to develop the report required by this section and to evaluate the ground water mitigation and mitigation bank programs.
(2) The report prepared pursuant to this section shall include a summary of:

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

SECTION 4. Section 2 of this 2005 Act applies to all ground water permits containing a ground water mitigation requirement, all final orders approving water right applications containing a ground water mitigation requirement, all mitigation credits, all ground water mitigation projects and all mitigation banks issued or approved in the Deschutes River Basin by the Water Resources Department or the Water Resources Commission before, on or after the effective date of this 2005 Act.

SECTION 5.
(1) The Water Resources Commission shall repeal the rules referred to in section 2 of this 2005 Act on January 2, 2014.
(2) Ground water permits and mitigation projects approved before the repeal remain valid and effective.

SECTION 6. This 2005 Act being necessary for the immediate preservation of the public peace, health and safety, an emergency is declared to exist, and this 2005 Act takes effect on its passage.

Chapter 669, (2005 Laws): Effective date July 29, 2005

From: EBach4882@aol.com [mailto:EBach4882@aol.com]
Sent: Monday, January 21, 2008 11:50 AM
To: Barbara Grabell
Cc: Joe.whitworth@ortrout.org
Subject: Deschutes groundwater report

I will not be able to represent Oregon Trout at the information presentation on the 23rd. I do have a couple of comments/questions.

1 - We are pleased to see that in Table 2 on Page 26 showing the percentage of time when instream requirements are not met it shows a positive gain for all but two reaches. In the Change column and the Annual Percentage column you do not cite the time period involved. Is it the time since the mitigation program started, or is it just during the past year?

2 - In the same place you should show the time periods when the instream flow requirements are not met. I am particularly concerned with the flows of the Deschutes below Pelton Dam.

3 - We believe that the state and therefore WRD has an affirmative duty to do what is necessary to bring the actual flows up to the required levels as soon as possible. Since there are no surface rights junior to the required flows that could be regulated so as to bring the actual flows up to the required levels, another tactic should be considered.

One such tactic would be for WRD to enter into a standby water loan agreement with the owners of stored water. This would allow the Watermaster to call on some of that water until the actual flow comes back up to the required levels. We understand that the irrigation districts are working on a plan to create a cushion of conserved water in the reservoirs. Have any of the conservation measures resulted in such a cushion yet? Are there any reasons that such an agreement is not possible? If not possible, what are the barriers?

4 - If the flows in the Middle Deschutes have increased by 15.2 cfs, why is this not reflected in the flows below Pelton Dam and the Moody gage.

5 - Where is Osborne Canyon on the Crooked River? Is it in the reach of the lowest 10 miles or so from the Highway 97 brideg downstream?

Thank you for considering these questions. We would appreciate hearing your response.

Roger Bachman
for Oregon Trout

From: Jan Houck [Jan.Houck@state.or.us]
Sent: Friday, February 01, 2008 8:30 AM
To: Kyle G GORMAN; Laura K SNEDAKER
Cc: Kyleen Stone; Richard Walkoski; Dave Wright
Subject: Deschutes Basin Mitigation Report

Good morning,

Thank you for the opportunity to comment on this report. The Deschutes Ground Water Mitigation Program is unique and will be a model for other basins. We appreciate the work WRD has done to create a report that is general enough to understand while offering additional data for those that like to delve into the details of the analysis.

OPRD is supportive of the mitigation program and has been pleased with the response of water users to the mitigation banking, instream leasing and instream transfer opportunities. We look forward to the continued success of protecting the scenic waterway flows.

OPRD is not supportive of lifting the 200 cfs allocation cap. Each applicant has five years to provide actual mitigation. It is premature to lift a cap that is not reached. WRD, in conjunction with other state agencies, is required to review the mitigation program annually. The mitigation cap can be monitored and brought back to the Commission at the next 5-year interval, or sooner if necessary.

OPRD would like to see the results of the ground water well monitoring established in the Sisters area. If not already in place, we would also like to see WRD establish a ground water well monitoring system throughout the rest of the basin. The original presentation of the USGS study declaring the direct connection between the ground water and surface water described the Deschutes Basin as a bathtub and the Madras gauge essentially being the drain. As state agencies working to acquire more instream flow to offset ground water pumping, we should know if we are draining the tub. OPRD is an advocate of protecting the scenic waterway flows; we want assurance that the source of those flows is protected.

Thank you, again, for the opportunity to comment. If you have any questions, please do not hesitate to contact me.

Jan E. Houck
Water Recreation Program Coordinator
Oregon Parks & Recreation Department
725 Summer Street NE, Suite C
Salem, OR 97301
Phone: 503.986.0742
Fax: 503.986.0792
jan.houck@state.or.us

WATERWATCH
PROTECTING NATURAL FLOWS IN OREGON RIVERS

February 5, 2008

Debbie Colbert
Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271

Re: Deschutes Ground Water Mitigation Program, Draft Review Comments

Dear Debbie,

Thank you for the opportunity to provide comments on the Draft Deschutes Ground Water Mitigation Program Five-year Evaluation Report. These comments supplement the four points we made in our verbal comments provided at the January 23 hearing in Bend. While we have briefly outlined two additional concerns below, we anticipate providing more comprehensive comments to the Commission once the Department staff report is issued.

Modifying the 200 cfs cap: While the draft report does not recommend modification of the 200 cfs cap per se, it is our understanding that this will likely be discussed at the February 29 WRC meeting. We think a discussion of an altering and/or lifting of the cap is premature. Information presented at the January 23 hearing indicates that the evaluation as described in the draft report (pp. 25-27) only accounts for 66 permits, totaling 51.6 cfs of the water available under the 200 cfs cap. We do not think it prudent for the WRC to make a decision regarding the lifting and/or modification of the 200 cfs cap to allow more consumptive use based on the evaluation of only 51.6 cfs. For the WRC to truly understand what the effects of issuing new groundwater permits in the amount of 200 cfs will be on protected streamflows, the WRC should have information before it as to the effects on river flows when a total of 200 cfs of water has been permitted. Without this information, the WRC cannot accurately evaluate the effectiveness of the mitigation program as it relates to the 200 cfs cap.

Standard of Review : On pages 25-28 of the draft report, the WRD outlines its evaluation of mitigation activity in the Deschutes Basin. While the report acknowledges that the standard of review is "whether scenic waterway flows and instream water right flows continue to be met on at least an equivalent or more frequent basis as compared to long-term, representative base flows", the WRD appears to have interpreted this standard as allowing for a comparison of the overall annual change in streamflows, rather than an evaluation of changes to monthly flows protected by instream water rights and the Scenic Waterway Act.

The WRD is in error by doing so. While the rules allow for the permitee's mitigation obligation and corresponding mitigation water to be calculated on a volumetric basis without respect to monthly flow levels, the rules are very clear that the evaluation of the mitigation program as a whole, and with regards to the lifting of the 200 cfs cap in particular, is in fact specific to flows. Again, the standard of review reads: "whether scenic waterway flows and instream water right flows continue to be met on at least an equivalent or more frequent basis as compared to long-term, representative base flows". Instream water rights and scenic waterway flows are protected by monthly and half monthly flow levels, not annual flow levels. It is the protected monthly flow levels that the WRC must evaluate to see if they are being met on an equivalent or more frequent basis as compared to long-term representative base

flows. Evaluating an overall "annual" change in streamflows not only does not meet the mandates of the Scenic Waterway Act and the Instream Water Rights Act, but does not meet the mandates of the rules as instituted by HB 3494.[1]

In briefings before the Oregon State Court of Appeals regarding WaterWatch's challenge to the Deschutes Mitigation Rules, the state repeatedly asserted that the rules would in fact maintain streamflows.[2] And in fact, in its opinion, the Court explicitly noted that "[r]espondents do not appear to dispute that ORS 390.835 requires the maintenance of streamflows." WaterWatch or Oregon, Inc. v. Water Resources Commission 199 OR App 598 (2005), at 609. Regardless, the language of the rules as they stand is quite clear, the evaluation of the mitigation program requires an evaluation of the mitigation program in relation to protected monthly flows.

Thank you for this opportunity to comment. And as noted, we anticipate providing further comments once the WRD staff report is released.

Sincerely,

Kimberley Priestley

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[1] It also makes no biological sense. Fish are dependent on monthly or half-monthly flow levels. Concluding that the mitigation program is a success based on an mathematical exercise that shows that over the course of the year flows are positive (because the pluses in some months are greater than the minuses in other months) ignores the biological needs fish for which the underlying instream rights were adopted. As noted by ODFW in its comments to the draft rules, "[f]low levels are directly related to available spawning and rearing habitat, especially in the lower Deschutes River where small drops in flow levels result in much larger reductions in available habitat." ODFW Comments on the Proposed Adoption of Deschutes Groundwater Mitigation Rules (OAR 690-505) and Deschutes Basin Mitigation Bank and Mitigation Credit Rules (OAR 690-521), 6/5/02, at 2.

