State of Oregon Department of Environmental Quality

Waldo and Crater Lakes Outstanding Resource Waters Advisory Committee #1 Materials

Contact: Debra Sturdevant

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Advisory Committee Agenda

Waldo and Crater Lakes Outstanding Resource Waters Advisory Committee - Meeting #1 Agenda

This meeting is online only

May 27, 2020; 1-4:30pm
Web meeting, Microsoft Teams
Online Meeting Only

State of Oregon
Department of Environmental Quality

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700 NE Multnomah St.,
Suite 600
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DEQ is a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.

To join the online meeting, click this link: Join Microsoft Teams Meeting

To join only the teleconference: +1 971-319-4991 United States, Portland (Toll) Conference ID: 795 334 29#

Instructions on how to join the meeting are here:
https://www.oregon.gov/deq/Rulemaking%20Docs/participantlinklog.pdf

Time	Topic
1 p.m.	Introductions, agenda review
1:10 p.m.	Committee process and ground rules
1:20 p.m.	Rulemaking process and schedule
1:30 p.m.	Background: Outstanding Resource Waters petition
2:00 p.m.	Waldo Lake: qualifications, draft rule
2:45 p.m.	Crater Lake: qualifications, draft rule
3:30 p.m.	Draft fiscal impact information and findings
4:00 p.m.	Wrap up and next steps
4:15 p.m.	Adjourn

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Materials available ahead of meeting:

1. Meeting agenda
2. Advisory committee charter with rulemaking timeline
3. Waldo Lake ORW petition and EQC Staff Report on website
4. Crater Lake EQC Staff Report on website
5. First Draft Waldo Lake support document
6. First Draft Crater Lake support document

These materials are available on the rulemaking web site:
https://www.oregon.gov/deq/Regulations/rulemaking/Pages/default.aspx

Meeting Objectives:

1. Members understand what Outstanding Resource Waters, or ORWs are; the regulations regarding ORWs; and why we are doing this rulemaking at this time. This includes the petition and the Environmental Quality Commission (EQC) direction.
2. Members understand the rulemaking process, project plan and rulemaking timeline.
3. The Oregon Department of Environmental Quality presents the water quality, ecological and recreational values of Waldo and Crater lakes; members have the opportunity to provide information and comment.
4. Members understand the Willamette National Forest and Crater Lake National Park management goals for the lakes.
5. Draft rule language is presented and discussed. Members understand when and how to provide input after the meeting.
6. A draft fiscal impact statement is presented and discussed. Members understand when and how to provide input after the meeting.
7. Members know date and objectives for the second meeting.

DRAFT May 2020

Crater Lake Outstanding Resource Water Designation

Support Document

Draft Date: May 13, 2020

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State of Oregon
Department of
Environmental
Quality

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Table of contents

Executive summary

Crater Lake is located in Klamath County, in south central Oregon. Crater Lake is the centerpiece of Oregon's only national park. Located in a volcanic caldera, Crater Lake is the deepest lake in the United States and is exceptionally clear and pristine. In addition to its outstanding water quality, the lake is important for long-term research and recreation, and has great cultural significance to local Native American tribes.

The Northwest Environmental Defense Center (NEDC) submitted a petition to the Oregon Environmental Quality Commission (the commission) and Oregon Department of Environmental Quality Director Richard Whitman, dated April 22, 2019.The petition asked the commission to adopt rules designating Waldo Lake, another extremely clear lake in Oregon, an Outstanding Resource Water (ORW). In July 2019, the commission granted the petition and directed DEQ to initiate the requested rulemaking. At the same time, the commission directed DEQ to also initiate rulemaking to designate Crater Lake an Outstanding Resource Water.

Outstanding Resource Waters are high quality waters that have extraordinary or unique character or ecological value, or are critical habitat areas, such that they constitute an outstanding state or national resource. Oregon must protect the special water quality and ecological values of these waters under its antidegradation policy. Therefore, the proposed rules include a policy to protect Crater Lake's current high water quality and exceptional ecological values. The proposed rule amendments would prohibit new or expanded permitted wastewater discharges and limit activities that would degrade the current water quality. Exceptions are allowed to respond to emergencies and for restoration or enhancement activities.

1. Introduction and Background

This document provides supporting information for the Oregon Department of Environmental Quality's proposal to designate Crater Lake an Outstanding Resource Water and adopt a rule to protect Crater Lake's existing high water quality, ecological and recreational values.

Crater Lake, the centerpiece of Oregon's only national park, is unique. Located in a volcanic caldera, Crater Lake is the deepest lake in the United States and is exceptionally clear and pristine. Based on the outstanding quality of its water, the importance of the lake for long-term research and recreation, and the lake's cultural significance, the Oregon Environmental Quality Commission directed DEQ to initiate a rulemaking to designate Crater Lake an ORW.

DEQ is working with the Crater Lake National Park staff and other stakeholders to develop proposed rules and supporting information. In adopting the rules, DEQ must consider the statutory mandates and General Management Plan for Crater Lake National Park, in addition to federal and state water quality regulations.

DEQ is making this support document, together with the proposed rule language and the fiscal impact statement, available for public comment. Following public comment, DEQ will make a recommendation to the commission about whether to designate Crater Lake an ORW and about the proposed water quality protection rule to accompany the designation.

1.1 Brief History

In April 2019, NEDC and several co-petitioners submitted a petition to the commission requesting that the commission designate Waldo Lake, another extremely clear Oregon lake, an ORW. There was a large amount of public support for the Waldo Lake ORW designation. In July 2019, the commission granted the petition and directed DEQ to initiate a rulemaking process to consider the proposed rules. At the same time, the commission directed DEQ to include the designation of Crater Lake as an ORW in the rulemaking process. The citizen petition and the DEQ Staff Reports for Waldo Lake and Crater Lake may be found on the following website: https://www.oregon.gov/deq/wq/Pages/WQ-Standards-ORWO.aspx.

Oregon's first, and only ORW to date, is the North Fork Smith River in southwest Oregon. The commission designated this ORW in 2017 in response to a citizen rulemaking petition. The rule language proposed for Crater Lake will likely be similar to the language adopted for the North Fork Smith River and proposed for Waldo Lake.

1.2 Outstanding Resource Waters

Oregon's water quality standards define three classifications of state waters: water quality limited, high quality, and outstanding resource waters. As stated in Oregon Administrative Rules 340-041-0004(8) and the associated definition in OAR 340-041-0002(45),

Outstanding Resource Waters (ORW) are high quality waters that have extraordinary or unique character or ecological value, or are critical habitat areas, such that they constitute an outstanding state or national resource. Oregon rules identify waters in national parks as a priority for ORW consideration.

Federal regulations also identify waters in national parks as a priority for state protection from water quality degradation:

> 40 Code of Federal Regulations §131.12(a)(3): Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

The ORW designation may only be granted by the EQC through rulemaking. Along with the designation, the rules must also include a policy to protect and maintain the exceptional qualities and values of the waterbody.

2. Crater Lake

2.1 Description and Location

Crater Lake, the centerpiece of Oregon's only national park, is uniquely located in a volcanic caldera formed by the eruption of Mount Mazama roughly 7,700 years ago. Crater Lake is the deepest lake in the United States at 1,949 feet and is exceptionally clear and pristine. The following sections provide additional information on the lake's water quality and ecology.

Crater Lake is located in Klamath County, in south central Oregon, as shown in the following figures.

Figure 1. Location of Crater Lake in Oregon.

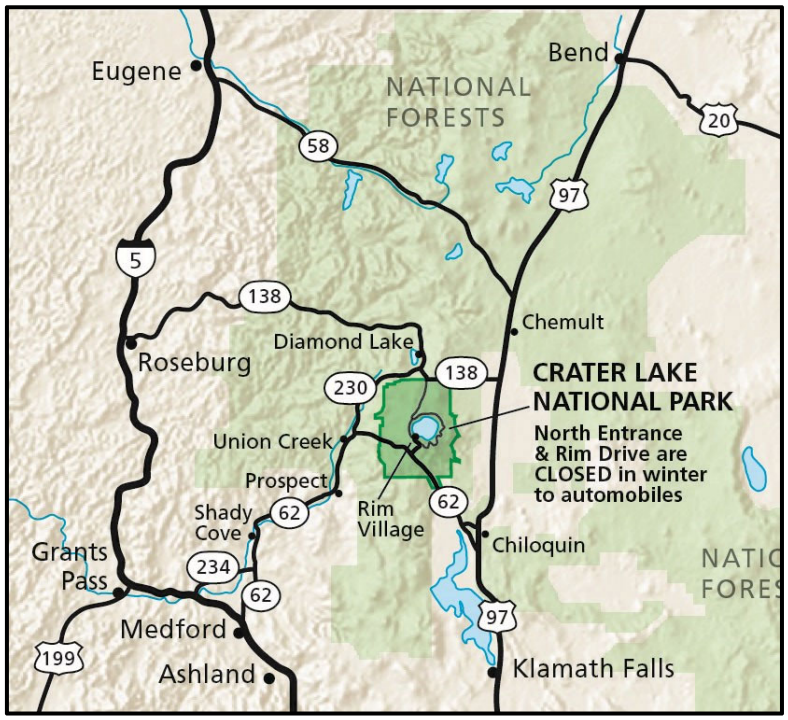


Figure 2. Location of Crater Lake in Oregon. [Source: National Park Service brochure]

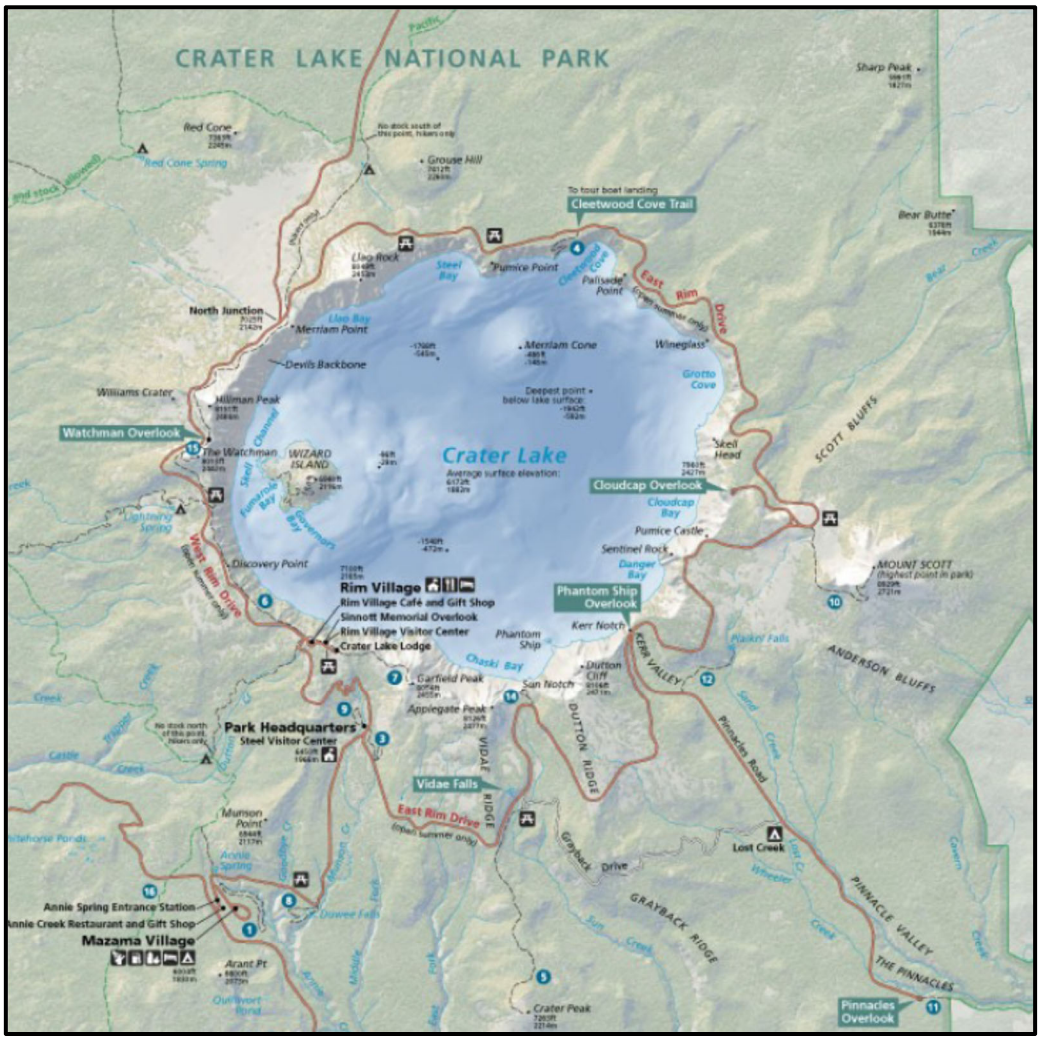


Figure 3. Detail of Crater Lake in Oregon. [Source: http://www.craterlakeinstitute.com/what-to-do/directions-and-maps/more-of-crater-lake/]

2.2 Water Quality

Crater Lake is a very clear, deep lake contained within a volcanic caldera. No streams flow into or out of Crater Lake. All water entering the lake is from direct precipitation and snowmelt, and is eventually lost through evaporation or subsurface seepage. This means that very little sediment or organic matter is transported into the lake, making it extraordinarily clear, with low levels of nutrients and low productivity (i.e. ultra-oligotrophic). According to the U.S. National Park Service, the lake is one of the clearest, bluest, deepest, and most pristine lakes in the world.