[2] E.g. In the state's briefing before the Court of Appeals, it asserted that "[t]he Commission's rules are designed with the express purpose of maintaining the *status quo* through the state's dual mitigation standard, combining a volumetric mitigation obligation with a monitoring and regulatory backstop approach." WaterWatch of Oregon, Inc. v. Water Resources Commission, Respondent's Brief, 11/04/03, at 3. The state argued that petitioners (WaterWatch, et al) "ignore the rules' requirement that Water Resources must annually evaluate the implementation of the rules to ensure that mitigation projects are maintaining protected streamflows." Furthermore, the State countered WaterWatch's assertions that the rules did not require monitoring or reporting regarding whether mitigation projects actually maintain scenic flows, with the following: "[c]ontrary to petitioners' argument, the rules literally require annual evaluation to determine if mitigation has been effective in maintaining protected streamflows." Id. at. 37. The state continued, "[t]hus, because the rules expressly *require* further controls over ground water use to ensure that scenic waterway flows and instream water rights flows are maintained, not only has the agency not "waived" its ability and authority to require the adjustment of mitigation, but in fact it has provided a performance-based standard (beyond the mitigation requirements for each new water right) to ensure that flows are maintained." Id. at 38.

Deschutes Ground Water Mitigation Program

Five-Year Program Evaluation Report

January 18, 2008 DRAFT

State of Oregon
Water Resources Department

5-Year Evaluation of the Deschutes Ground Water Mitigation Program

Contents

Introduction

The Deschutes Ground Water Mitigation Program was developed to provide for new ground water uses while maintaining scenic waterway and instream water right flows in the Deschutes Basin. The program is authorized under ORS 537.746 and House Bill 3494 (2005 Oregon Law) and implemented in Oregon Administrative Rules (OAR) Chapter 690, Divisions 505 and 521.

Much of the mainstem Deschutes River and its tributaries are protected by scenic waterway designations and instream water rights. There are also existing surface water rights on the Deschutes River and its tributaries for out of stream uses, such as irrigation and municipal. In the Deschutes Basin above Lake Billy Chinook there is a hydraulic connection between ground water and surface water flows. Because of the hydraulic connection between ground water and surface water, ground water withdrawals affect surface water flows. Since scenic waterways flows and instream water rights are not always satisfied, the Department may not approve new ground water permits unless the impacts are mitigated. The mitigation program provides a set of tools that applicants for new ground water permits can use to establish mitigation and, thereby, obtain new permits from the Department.

Every five years the Water Resources Commission (WRC) is required to evaluate the effectiveness of the mitigation program. The purpose of this evaluation is to ensure that scenic waterway and instream water right flows continue to be met on at least an equivalent or more frequent basis compared to ~~a~~ flows within a representative base period. Depending upon the outcome of this evaluation, the Commission may modify the program accordingly. This may include adjusting the allocation cap on new ground water uses that was established under the program. The Commission may also initiate proceedings to declare all or part of the basin a critical ground water area, close all or part of the basin to additional ground water use, or take other administrative action. This report provides the background and evaluation material to help inform the Commission as it reviews the program.

The Basin

The Deschutes River Basin covers about 10,700 square miles in central Oregon, making it the second largest watershed in the state and one of the major subbasins of the Columbia River system. The basin is bounded on the west by the Cascade Mountains, on the south by lava plateaus, to the east by the Ochoco Mountains and the plateau between the Deschutes and John Day Rivers, and to the north by the Columbia River. The basin measures 170 miles in the north-south direction and ranges up to 125 miles at its greatest width.

The major tributaries feeding the Deschutes River include the Little Deschutes River, Tumalo Creek, Fall River, Shitike Creek, the Crooked River, the Metolius River, Whychus Creek, Trout Creek, the White River, and the Warm Springs River (Figure 1).

Deschutes Ground Water Study

The U.S. Geological Survey (USGS) initiated a ground water study in 1993 to provide much needed information on the ground water resources of the upper Deschutes Basin. The study was conducted in cooperation with the Water Resources Department; the cities of Bend, Redmond and Sisters; Deschutes and Jefferson counties; the Confederated Tribes of the Warm Springs Reservation of Oregon; the U.S. Environmental Protection Agency and the Bureau of Reclamation. The area of the study is shown in Figure 1.

Conclusions from the study demonstrated that nearly all ground water originating in, or flowing through, the upper Deschutes Basin discharges into relatively short reaches of the Deschutes, Metolius and Crooked Rivers above and within Lake Billy Chinook.

The study concluded that:

- Virtually all ground water not consumptively used in the upper Deschutes Basin discharges to surface water near Pelton Dam;
- Virtually the entire flow of the Deschutes River at Madras is supported by ground water discharge during the summer and fall; and
- Ground water and surface water are directly linked, and removal of ground water will ultimately diminish streamflow.

Based on initial study conclusions available in 1998, Department determined ground water use in the Deschutes Ground Water Study Area (DGWSA) had the potential for substantial interference with surface water and the "measurably reduce" standard in the Scenic Waterway Act (ORS 390.835) was triggered.

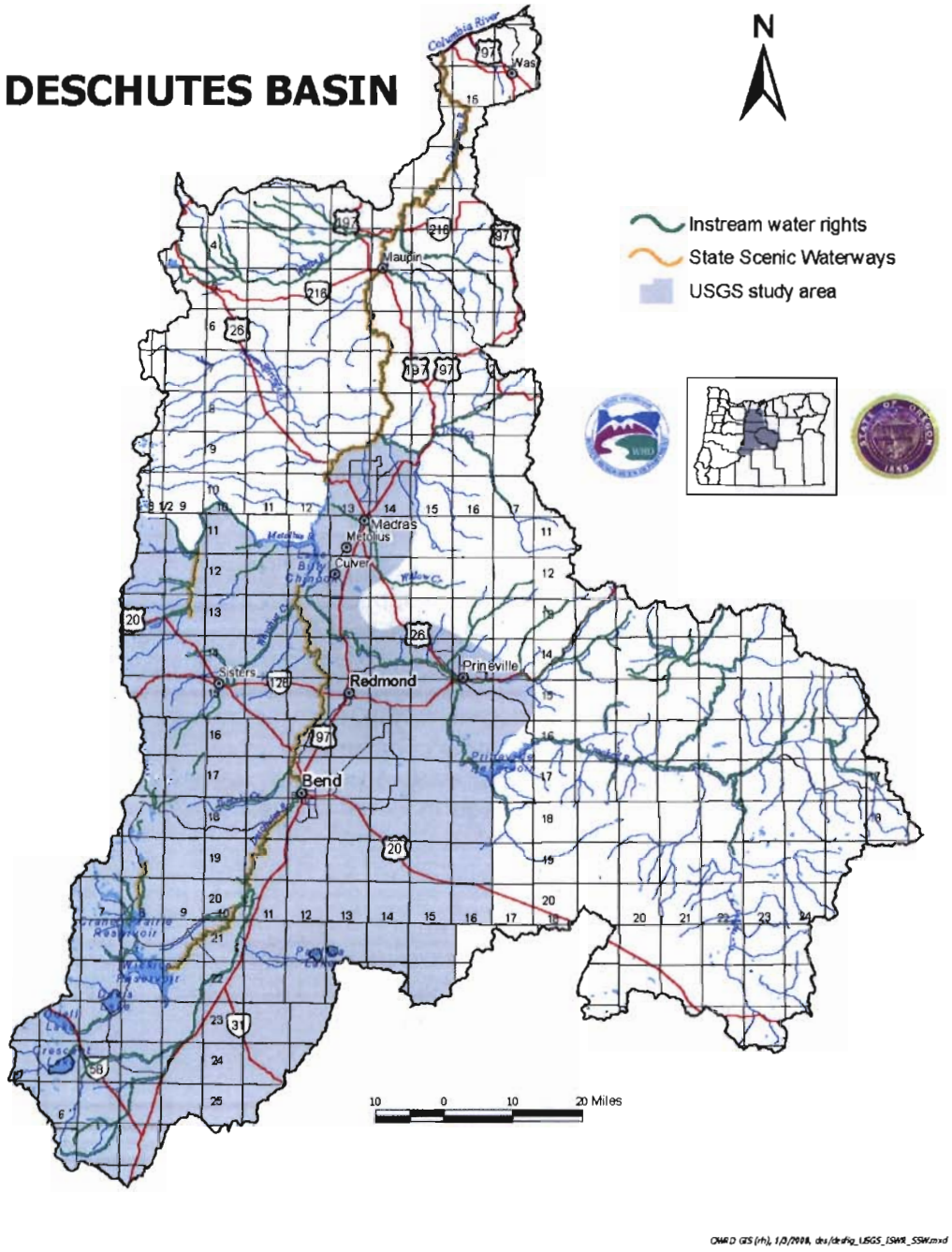

Figure 1. Deschutes River Basin and ground water study area.

Mitigation Program Development

The 1995 amendments to the Scenic Waterway Act require the examination of each ground water right to determine whether the ground water use will "measurably reduce" surface flows necessary to maintain the free flowing character of the scenic waterway. If such a reduction occurs, the proposed permit application cannot be approved. A use measurably reduces if it individually or cumulatively reduces streamflow by 1% of average daily flow or 1 cubic foot per second (cfs), whichever is less. The statute requires conditioning of permits issued after 1995 to allow for regulation in the future if the measurably reduce standard is triggered, and requires mitigation by new ground water applicants once the measurably reduce standard is triggered.

Based on the Deschutes Ground Water Study, in 1998 the Department determined that the measurable reduction standard was triggered. At that time, pending and new ground water applications were put on hold while the Department explored various options for the basin. Growth pressures in the Deschutes River Basin had increased demand for new water supplies, with a particular emphasis on ground water as additional surface water was not available.

Beginning in late 1999, the Department convened a diverse group of stakeholders to develop mitigation strategies to offset impacts of new ground water permit appropriations on the Lower Deschutes River. This working group became known as the Deschutes Basin Steering Committee. The Department worked with this group, which represented a broad spectrum of basin interests, for almost four years.

In 2001, mitigation concepts for the Deschutes Basin began to take shape. In June 2001, House Bill 2184 was enacted into law, authorizing a system of mitigation credits and banking arrangements. The Department issued two drafts of the Deschutes Basin Ground Water Mitigation Rules for public review, one draft in September 2001, and another in April 2002. On September 13, 2002, the WRC adopted the Deschutes Ground Water Mitigation Rules (Division 505) and the Deschutes Basin Mitigation Bank and Mitigation Credit Rules (Division 521).

Mitigation Program Goals

The goals of the Deschutes 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.

Elements of Mitigation Program

The mitigation program has five basic elements:

- Requires mitigation for all new ground water permits in the DGWSA;
- Identifies tools for providing mitigation through either a mitigation project or by obtaining mitigation credits;
- Establishes a system of mitigation credits, which may be used to offset the impacts of new ground water permits; ~~and~~
- Presents guidelines to establish mitigation banks; and
- Provides for adaptive management through annual evaluations and review of the mitigation program every five years.

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Deschutes River below mouth of Tumalo Creek

Establishing New Ground Water Uses

The process for establishing a new ground water use in the Deschutes Basin is depicted in Figure 2. For each ground water application submitted, the Department reviews the application and notifies the applicant of their "mitigation obligation." The "mitigation obligation" is expressed as a volume of water in acre-feet and is equivalent to the consumptive portion of the use proposed in the permit application. Mitigation must be provided in the amount (mitigation water) and in the location (zone of impact) specified by the Department. Zones of impact are based upon where the proposed use will primarily impact surface water flows. Each applicant has five years from the date the final order is issued to provide the required mitigation. Ground water permit applicants must provide mitigation before a new permit may be issued.

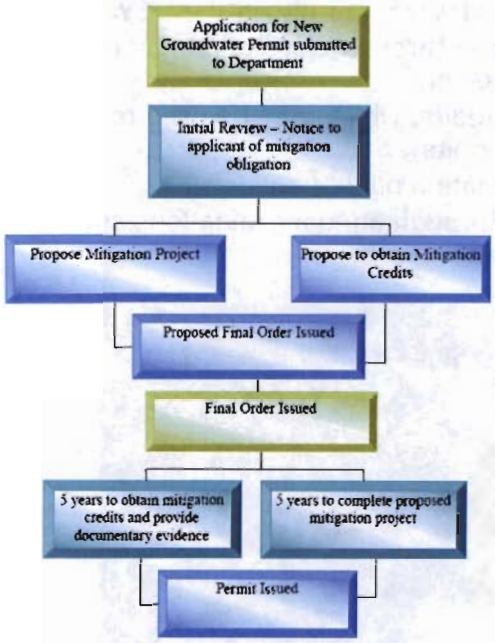

Figure 2. Process to establish new ground water uses under the Deschutes ground water mitigation program. [can you give a general idea of how long the process takes?]

Status of the 200 cfs Allocation Cap

The Deschutes Ground Water Mitigation Program is a performance based, adaptive approach to managing new ground water permits in the Deschutes Ground Water Study Area. As part of this adaptive approach, the program included a cap on how much new ground water use can be approved. Department may issue final orders approving ground water permit applications for a cumulative total of up to 200 cfs. This limitation is one of the elements of the program that is to be reviewed as part of the evaluation of the program. The 200 cfs cap represents the rate up to which water may be withdrawn from the ground water resource. It is important to note that this rate-based limitation is different from the consumptive use portion (in acre-feet) for which ground water permit applicants must provide mitigation.

Since adoption of the rules in September 2002, 66 new ground water permits with associated mitigation have been issued, totaling 52 cfs of water (Figure 3). An average of 13 new ground water permits have been issued annually since the program began. [About half of these permits have been satisfied with permanent mitigation, the remaining amount are supplied with temporary mitigation.]

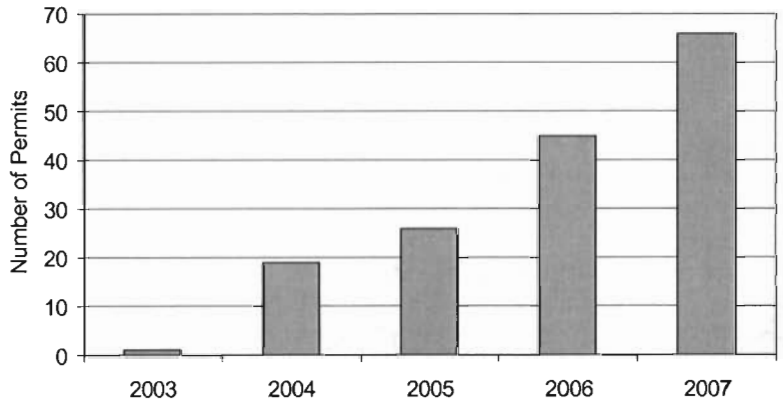

Figure 3. Cumulative total permits issued by year.

Permits for those applications that have been issued final orders[1] with proposed approvals can be issued if the required mitigation is received by the Department. Each applicant has five years from the date the final order is issued to provide the required mitigation. As shown in Figure 4, the cumulative amount of water approved in new permits and in permit

[1] A final order is the last stage of the permitting process prior to issuance of the permit.

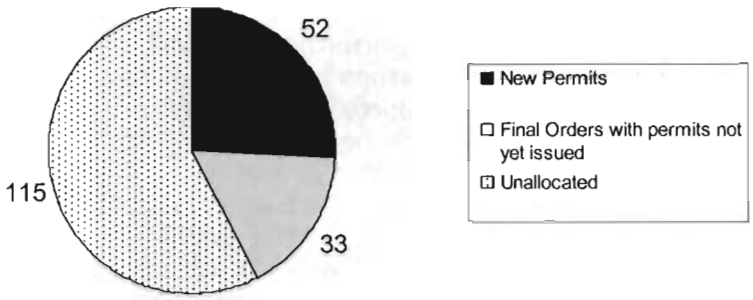

Figure 4. Amount in water in cfs of the 200 cfs allocation cap that has been allocated under new permits and final orders and the amount unallocated.

applications with final orders is 85 cfs. This is roughly 42% of the total amount allowed under the allocation cap.

There are currently 39 applications pending without final orders that total approximately~~over~~ 142 cfs. Nine of these pending applications fall outside of the 200 cfs cap and are not being processed by the Department. ~~Applications that are pending or submitted outside of the 200 cfs cap cannot be processed by the Department, even in case where the use is non-consumptive and has no mitigation obligation.~~ As applications move up in the application "cue", the amount requested is sometimes modified to reduce the requested rate or the application is withdrawn or denied. As this occurs, other applications can be processed within the 200 cfs cap. [In addition, 29 applications have been withdrawn and 5 have been denied by the Department for xx reasons].