Crater Lake maintains a long-term limnological monitoring program. The data from this monitoring program are summarized in the Crater Lake Long-term Limnological Monitoring Program *State of the Lake Report: 2018 (NPS, 2019).* Some highlights of the water quality data and information from this report are provided here.

The clarity and color of Crater Lake is due to the lack of particles suspended in the water column. One measure of water clarity is Secchi depth, a measurement of how deep an object (the Secchi disk) can be seen through the water. A large Secchi depth value is highly correlated with low particle density. Data from the NPS long-term limnological monitoring program (NPS, 2019) show the average summer Secchi depth is 30 meters (98 feet), and maximum Secchi depth is 41.5 meters (136 feet). Results of the long term-monitoring program show that water clarity has not declined through time and has even shown a slight improvement since monitoring began in 1978 (See Figure 4). Table 1 shows Secchi depth values for several Oregon lakes.

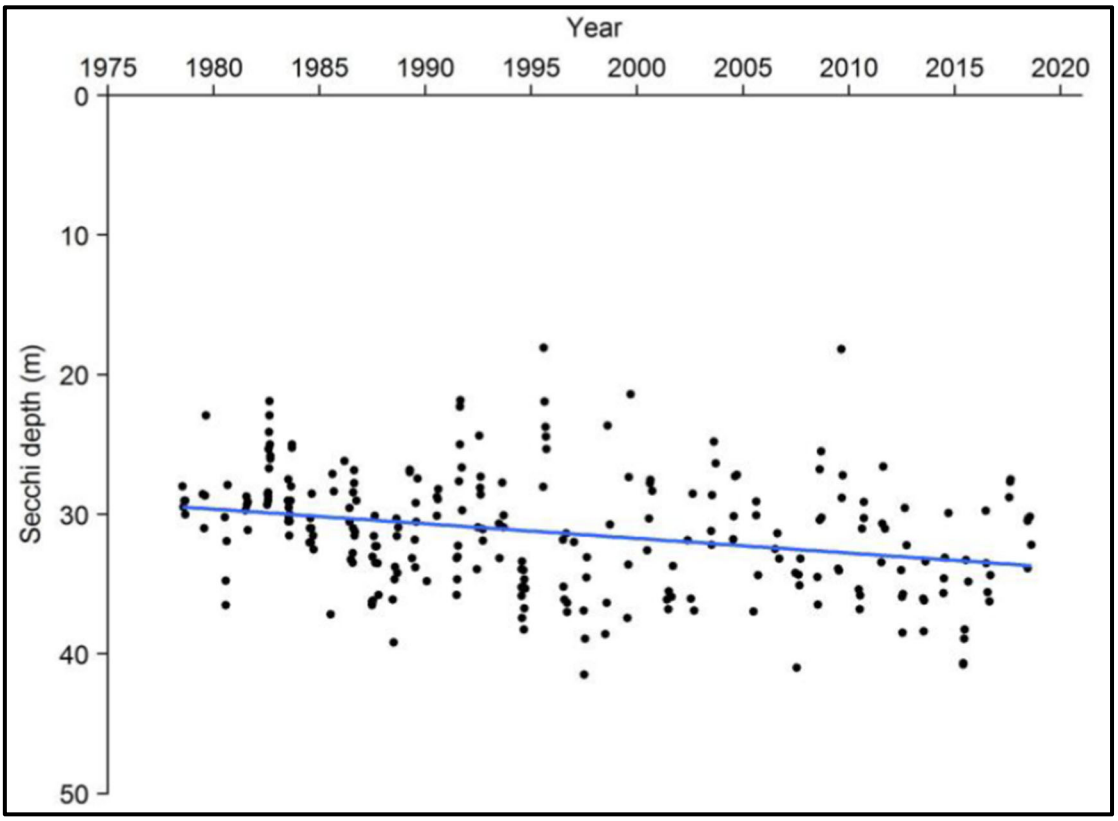


Figure 4. Crater Lake Secchi depths 1978-2018. Figure taken from the State of the Lake Report, 2018 (NPS, 2019).

Table 1 will be inserted here in a later draft.

Particles can be biotic (e.g. phytoplankton, zooplankton, pine pollen) or abiotic (e.g. dust, minerals, soil). Phytoplankton are the primary source of particles in Crater Lake. Phytoplankton are usually found in higher densities below 30 meters. Because nitrate concentrations are typically low at shallow depths in summer, the algae do not grow near the surface, which helps to maintain water clarity (see Figure 5). The clarity can be variable, however, due to variability in nitrate concentrations, which are closely linked to mixing events with the deep water. The vertical movement and storage of nitrate is closely monitored by the Park Service because it plays such a critical role in water clarity.

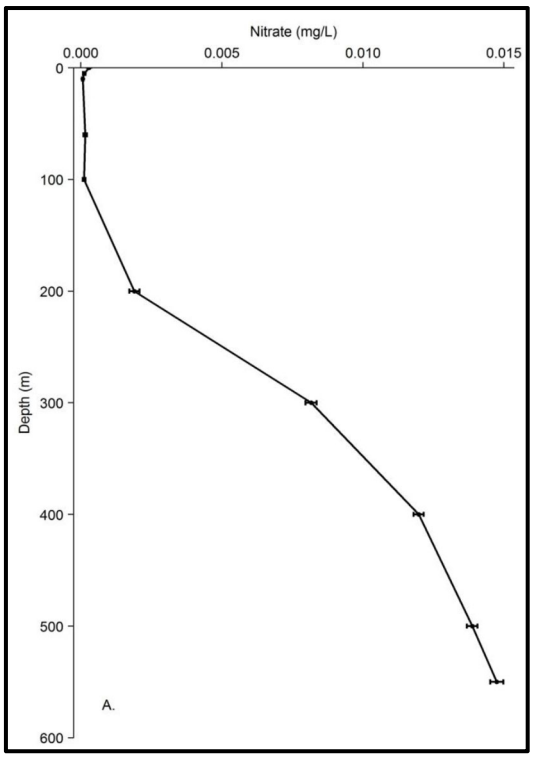


Figure 5. Nitrate dynamics in Crater Lake: Concentration throughout the water column. Figure taken from the State of the Lake Report, 2018 (NPS, 2019).

Crater Lake has periods of vertical mixing of the water column in fall and spring, thermal stratification in summer, and reverse stratification in winter. Thermal stratification in summer means there is warmer water floating on the lake's surface because warm water is less dense than the cold water below. This is important ecologically because surface waters are separated from the deeper waters where phytoplankton and zooplankton grow. Water clarity is typically highest after stratification begins when phytoplankton are limited to deeper depths. This is illustrated in Figure 6 below. The green color on the far left side of the graph indicates higher levels of chlorophyll at the lake's surface. When thermal stratification occurs in early July (shown by the white dotted line), algal concentrations shift to below 100 meters of depth. This contributes to the extreme clarity of the lake in the top 100 meters.

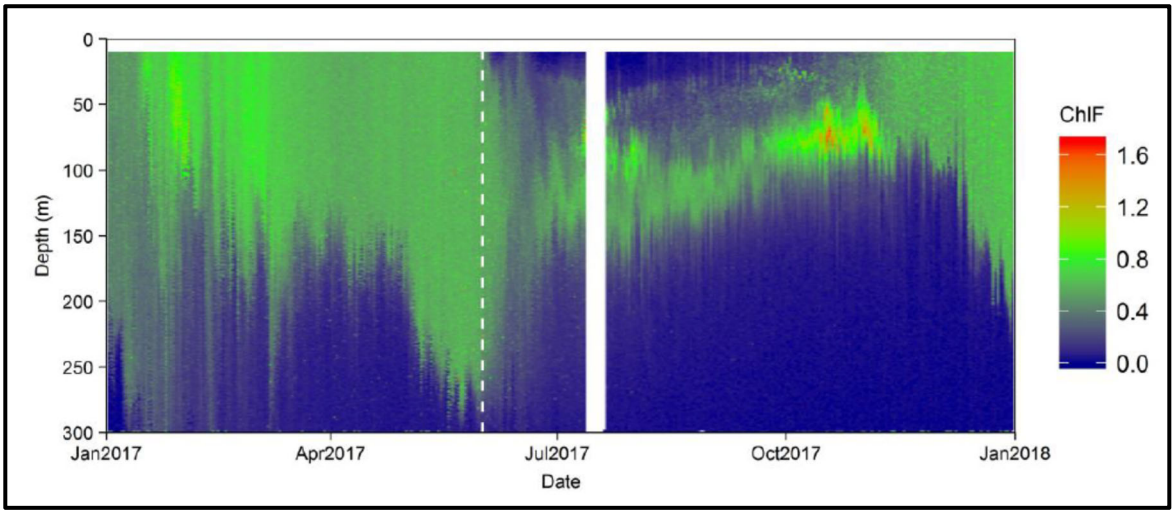


Figure 6. Chlorophyll fluorescence in Crater Lake from January 2017 until January 2018. Stratification is represented by the vertical dotted white line. Figure taken from the State of the Lake Report, 2018.

The lake's thermal structure is very important to chemical, physical, and biological processes in the lake's ecosystem and is impacted by air temperature. The Park Service's long term monitoring program has detected an increase in summer surface water temperature, earlier onset of stratification, and a reduction in the depth of the thermocline. Research is underway to investigate how increases in air temperature and other climate changes may influence the mixing processes critical to Crater Lake's water quality and ecology.

2.3 Ecological and Research Value

The National Park Service long-term limnological monitoring program (LTLMP) at Crater Lake began in 1983 and includes four major goals:

1. Developing a reliable database for the lake to be used for comparisons of future conditions.
2. Developing a better understanding of physical, chemical, and biological processes occurring in the lake.
3. Investigatingthe possibility of short- and long-term changes in the lake.
4. And if changes are found, and human-caused (e.g., pollution), recommending mitigation techniques.

Because of the relative lack of anthropogenic land use impacts, the lake is an important laboratory for studying long-term baseline water quality conditions. Researchers often use Crater Lake as a barometer to measure and describe human impacts on the environment (e.g. air pollution, climate change, invasive species, etc.) because of its pristine quality.

The following is a summary from the Crater Lake Institute about the lake's importance for research:

> "Crater lake is a world-class laboratory for studying lakes because of its pristine condition. Because it is preserved in a National Park it is expected that there will

> be minimal future onsite impacts from human activities. The lake provides scientists and park managers with a gauge for assessing changing environmental conditions external to the Park. Long-term monitoring of Crater Lake has been used to develop a baseline of information about the natural dynamics and complexity of the lake. This baseline will serve as a reference when studying the impacts of global climate change and human activities, such as agriculture and urban growth, on other lakes. Scientists working with the U.S. Geological Survey, the National Park Service, and Oregon State University have systematically studied Crater Lake for the last two decades. Long-term monitoring of this lake is a priority of Crater Lake National Park and will continue far into the future." http://www.craterlakeinstitute.com/general-natural-history-articles/natural-history-flora-and-fauna-articles/two-decades-of-research-at-crater-lake/2/

There have been 160 taxa of phytoplankton and 12 taxa of zooplankton documented within Crater Lake. Crater Lake is habitat for a rare endemic species of newt, the Mazama newt (*Taricha granulosa mazamae*) (Fig. 6), which has been genetically isolated within the caldera for generations. Researchers are very interested in studying their distribution within the Park and monitoring their population dynamics. Of particular interest is the effect of introduced species on the endemic species unique to the lake. Kokanee salmon, rainbow trout, and signal crayfish are larger non-native (i.e. introduced) organisms found within Crater Lake. There is also a deep-water moss community that exists between 26-140 meters which forms thickly on the slopes around Wizard Island and on the walls of the caldera.

Figure 6. Endemic Mazama newt in Crater Lake (NPS photos). Figure taken from the State of the Lake Report, 2018.

Phytoplankton generally form the base of the food chain in deep lakes. They support larger organisms like zooplankton which in turn support fish. During the summer, phytoplankton form two distinct communities defined by the thermal stratification. The first community lives in the warmer surface water and is predominately comprised of a few species of large diatoms and dinoflagellates. The second community, found in deeper water, has a higher diversity of species. Researchers have noted the zooplankton

community in Crater Lake is unusual because there are so few taxa compared to other lakes.

The eruption of the volcano, Mount Mazama, created the caldera that holds Crater Lake. This eruption greatly influenced the region's landscape and ecology. The active hydrothermal features and volcanic activity over the last 400,000 years have contributed to the greater ecoregion. Crater Lake and its surrounding ecosystems are highly unique and largely unaltered by human activity. The park contains diverse communities of vegetation that are highly intact and provide a large degree of connectivity to surrounding areas. This encourages biological diversity and population growth for endemic aquatic and terrestrial species.

In addition to the lake itself, Crater Lake National Park also has several perennial (i.e. seasonal) lakes and ponds, about 250 wetlands, 24 year-round streams, one high elevation bog, and is the headwaters for more than one major river, including the Rogue River. These diverse aquatic habitats surrounding the lake contribute to the large amount of regional biological diversity.

2.4 Recreational Value

In 2019, there were 704,512 recreation visitors to the park and the park is considered a leading attraction in southern Oregon. Visits to Crater Lake contribute a significant amount of revenue to the regional economy. Recreational activities include hiking, biking, scenic vistas, camping, staying or dining at the historic Crater Lake Lodge, skiing, snow-shoeing, and boat tours on the lake.

There are three commercial services that operate in Crater Lake National Park, known as concessions. These include Crater Lake Hospitality LLC (providing lodging, scenic tours, retail operations, food service), Crater Lake Trolley (a shuttle company providing scenic and sightseeing tours), and Xanterra Parks and Resorts Inc. (providing retail, lodging, auto, gas and service stations). In the 2016 fiscal year, revenues for concessions were $13,413,607. In 2019, there were 54,223 overnight stays within or around the park.