Allocation Summary

- *66 new ground water permits issued*
- *42% of cap allocated under final orders and new ground water permits*
- *Pending applications exceed remaining balance of the 200 cfs cap*

Other items of interest regarding the cap:

- A number of applicants may be using their ground water application to get around county planning codes so they can divide their property. These applicants are not likely to continue with mitigation once they've successfully divided their property.
- Some permit holders have provided mitigation, but do not have a well or are not currently pumping (not necessarily a problem, but a statement)
- The cap may encourage speculation. Applicants without a current use may submit applications to take up the remaining amount available under the cap to create a perceived shortage and drive up market prices.
- Figure 3 points out the 5 year limit to provide mitigation after final order. However, extensions of time and administrative hold are not mentioned as means of extending the 5 year period. These extensions are beneficial for applicants with a legitimate use or need for the water but may also promote speculation with those applicants without an immediate use.
- XX of the current final orders without permits will hit the 5 year limit in 2009.
- Enforcement issues: some applicants that have not reached permit stage may already be pumping water. Enforcement is complaint driven. Perhaps periodic inspections of random applicants, or in areas of recently drilled wells would catch some of this activity.

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Establishing Mitigation Water and Credits

The Deschutes Basin Ground Water Mitigation Rules provide ground water permit applicants two options to satisfy the requirement to mitigate: 1) completion of their own mitigation project or 2) acquisition of mitigation credits.

The rules identify several types of projects that can be used to establish mitigation water:

- Instream Leases[2]
- Time-Limited Instream Transfers
- Permanent Instream transfers
- Allocations of Conserved Water
- Aquifer Recharge
- Releases of Stored Water

[2] Instream leases and time-limited instream transfers may only be used by mitigation banks to establish mitigation credits.

For each mitigation project submitted, the Department identifies the amount of water resulting from the project that can be used for mitigation purposes. The resulting protectable water, expressed in acre feet, is also referred to as "mitigation water" or "mitigation credits". One acre-foot of mitigation water is equal to one mitigation credit. For each project submitted, the Department also identifies the primary zone(s) of impact in which the mitigation water provides instream benefits and may be used for mitigation purposes.

Mitigation credits are simply a means for accounting for mitigation water made available by completion of a mitigation project by an individual or organization. Mitigation credits, unless generated by instream leases or time-limited instream transfers, may be held by anyone. Credits can be conveyed from a "mitigation credit holder" to a ground water permit applicant and used to satisfy the mitigation obligation of the proposed use.

To use mitigation credits, ground water permit applicants show that they have obtained the needed mitigation credits by submitting a documentary evidence form (developed by the Department). This form must be completed by the mitigation credit holder and the permit applicant. The documentary evidence form is submitted to the Department for review. If the mitigation credits conveyed to the ground water applicant matches the mitigation obligation, a new permit may be issued.

The Department maintains an accounting record of mitigation projects and mitigation credits with links to any associated ground water permits. As shown in Figure 5, in each year that the program has been in place, there has been sufficient mitigation to meet the needs of ground water permits issued under the program. This includes permanent mitigation, temporary mitigation and temporary mitigation that is maintained as "reserve" credits by the mitigation banks.

Mitigation banks that use instream leases to generate mitigation credits are required to hold in reserve one matching credit for each credit they assign to a ground water permit. Leases are allowed for periods of one to five years and can be terminated early so the active number of leases fluctuates from year to year. The reserve mitigation credit provides some backup for ground

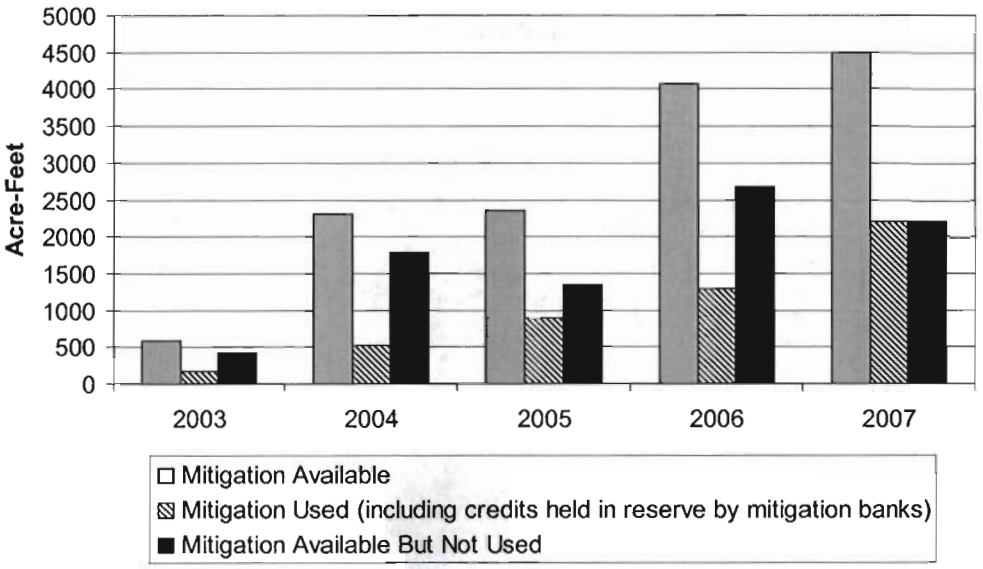


Figure 5. (Temporary) Mitigation available compared to (temp) mitigation used by new ground water permits and used as bank "reserves." The amount of mitigation established but not used is also shown.

Does figure 5 include temporary and permanent credits?

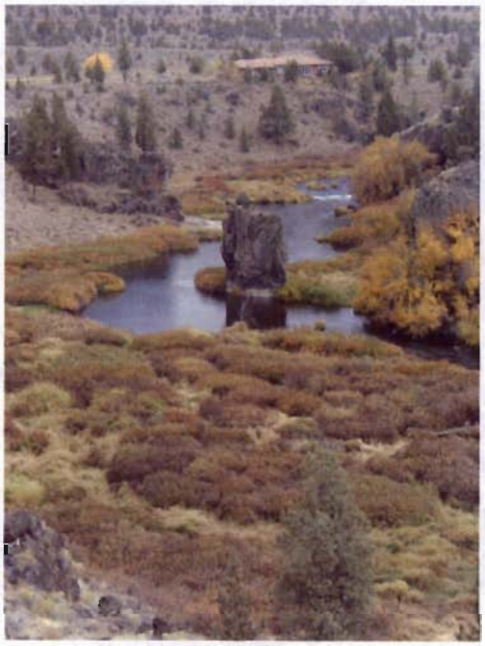
water permit holders and additional assurance for streamflow protection.

Mitigation Banks

The Deschutes Basin Mitigation Bank and Mitigation Credit Rules (Division 521) provides for the formation of mitigation banks for the Deschutes Basin. Anyone may apply to become a mitigation bank. Successful applicants must enter into an agreement, called a mitigation bank charter, with the Department. Each charter must be approved by the WRC. The charter describes the types of mitigation credits that may be held by the bank, how credits transactions should be conducted and reported to the Department, and requires the mitigation bank to submit an annual report to the Department.

The types of mitigation credits that can be held by a bank include:

- Permanent Credits – based upon instream transfers and allocation of conserved water projects.
- Performance Dependant Credits – based upon storage release and aquifer recharge projects.
- Temporary Credits – based upon instream leases and time-limited instream transfers.



Deschutes River at Lower Bridge

There are two mitigation banks in the Deschutes Ground Water Study Area.

Deschutes Water Exchange Mitigation Bank

The first mitigation bank to be established was the Deschutes Water Exchange (DWE) (affiliated with the Deschutes River Conservancy). The DWE Mitigation Bank was authorized under a charter agreement approved by the WRC in February 2003. The primary source of mitigation in the DGWSA has been mitigation credits held by the DWE Mitigation Bank. They brokered the first mitigation credit transaction under the mitigation program in 2003. The DWE has worked extensively with ground water applicants and permit holders to provide assistance, education and outreach on the Mitigation Program. They have partnered with irrigation districts and landowners in the basin to lease water rights to instream use and use those instream leases to generate mitigation credits. DWE is the sole mitigation bank in the basin that may broker in this type of temporary credits.

Demand and supply under the DWE has increased progressively over the last 5 years in both quantity of mitigation supplied and in number of mitigation clients (1 client in 2003, 33 clients in 2007).

In 2007, ~~the DWE Mitigation Bank also began to hold permanent mitigation credits based upon an instream transfer. The~~ 40 permanent mitigation credits were assigned to five ground water permit holders that had been using temporary mitigation credits. These permit holders now have a permanent source of mitigation. The permanent credits were acquired and marketed by the Deschutes Water Alliance, a cooperative group working to equitably redistribute surface water coming off of developing lands. The DWA includes the DRC, DBBC, the cities and counties among its stakeholders.