2.5 Importance to Native American Tribes

Crater Lake is highly significant to Native American tribes. The Klamath Tribes, which include the Klamath, Modoc and Yahooskin band of the Snake, knew Crater Lake as gii-was, meaning "a sacred place." The Cow Creek Umpquas also knew and respected Crater Lake. Native Americans experienced the collapse of Mount Mazama about 7,700 years ago, and have many stories about the creation of Crater Lake and its features. Crater Lake was used as a place for vision quests and prayer, and the surrounding areas were important for their resources and cultural traditions.

3. Lake Management

Crater Lake is a unique and highly valued natural resource in Oregon It is fully contained within Crater Lake National Park, the state's only national park. While there are few

threats to Crater Lake at this time, the state's proposed ORW designation will complement and reinforce the National Park Service management objective to maintain the lake's pristine nature while allowing the public to enjoy the lake.

The Foundation Document for Crater Lake (NPS, 2015) articulates the Crater Lake National Park's purpose statement. The purpose statement, shown below, identifies the specific reasons Congress established the park in 1902 and lays the foundation for understanding what is most important about the park.

> ***CRATER LAKE NATIONAL PARK*** *forever preserves Crater Lake, scenic landscapes, volcanic features, and unique ecological and cultural heritage, and fosters understanding and appreciation through enjoyment, education, and inspiration.*

The Foundation Document also articulates the basis for the Park Service's management planning. The following is among the fundamental resource values for the park:

> "Crater Lake National Park's world-renowned caldera holds one of the clearest, bluest, and deepest lakes in the world. Its clarity and color is due in great part to the lack of suspended particulates and extremely low organic productivity. It contains significant and active hydrothermal features, which, among other lake qualities, have made it one of the most extensively monitored lakes of its size in the world. Its impressive scale and geographic setting within the high Cascade Mountains create lasting memories and inspire visitors."

4. References

National Park Service, 2015. Foundation Document for Crater Lake National Park. https://www.nps.gov/crla/getinvolved/upload/CRLA_Foundation-Document_emailsize-508.pdf

National Park Service, March 2019. Crater Lake Long-term Limnological Monitoring Program *State of the Lake Report: 2018.* Scott Girdner, Mark Buktenica, Jeremy Mack. U.S. Department of the Interior National Park Service Crater Lake National Park Crater Lake, Oregon

Appendix A, Proposed Rule Amendments

In the following rule excerpts, removed language is in ~~strikeout~~, and added language is underlined.

OAR 340-041-0004
Antidegradation

(8) Outstanding Resource Waters Policy. Where existing high quality waters constitute an outstanding State or national resource such as those waters designated as extraordinary resource waters, or as critical habitat areas, the existing water quality and water quality values must be maintained and protected, and classified as "Outstanding Resource Waters of Oregon."

(a) The commission may specially designate high quality water bodies to be classified as Outstanding Resource Waters in order to protect the water quality parameters that affect ecological integrity of critical habitat or special water quality values that are vital to the unique character of those water bodies. The department will develop a screening process and establish a list of nominated water bodies for Outstanding Resource Waters designation in the Biennial Water Quality Status Assessment Report (305(b) Report). The priority water bodies for nomination include:

(A) Those in State and National Parks;
(B) National Wild and Scenic Rivers;
(C) State Scenic Waterways;
(D) Those in State and National Wildlife Refuges; and
(E) Those in federally designated wilderness areas.

(b) The department will bring to the commission a list of water bodies that are proposed for designation as Outstanding Resource Waters at the time of each triennial Water Quality Standards Review; and

(c) When designating Outstanding Resource Waters, the commission may establish the water quality values to be protected and provide a process for determining what activities are allowed that would not affect the outstanding resource values. After the designation, the commission may not allow activities that may lower water quality below the level established except on a short term basis to respond to public health and welfare emergencies, or to obtain long-term water quality improvements.

(d) The following are Outstanding Resource Waters of Oregon: ~~The North Fork Smith River and its tributaries and associated wetlands, South Coast Basin. See OAR 340-041-0305(4).~~

(A) North Fork Smith River and its tributaries and associated wetlands, South Coast Basin. See OAR 340-041-0305(4).
(B) Waldo Lake and its associated wetlands, Willamette Basin. See OAR 340-041-0345(7).
(C) Crater Lake, Klamath Basin. See OAR 340-041-0185(6).

OAR 340-041-0185
Basin-Specific Criteria (Klamath): Water Quality Standards and Policies for this Basin

(6) Outstanding Resource Waters of Oregon (ORW)
(a) Crater Lake.
(b) …

Rule language to be added.

Appendix B, Federal ORW Regulations

Code of Federal Regulations §131.12 Antidegradation policy and implementation methods.

(a) The State shall develop and adopt a statewide antidegradation policy. The antidegradation policy shall, at a minimum, be consistent with the following:

> …(3) Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected….

(b) The State shall develop methods for implementing the antidegradation policy that are, at a minimum, consistent with the State's policy and with paragraph (a) of this section. The State shall provide an opportunity for public involvement during the development and any subsequent revisions of the implementation methods, and shall make the methods available to the public.

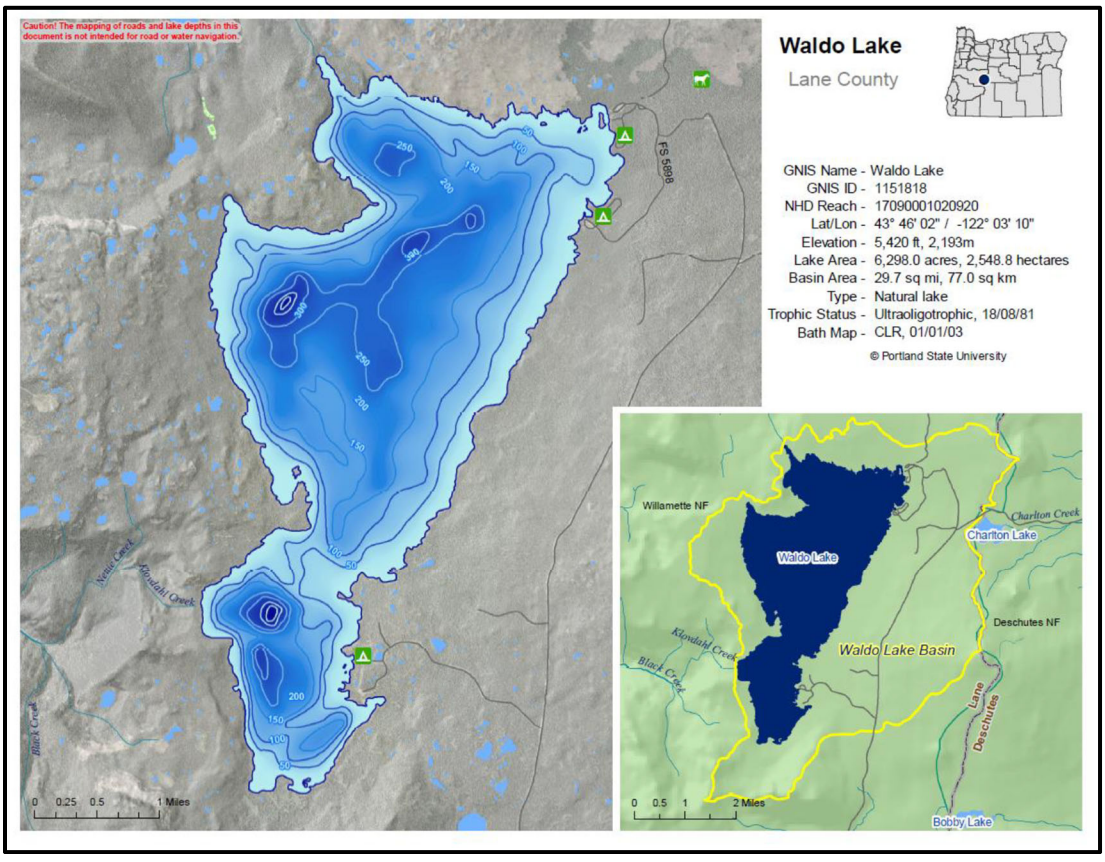
[48 FR 51405, Nov. 8, 1983, as amended at 80 FR 51047, Aug. 21, 2015]

DRAFT May 13, 2020

Waldo Lake Outstanding Resource Water Designation

Support Document

Draft Date: May 13, 2020



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DEQ is a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.

State of Oregon
Department of
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Quality

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Table of contents

Executive summary

On April 22, 2019, the Northwest Environmental Defense Center (NEDC) petitioned the Oregon Environmental Quality Commission (the commission) and Oregon Department of Environmental Quality Director Richard Whitman, requesting that the commission adopt rules designating Waldo Lake and its associated wetlands as Outstanding Resource Waters (ORW) of Oregon. In July 2019, the commission granted the petition and directed DEQ to initiate the requested rulemaking. The commission, which oversees the department, also directed DEQ to adopt rules designating Crater Lake an ORW.

The petition also proposed that DEQ adopt a policy to protect the current high water quality, exceptional ecological values of Waldo Lake. The proposed rule amendments would prohibit new or expanded wastewater discharges and other activities that would degrade water quality. Exceptions are allowed to respond to emergencies and for restoration or enhancement activities.

Outstanding Resource Waters are high quality waters that have extraordinary or unique character or ecological value, or are critical habitat areas, such that they constitute an outstanding state or national resource. The special water quality and ecological values of these waters must then be protected in accordance with Oregon's antidegradation policy.

Waldo Lake is located in Lane County, Oregon in the high Cascade Mountains. Waldo Lake is remote and has exceptionally high water quality. Classified as an ultra-oligotrophic lake, the waters are renowned for their outstanding clarity and low productivity. The basin is entirely on public land in the Willamette National Forest. A large portion of the lake basin is managed as wilderness and semi-primitive nonmotorized dispersed recreation. There are three developed campgrounds and one horse camping facility on the lake. Waldo Lake is the headwater source of the North Fork of the Middle Fork Willamette River, which is a Wild and Scenic river. Protecting Waldo Lake will also help protect the quality of water in this river.

1. Introduction and Background

This document provides background and supporting information for DEQ's recommendation to designate Waldo Lake an Outstanding Resource Water and to adopt a policy to protect the existing high water quality and ecological and recreational values of Waldo Lake, as proposed by a citizen petition.

Waldo Lake is remote and pristine. Its waters are renowned for their outstanding clarity. The lake water is chemically similar to distilled water. The lake's clarity has averaged 125 feet (38.1 meters) since 2001 and reached as deep as 160 feet (48.8 meters).[1] Designating Waldo Lake an ORW provides an opportunity to ensure that this unique lake is protected from degradation for future generations. Waldo Lake qualifies as an ORW because it has exceptionally high quality water, is essential habitat for many species, and provides exceptional opportunities for research and outdoor recreation.

DEQ is working with the U.S. Forest Service and other stakeholders to develop an appropriate antidegradation policy to protect the lake's water quality, taking into consideration the Willamette National Forest's General Management Plan for Waldo Lake.

DEQ is making this support document, together with the proposed rule language and the fiscal impact statement, be available for public comment. Following public comment, DEQ will make a recommendation to the commission about whether to designate Waldo Lake an ORW and about the proposed water quality protection policy to accompany the designation.

1.1 Brief History

In April 2019, NEDC and several co-petitioners petitioned the EQC requesting that the commission designate Waldo Lake an ORW. There was overwhelming public support for the ORW designation. In July 2019, the commission granted the petition and directed DEQ to initiate a rulemaking process to consider the proposed rules. At the same time, the commission directed DEQ to include the designation of Crater Lake as an ORW in the rulemaking process. The citizen petition and the 2019 DEQ Staff Reports for Waldo Lake and for Crater Lake may be found on the following website: https://www.oregon.gov/deq/wq/Pages/WQ-Standards-ORWO.aspx.

Oregon's first ORW is the North Fork of the Smith River in southwest Oregon. The commission designated this ORW in 2017, also in response to a citizen rulemaking petition. The rule language proposed in the petition for Waldo Lake is identical to the rule language that was adopted for the North Fork of the Smith River.

1.2 Outstanding Resource Waters

Oregon's water quality standards define three classifications of state waters: water quality limited, high quality, and Outstanding Resource Waters. ORWs are high quality waters that have extraordinary or unique character or ecological value, or are critical habitat areas, such that they constitute an outstanding state or national resource. Oregon's ORW rules may be found at Oregon Administrative Rules 340-041-0004(8) and 340-041-0002(45).

Oregon rules identify the following as priority waters for ORW consideration: (A) those in state and national Parks; (B) National Wild and Scenic Rivers; (C) State Scenic Waterways; (D) those in state and national wildlife refuges; and (E) those in federally designated wilderness areas. Waldo Lake is wholly within the Willamette National Forest and largely within a wilderness area. It is also the headwaters of a national wild and scenic river, the North Fork of the Middle Fork Willamette River.

The ORW designation may only be granted by the EQC through rulemaking. Along with the designation, the rules must also include a policy to protect and maintain the exceptional qualities and values of the waterbody.

1.3. Citizen Rulemaking Petition

Oregon law allows an interested person to petition an agency to promulgate, amend, or repeal a rule. Oregon Revised Statute 183.390 and administrative rules at OAR 340-011-0046 and 137-001-0070 describe the requirements for the petition and for agency review. The petition to amend a rule must clearly show the proposed rule revisions and provide facts and arguments supporting the proposal. According to the statute, the agency must invite public comment on the petition and then act within 90 days of receiving the petition. Upon its review, the commission may:

1. Deny the petition,
2. Direct DEQ to initiate rulemaking proceedings based on the rules proposed by the petition, or
3. Deny the petition but direct DEQ to take some other action.