Deschutes Irrigation Mitigation Bank

The second mitigation bank, Deschutes Irrigation (DI) LLC is operated by John Short and deals only with permanent credits. The DI Mitigation Bank charter was approved by the WRC in May 2006. To date, DI has not completed any mitigation credit transactions as a bank. Deschutes Irrigation

LLC, acting solely as a company, has established mitigation credits based upon instream transfers and has completed many mitigation credit transactions with ground water permit applicants and permit holders to provide those ground water users with a permanent source of mitigation. To date, none of these transactions have been brought through the DI Mitigation Bank.

Effectiveness of Mitigation Projects

Under the Deschutes Ground Water Mitigation Rules, the WRC is required to evaluate the effectiveness of mitigation projects that involve instream leases, time-limited instream transfers, and allocations of conserved water. [Rules don't require evaluation of effectiveness of the other types of projects?]

As shown in Figure 6, mitigation projects have been dominated by instream leases and instream transfers, with instream leases representing on average 85.6% of the total volume of mitigation water (in acre-feet) established under the program each year.

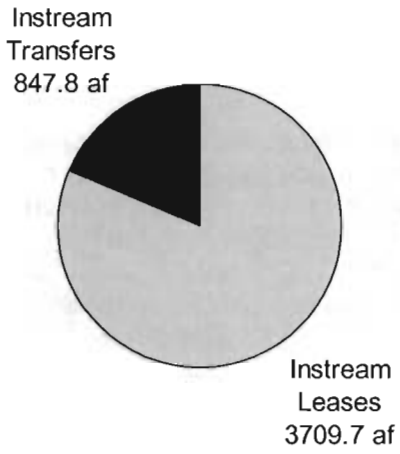


Figure 6. Distribution of mitigation water in acre feet (af) between instream leases and instream transfers in 2007.

Instream Leases

An instream lease is a temporary conversion (for up to five-years) of all or a portion of an existing water use to an instream water right. Since the mitigation program began, each year the amount of temporary mitigation credits generated by instream leases has far exceeded the amount needed to satisfy the mitigation obligations of those permits using these credits as their mitigation source and to meet "reserve" credit requirements (Figure 7). Temporary cCredits based on instream leases have also been sufficient in each zone of impact where these credits were used. Presently, only the DWE can use instream leases to establish temporary mitigation credits.

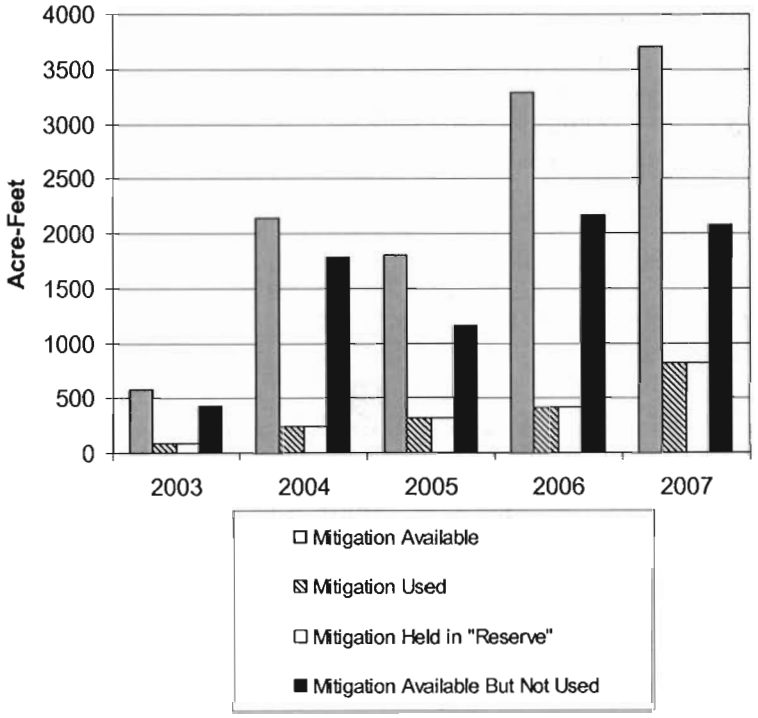


Figure 7. Mitigation created through instream leases.

Instream leasing shown in Figure 7 is not cumulative. Leases are tracked and reported on an annual basis because the leases may be submitted for 1 to 5 years. In certain zones of impact, such as the Crooked and Whychus zones, most credits available are supplied by one year leases. Overall, the annual volume of mitigation water provided through instream leases has increased over time (Figure 7). However, there was a reduction in 2005 in the quantity compared to the previous calendar year. This was likely due to the outcome of a legal challenge of the mitigation program that resulted in a

brief suspension of the program at that time. Several instream leases that had initially been submitted as mitigation projects were modified to exclude mitigation and proceeded through the instream lease process solely as streamflow restoration projects. Such m~~These m~~odified instream lease applications d~~oid~~ not result in any mitigation water (credits), however they carry an instream reach to the mouth of the Deschutes River.

In the five years of the program, only one issue has been encountered involving an instream lease used to generate mitigation credits. In 2004, several water rights were leased instream under a single lease on Paulina Creek, tributary to the Little Deschutes River. This instream lease resulted in mitigation credits within the Little Deschutes Zone of Impact. However, while this lease was in effect, difficulties were encountered in keeping the leased instream flows in the stream channel itself. Following an effort to correct, this problem this lease was terminated early by the Department, prior to the 2005 water use period. No credits resulting from this project were used during the 2004 calendar year, the only year that this mitigation project was active.

Time-limited transfers can also create temporary credits. To date, no time-limited transfers have been submitted for mitigation in the Basin. Can time-limited transfers be submitted for mitigation by anyone or only an approved Bank?

Permanent Instream Transfers

Any ground water permit applicant or other individual can use permanent instream transfers to generate mitigation credits. As the mitigation program has grown, the number of mitigation projects submitted involving instream transfers has increased steadily each year (Figure 8). Is this chart cumulative?

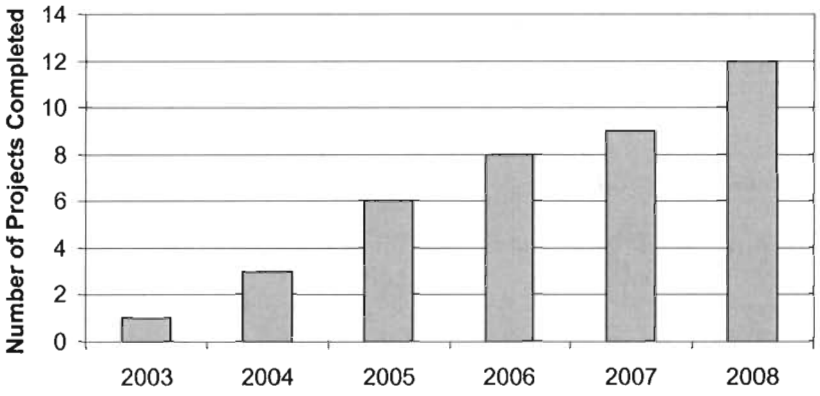


Figure 8. Mitigation projects involving permanent instream transfers.

Mitigation credits generated from projects based upon instream transfers are permanent in nature. Water is permanently protected instream as a result of the completion of an instream transfer application, resulting in a new instream water right. Use of these types of credits by a ground water permit holder does not require any ongoing maintenance of credits by the ground water user. Use of temporary mitigation credits (based on instream leases) requires annual ongoing maintenance of the credits.

In each year that the mitigation program has been in place, not all of the mitigation credits established by instream transfers have been used to provide mitigation to new ground water permits (Figure 9). Some of these mitigation credits have remained available. As more ground water permit applications are processed through to permit, more of these mitigation credits will be used.

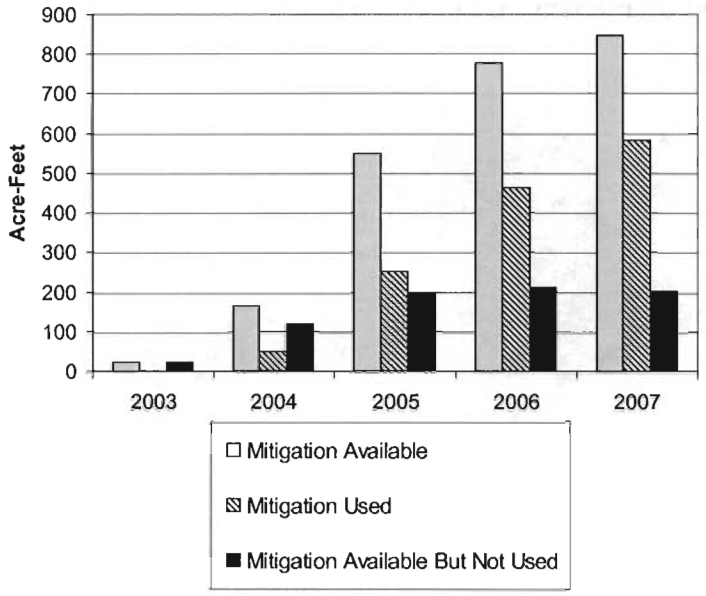


Figure 9. Mitigation created through permanent instream transfers.