As OAR 137-001-0070(3) requires, DEQ invited public comment on the rule amendments the petition proposed and requested comment on whether options exist for achieving the rule's substantive goals in a way that reduces the negative economic impact on businesses. DEQ received 2,155 comments from 1,945 citizens and five organizations. The comments are summarized in the staff report on the petition, which may be found on the following website: https://www.oregon.gov/deq/wq/Pages/WQ-Standards-ORWO.aspx. In July 2019, the commission granted the petition and directed DEQ to initiate rulemaking.

The rulemaking process will include another opportunity for public comment on the petition's proposed rule language. DEQ may recommend revisions to the proposed rule language in response to public comment if the revisions are appropriate or clarifying.

The Waldo Lake ORW petition proposes to amend OAR 340-041-0004(8), the Outstanding Resource Waters Policy in Oregon's Antidegradation rule, to add Waldo Lake and its associated wetlands as Outstanding Resource Waters. The petition also proposes to amend OAR 340-041-0345, Water Quality Standards and Policies for the Willamette Basin, to protect the current high water quality, exceptional ecological values, and existing and designated uses of these waters. The proposed rule amendments would prohibit new or expanded wastewater discharges and other activities that would degrade water quality. Exceptions are allowed to respond to emergencies and for restoration or enhancement activities.

2. Waldo Lake

2.1 Description and Location

Waldo Lake is located in Lane County, in west central Oregon, as shown in Figures 1 and 2. Occupying 9.8 square miles (6,298 acres) in the Willamette National Forest, Waldo Lake sits near the western crest of the Cascades range at 5,414 feet elevation. Waldo Lake is the second deepest lake in Oregon with a maximum depth of 420 feet. The lake is known for its clarity and pristine water quality. The Waldo Lake Wilderness area surrounds more than half of the lake's 21.7 mile shoreline, helping to keep the forest and shoreline ecosystems of the watershed healthy, which in turn protects the water quality of the lake. The lake is the source of the nationally designated Wild and Scenic North Fork of the Middle Fork Willamette River.[2]

Waldo Lake is known as an exceptional recreational resource for locals and visitors alike. Tourists travel from around the nation and the world to enjoy the lake's pristine beauty and solitude of the lake. While gasoline motor boats have been banned from Waldo Lake, boating with electric motors and nonmotorized boats is still a common activity. Visitors also hike, camp, mountain bike, and enjoy other recreational activities.[3]

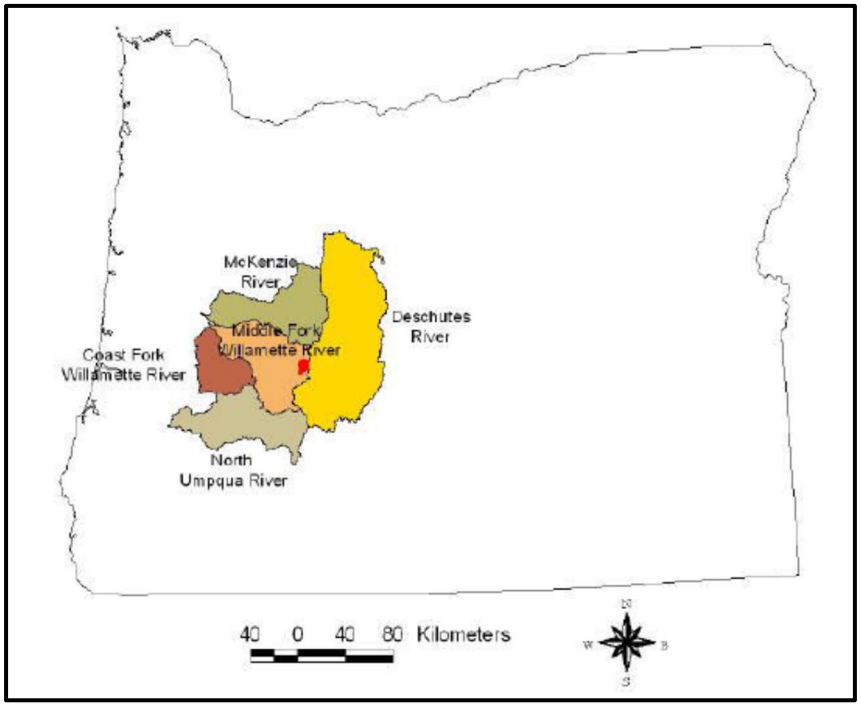

Figure 1. Location of Waldo Lake in Oregon.

Figure 2. Detail of Waldo Lake, Oregon. [Willamette National Forest land uses, online]

2.2 Water Quality

Waldo Lake is thought to be one of the most oligotrophic large lakes in the world. This is a term used for lakes with a scarcity of nutrients and low productivity, resulting in exceptional water clarity and outstanding water quality.[4] A Secchi Transparency study was conducted from 1990 to 2003. On days where wave and sky conditions provided optimal weather conditions, transparency averaged 37 meters (121 feet). On days where cloud cover and waves due to winds produced more difficult weather conditions for measuring Secchi depth, transparency averaged 33 meters (108 feet) (see Table 1).[5] A record Secchi depth of 47.9 meters (157 feet) was recorded in 1938.[6] The lake's clarity is due to a low concentration of suspended particles and a low concentration of dissolved organic substances.[7]

"Good" conditions		"Bad" conditions	
Date	Secchi Disk Reading (m)	Date	Secchi Disk Reading (m)
6/20/1998	37.5	9/6/1996	20
6/20/1998	39.1	9/19/1999	35
8/16/1998	33	9/19/1999	35.5
7/26/1999	40	5/27/2001	33
7/26/1999	40.5	6/29/2002	32.2
8/31/1999	35	7/29/2002	36.2
10/9/1999	34	7/29/2002	36.5
10/9/1999	34.2	9/21/2003	34
7/7/2001	41.3	9/21/2003	35
8/19/2001	39.8	9/21/2003	36
9/9/2001	34.2		
8/19/2002	35.8		
Total days 9		Total days 6	
Average 37 m		Average 33.3 m	

Table 1. Secchi disk conditions of Waldo Lake between 1996 and 2003.

Waldo Lake has no permanent inlet to bring nutrients into the lake, which are needed for plant growth.[8] Waldo Lake occupies about 32 percent of its watershed, meaning almost two thirds of the precipitation that falls in the Waldo watershed arrives indirectly to the lake by way of over land flow. This is significant because it means the condition of the surrounding watershed area plays an important role in the lake's health and quality. Related to the lake's low productivity, Waldo Lake is naturally fishless. In addition, the lack of algal growth likely contributes to the lake's stable pH. Measurements between 1998 and 2003 indicate the pH rarely exceeds 6.5 (Fig. 3).