Aquifer Recharge

One mitigation project has been proposed to the Department involving an aquifer recharge project. This project application has been protested, and the applicants are working with the Department to resolve the issues raised by the protest.

Other Mitigation Project Types

To date, no mitigation projects have been proposed to the Department involving time-limited instream transfers, allocations of conserved water, or release of stored water. TA time-limited instream transfers differ from instream leases in that they can be issued for any length of time specified in the application. An allocation of conserved water is the reduction in the amount of water diverted to satisfy an existing beneficial use by improving the method of transporting or applying the water, with all or a portion of the conserved water going to instream use. How would an allocation of stored water be used?

Zone of Impact Evaluation

As part of the five year evaluation, the WRC is required to evaluate the zones of impact identified by the Department. This evaluation may include analysis of where the zones are located, whether adequate zones are identified, and whether the mitigation program is doing an effective job of distributing mitigation water to the affected stream reaches within each zone of impact.

Ground water users with permits issued under the mitigation program are required to provide mitigation in a zone of impact identified by the Department. The purpose of these zones of impact is to target mitigation in and above stream reaches, on a subbasin level, where impacts on streamflows by ground water pumping are expected to occur.

Mitigation projects establish mitigation water within at least one zone of impact and may establish mitigation in more than one zone. ~~This would generally be a mitigation project that resulted~~Such a project would result in water that would benefit flows in each zone of impact identified. If credits are used in one zone they are also subtracted from use in the other zones in which they were available.

There is a general zone of impact to address regional impacts to surface water and local zones of impact for localized impacts. The general zone of impact is defined as anywhere in the Deschutes Basin above the Madras gage, located on the Lower Deschutes River, below Lake Billy Chinook. Ground water users with a general impact on surface water (i.e. impacting the regional confluence area of the Deschutes, Crooked and Metolius Rivers) may provide mitigation anywhere within the general zone of impact provided that the mitigation water (protected instream) flows into the impacted reach.

Mitigation within a local zone of impact is required for ground water uses that impact surface water on a localized level (e.g. impacting the surface waters of Whychus Creek). To define boundaries for the local zones of impact, the Department used subbasin boundaries, the locations within the stream or river reach that instream water rights or scenic waterway flows were not being met, and identification of where stream reaches were influenced by ground water discharge.

The zones of impact are shown in Figure 10 and described as:

- General – In the Deschutes Basin above Lake Billy Chinook;
- Middle Deschutes River – In the Deschutes Basin above River Mile 125 on the Deschutes River;
- Crooked River – In the Crooked River subbasin above River Mile 13.8 on the Crooked River;
- Whychus Creek – In the Whychus Creek subbasin above River Mile 16 on Whychus Creek;
- Upper Deschutes River – In the Deschutes River basin above River Mile 185 on the Deschutes River;
- Little Deschutes River – In the Little Deschutes River subbasin above the mouth of the Little Deschutes River;
- Metolius River – In the Metolius River subbasin above River Mile 28 (the confluence with Jefferson Creek) on the Metolius River.

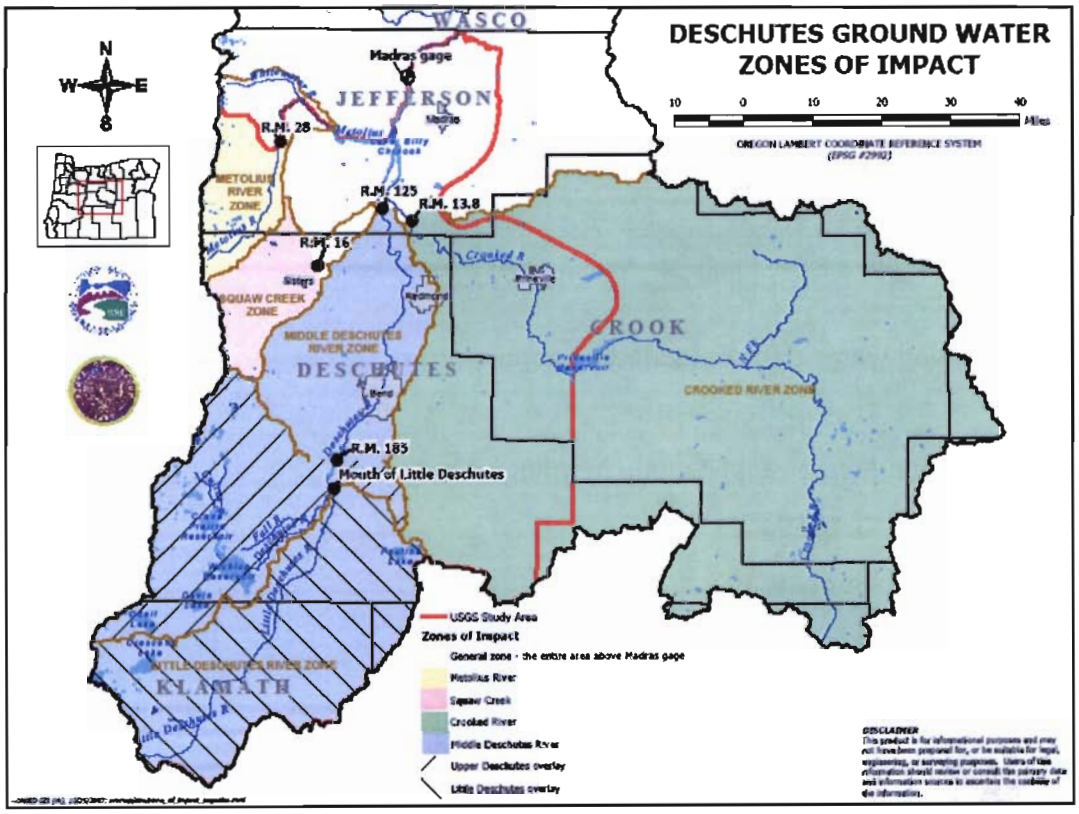


Figure 10. Map showing the location of each zone of impact identified by the Department.

As demonstrated in Figure 11, the majority of new ground water uses were found to have an impact on the General Zone of Impact. The quantity of permits by zone is shown in Table 1.

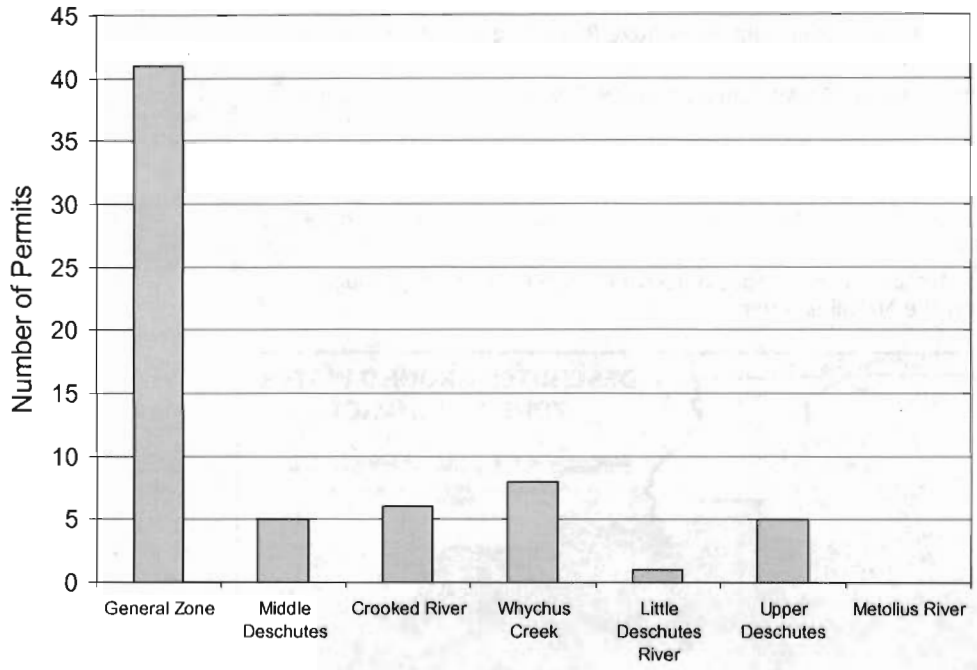


Figure 11. Number of ground water permits issued by zone of impact from 2003 to 2007.

Table 1. Number of ground water applications permits by zone.

Zone of Impact	Number of Permits	Rate (cfs) Approved by Permit
General	41	46.1
Middle Deschutes	5	0.67
Crooked River	6	1.93
Whychus Creek	8	2.40
Little Deschutes	1	0.22
Upper Deschutes	5	0.29
Metolius River	--	--
Totals	**66**	**51.6**

During the five years of the program, more mitigation than needed for each new ground water use has been provided in the appropriate zone of impact as shown in the Figure 12.

General zone: Most mitigation projects that established mitigation in the General Zone protected instream flows in the Deschutes River and down to Lake Billy Chinook. However, a few of the mitigation projects that established mitigation credits in the General Zone did not protect water instream into that zone but still provided instream benefits. For example, projects on Whychus Creek protected flows to the mouth of Whychus Creek only. While instream flows are not protected into the mainstem Deschutes, the flows in the Deschutes River at the confluence with Whychus Creek are at such a high level that there is still an instream benefit even considering downstream users. Mitigation credit availability (both temporary and permanent) is solid in the General Zone. More water is available in this zone for several reasons. First, the General Zone is a secondary zone on most(all) instream leases and transfer mitigation projects that are submitted in a more specific or localized zone. Refer to Figure 10 and zone descriptions. Second, the general zone encompasses an area supplied by large irrigation districts, containing expanding urban areas, and surface water rights that are more easily transferred for mitigation purposes (non-federal water). This water is more readily available as agriculture lands taken in by urban areas are dried up to accommodate development. Permits in the General Zone have been supplied by both permanent and temporary credits.

The following zones (Middle, Whychus, Crooked, Upper, Little): mitigation has kept up with demand in the remaining zones, but growth in supply for these zones is uncertain. Less surface water is available for mitigation projects, use of federal water for mitigation poses some problems and these areas may be more agriculture centric and less apt to allow transfer for mitigation puposes.

Middle Deschutes: Only five new ground water permits have been approved in this zone. Mitigation projects generated in this zone established mitigation water (credits) for this zone and the General Zone of Impact. The majority of the mitigation water was used to provide mitigation for uses in the General Zone of Impact. Was mitigation Temporary/Permanent or both?

Whychus Creek: The amount of mitigation water generated in the Whychus Zone has generally increased each year, except in 2007. Mitigation projects in this zone of impact also generated mitigation water in the General Zone of Impact. Mitigation water was used by ground water permit holders in both zones. Was mitigation Temporary/Permanent or both?

Crooked River: The amount of mitigation water generated in the Crooked River Zone of Impact has generally increased each year. In 2005, the amount of mitigation water sharply increased. Up until 2007, mitigation projects in this zone were generally small and with individual landowners. In 2007, North Unit Irrigation District along with the DWE Mitigation Bank requested that their annual instream lease be used~~,~~ (for the first time)~~,~~ to generate mitigation credits. Mitigation projects in this zone also generated mitigation water in the General Zone of Impact. Permanent m~~M~~itigation water was ~~used by~~allocated to ground water permit holders in both zones. The Crooked River Zone has been supplied by permanent and temporary credits.

Little Deschutes River: None of the mitigation water established in the Little Deschutes has been used to provide mitigation for new uses within this zone. Presently there is only one new ground water permit within this zone. This permit is for a non-consumptive use (commercial heat exchange) and has a mitigation obligation of zero acre feet. One mitigation project generated mitigation credits in this zone in 2004. This project was terminated early by the Department due to regulatory issues. In 2006, another two instream lease applications established mitigation credits in this zone. Credits from these projects were available for use as mitigation also within the Upper Deschutes, Middle Deschutes, and General Zones of Impact. Water from these projects was protected instream in the Little Deschutes River and into the mainstem Deschutes River. Credits from these projects were used to provide mitigation to ground water permits in the Upper Deschutes Zone of Impact and for use as reserve credits in the General Zone of Impact. Permanent and Temporary credits used?

Upper Deschutes: Mitigation credits for the Upper Deschutes Zone of Impact first became available in 2006. The mitigation projects that were used to establish mitigation in this zone did not originate in the Upper Deschutes area. The two projects that established mitigation in this zone originated in the Little Deschutes Zone of Impact. However, mitigation water (protected instream flows) provided instream benefits to flows in the impacted stream reach of the Upper Deschutes Zone of Impact. Permanent and Temporary credits used?

Metolius River: To date, no mitigation projects have been proposed that would establish mitigation water within the Metolius Zone of Impact. No ground water applications to date have received notices of mitigation obligation within this zone.

Metolius River

Zone of Impact Summary

- *Majority of ground water mitigation provided in general zone of impact*
- *Mitigation provided in each zone met requirements for new ground water uses for ~~that~~ each zone*
- *More than 39 cfs of permanent and temporary instream flow as a result of mitigation*

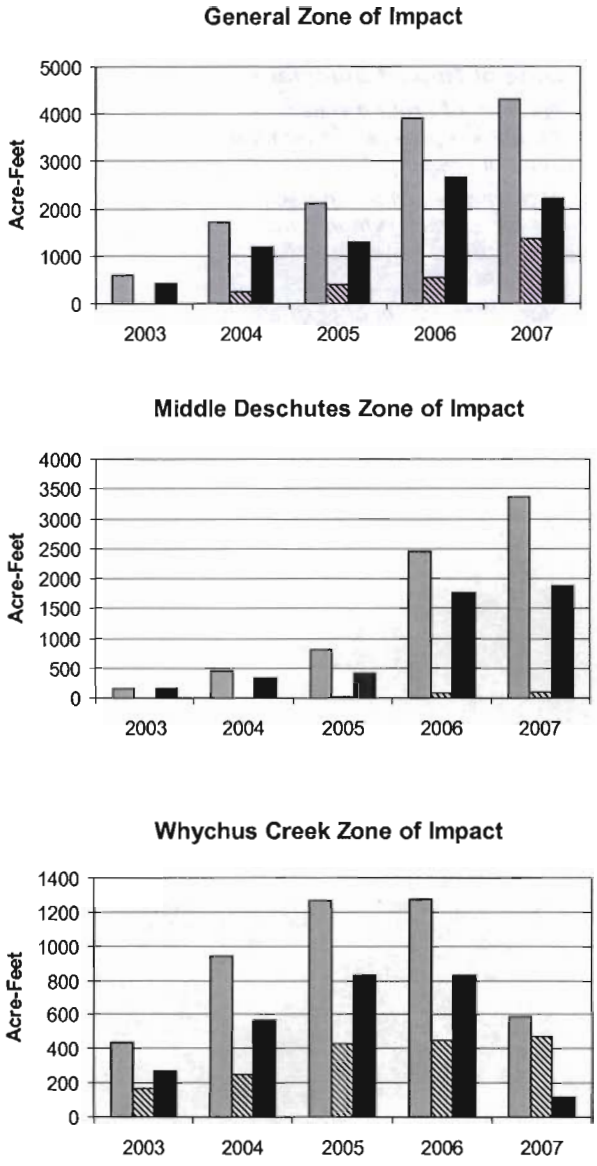


Figure 12. Mitigation supplied and used for each zone by year (Temporary and Permanent?). ADD Legend from next page to this page too... "General" (2003) & "Middle" (2004 & 2005)graphs are unclear: How Total Supply does not equal Used plus Unused credits. ?

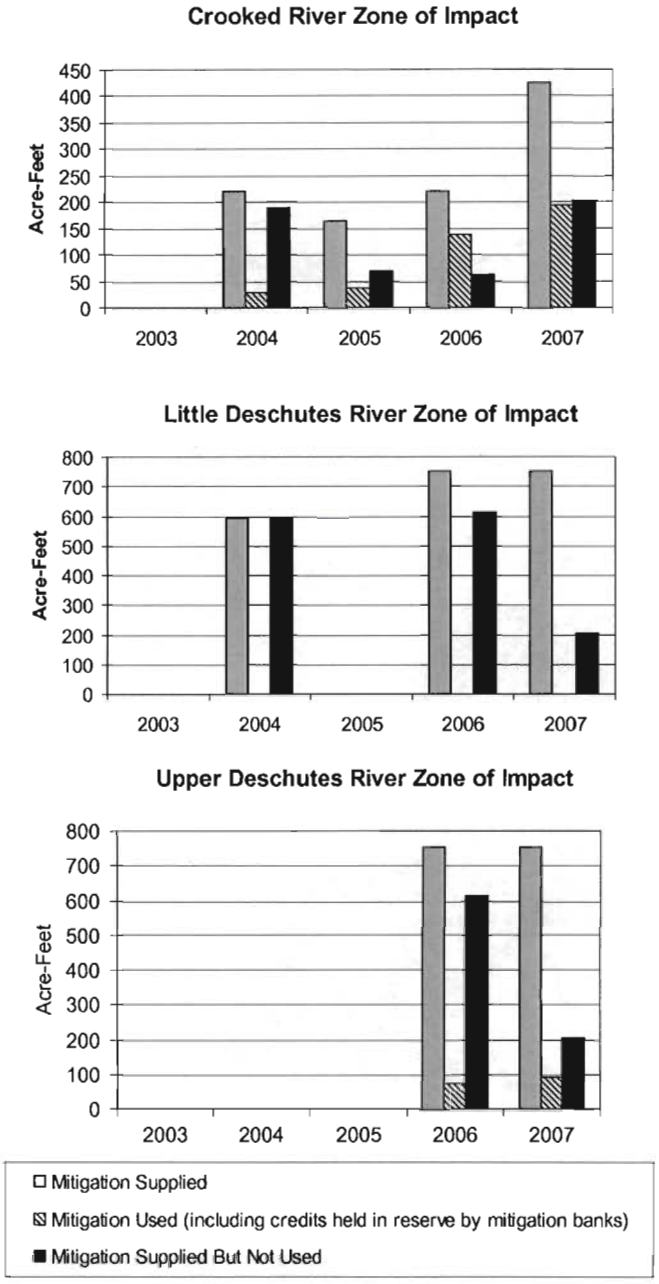


Figure 12 continued. Mitigation supplied and used for each zone by year (Temporary and Permanent?).

Applications and Type of Use:

Perhaps a general pie chart showing the distribution of type of use. Nearly ¾ of the cfs in applications submitted have been for Muni, Quasi Muni and Group Domestic uses, with the remainder submitted for irrigation, commercial and mining uses.

Scenic Waterway & Instream Water Right Flow Evaluation

As part of the five year evaluation, the WRC is required to evaluate mitigation activity in the Deschutes Basin to determine whether scenic waterway flows and instream water right flows continue to be met on at least an equivalent or more frequent basis as compared to long-term, representative base period flows established by the Department.

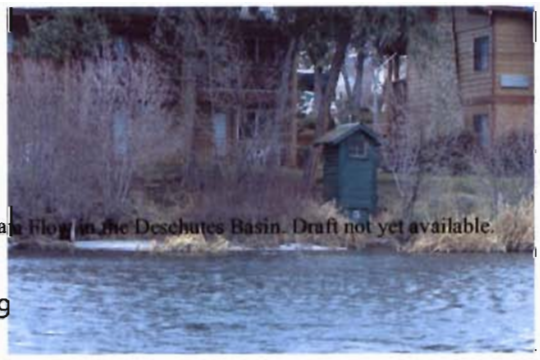
Mention that there are streamflow restoration projects in this Basin that are not related to mitigation projects. Are these tracked separately or in conjunction with the flows generated by mitigation?

Instream Flow Model

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.[3] Table 2 shows the model results through mid-2007 for all gaging station sites used in the model. With only one exception, instream requirements are met or improved compared to base line conditions. Based on modeled results, streamflow overall has improved by as much as 27 cfs in some areas due to mitigation.

Instream flows for the Deschutes River below Bend showed a slight decrease in the percent of time the instream flows are met. However,



Gaging station on Deschutes River below Bend

[3] R.M. Cooper, Assessing the Impact of Mitigation on Stream Flow in the Deschutes Basin. Draft not yet available. Peer review scheduled in 2008.

streamflows overall were increased by 15 cfs.

Table 2. Modeled results showing baseline and changes in the percent of time instream requirements are met.

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 at Lake Billy Chinook	99.3	+0.6	15.2
Deschutes River Downstream of Bend	28.6	-0.36	15.2
Deschutes River above Arnold Canal	56.8	+1.98	27.3
Little Deschutes River at mouth	45.3	+3.55	8.74
Deschutes River below Wickiup and Fall River	63.5	0	0
Metolius River at Lake Billy Chinook	99.7	0	0

Add more detail in an appendix (showing monthly rather than just annual flow for these reaches).

The percent of time instream requirements are met is listed, but what percent of the instream requirement (rate) is met? This is an important piece of information. Another item of detail for an appendix?

In the Whychus zone of impact, the Department installed an additional gage at Camp Polk Road in May 2007 to monitor groundwater inputs through springs. This gage is specifically designed to monitor localized impacts to the ground water system near Sisters and surrounding areas ~~by local well pumping~~. Such impacts could be the result of local well pumping, return flows from surface irrigation or other factors. In addition, the Department added a gage on the Metolius River just downstream of Camp Sherman to monitor similar effects. Lastly, the USGS and the US Department of Interior's Bureau of Land Management installed a gage on the Crooked River near Osborne Canyon some years ago to additionally monitor ground water fluxes in that reach of river.

Real-time Streamflow Records

The Department primarily uses a database and streamflow model to monitor the effectiveness of the mitigation program. However, over time, yearly real-time streamflow records can also be tracked at appropriate gaging stations or other measurement locations. In the short term, streamflow data will not provide information on how the system is responding, given changes in climatic conditions and other variables. 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 though trends may become apparent over a longer period of time.

Because of the natural variability of the system~~, streamflow records, will not be able~~it is difficult to detect changes due to mitigation activity. One exception is the Deschutes River below Bend which a combination of mitigation, conservation, flow restoration, and changes in water management are detectable. This is shown in Figure 13.

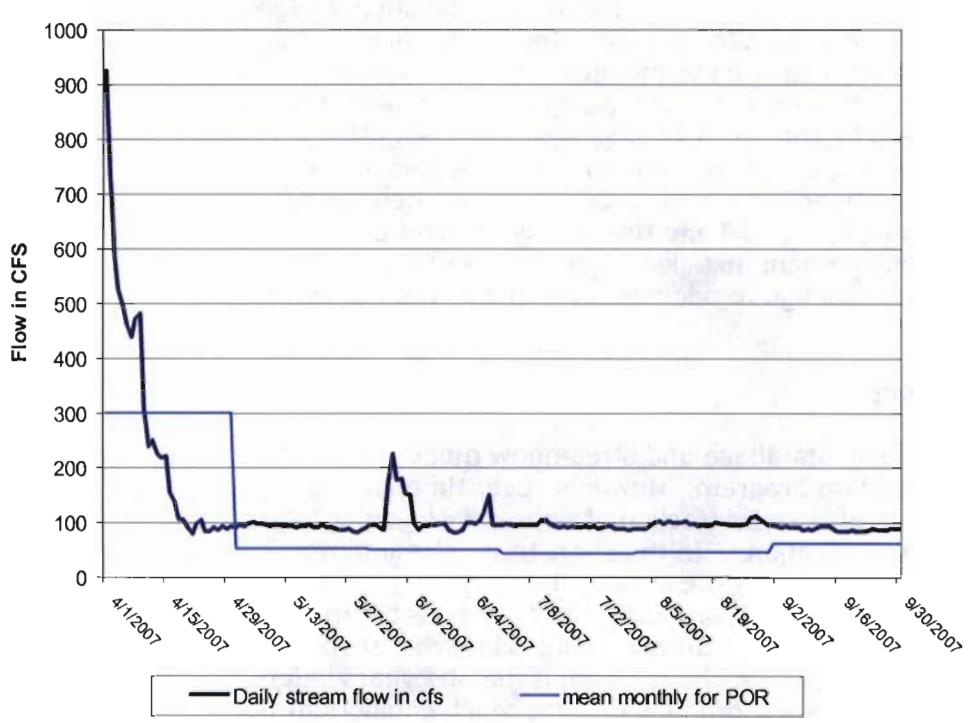


Figure 13. Flow in cubic feet per second on the Deschutes River below Bend compared to period of record (POR).

~~New Wells vs. Exhisting Wells?~~
~~Landowners who have wells with senior priorities (pre-mitigation) have expressed concerns over the potential for new nearby wells to affect their ability to pull water. A very small number have complained that their wells have dried up or they have been forced to drill deeper to access water. This may relate to climatic fluctuations, but perhaps should be briefly addressed in the evaluation.~~

Summary

The Deschutes Ground Water Mitigation Program has been in place since 2002. To date, 66 permits have been issued in the ground water study area for irrigation, industrial, quasi-municipal and municipal uses. Permits and final orders awaiting mitigation total over 85 cfs of ground water. Pending ground water applications exceed the quantity available under the 200 cfs cap.

Mitigation has been available to meet the needs of new permits in all zones of impact identified the basin. The majority of that mitigation has been provided through temporary credits through the Deschutes Water Exchange Mitigation Bank. With only one exception, instream requirements are met or improved compared to base line conditions. Based on modeled results, streamflow overall increased by as much as 27 cfs in some areas due to mitigation.