An early investigation found that the lake's water was extremely dilute and chemically similar to distilled water.[9] Waldo Lake has the lowest average water conductivity compared to other lakes in Oregon (Figure 4). Because the watershed is only twice as large as the lake, the amount of water supplied to the lake each year is a small fraction of the lake's total volume. Replacing the lake's entire volume at this input rate would require roughly 30 years.[10] The lake's long residence time makes the lake vulnerable to pollutants that may be introduced to the lake from outside the watershed or due to disturbance within the watershed.

In addition to scientists with the U.S. Forest Service, there are numerous partners involved in long-term research of Waldo Lake. Partners include scientists from the U.S. Geological Survey, Portland State University, and Oregon State University. Long-term water quality monitoring parameters include: temperature, DO, pH, turbidity, transparency, Photosynthetically Active Radiation, and light absorption. Water chemistry parameters include total phosphorus, orthophosphate, and total nitrogen. From 1986 to 1995, the measured range of nitrite/nitrate was <1-3 µg/L, total phosphorus was <1-13 µg/L, and orthophosphate was <1-7 µg/L.[11] In addition, biological parameters including phytoplankton, zooplankton, chlorophyll, and primary productivity have also been monitored long-term.[12] These parameters and possibly others will continue to be measured and examined in the future.

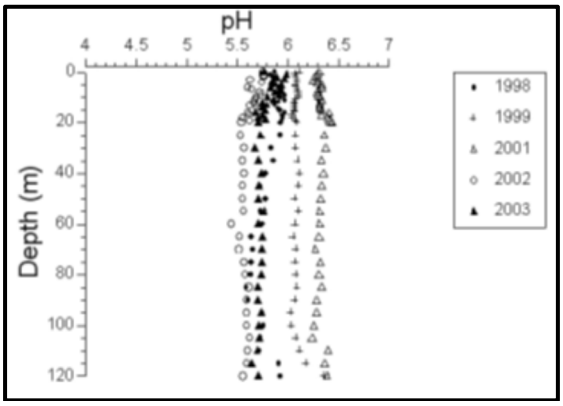

Figure 3. pH by depth in Waldo Lake from 1998 to 2003.

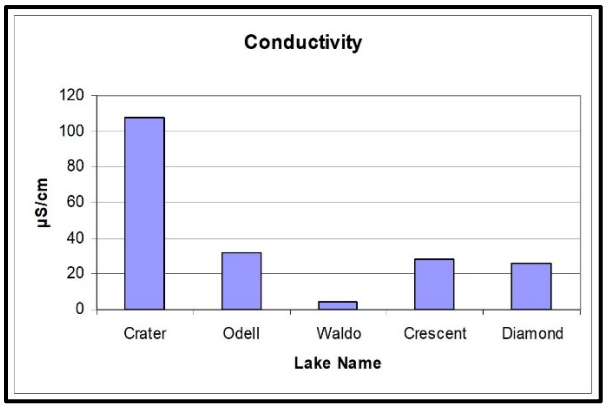

Figure 4. Comparison of water conductivity (µS/cm) for different lakes in Oregon.

2.3 Ecological and Research Value

Waldo Lake is situated in the High Cascades in the Willamette National Forest. Congress protected the surrounding 39,000-acres of wilderness in 1984 to preserve the area's unspoiled forests, scenic mountains, and backcountry recreation.[13] This wilderness is approximately 98% forested, mostly made up of Douglas fir, Pacific silver fir,[14] and the largest old growth Mountain Hemlock stand in the state.[15] Waldo Lake, together with the surrounding forest environment, supports rare species of aquatic and land based species, including moss, unique birds, and a variety of threatened carnivores. Waldo Lake is the source of the North Fork of the Middle Fork of the Willamette River and therefore connected to additional organisms native to the Pacific Northwest.

Unlike fish, which are not native to the lake, the rare semi-aquatic leafy liverwort, *Marsupella emartinata var. aguatica*, naturally grows on rocks in the splash-zone of the Waldo Lake outlet. This is the only documented occurrence of this moss in Western North America. Other liverworts grow at incredible depths due to the lake's clarity, which allows light to penetrate deep into the lake. Two species of salamanders have also been observed in Waldo Lake: the northwestern salamander, *Ambystoma gracile*; and the rough skinned newt, *Trachia granulosa*. Only adults and larvae of these species were found in Waldo Lake. Small ponds adjacent to the

lake are used as a place to lay eggs and for early larval development.[16] Frog and toad species are also abundant in the near shore areas of Waldo Lake. These include: the cascade frog, *Rana cascadae*; the western toad, *Bufo boreas*; and the tree frog, *Hyla regilla*.[17]

Waldo Lake is the source of the North Fork of the Middle Fork Willamette River which was designated as a Wild and Scenic river in 1988. Roosevelt elk use this extensive and ecologically diverse river corridor throughout the year, as well as blacktail deer, black bear, and cougar.[18] Protecting Waldo Lake will help protect the quality of water in the Willamette River.

2.4 Recreational Value

Waldo Lake is a recreation destination that supports the tourist economy of the surrounding communities. In addition to being a retreat for local families and outdoors enthusiasts, tourists come from around the region and the world to see Waldo Lake's uniquely clear and vibrant opal waters and experience fishing, swimming, and boating.[19] The lake's attraction for recreation is directly related to its exceptional water quality. In 2010, the Oregon State Marine Board banned motorboats on Waldo Lake in an effort to keep the lake's water quality pristine. Electric motors and human-powered boats are still allowed.

Around Waldo Lake, there are over 200 designated campsites in three different campgrounds: North Waldo, Islet, and Shadow Bay. Campsites are often reserved up to six months in advance and are typically full in August and September. Campgrounds are well maintained and equipped with sanitation stations and vault toilets to prevent polluting the groundwater.[20] The popular shoreline trail provides visitors with unique views of the lake and the High Cascades while meandering through a high-elevation forest. The Harralson Horse Camp and the North Waldo are popular trailheads because of their beauty and access to countless miles of trails.[21]

Waldo Lake's surrounding lands offer spectacular and accessible camping, horseback riding, mountain biking, and hiking. It is also a popular destination for wilderness enthusiasts since it is the main access point for the Waldo Lake Wilderness area, which is 98% forested.[22] There are ten trailheads providing access to 70 miles of trails in the Wilderness area. The lake is located near the Pacific Crest Trail, which sees thousands of hikers every year.[23] The Pacific Crest Trail runs though the wilderness area, giving hikers from all over the world the opportunity to use Waldo Lakes' shores as a break from days of backpacking.

2.5 Importance to Native American Tribes

Thousands of years before white settlers arrived, Native American Tribes inhabited the area surrounding Waldo Lake. The tribes used various places in the surrounding area as temporary camps and food gathering sites.[24]

3. Lake Management

Waldo Lake is entirely contained within the Willamette National Forest and is managed by the U.S. Forest Service. The Waldo Lake Wilderness area, a 36,572 acre area, borders Waldo Lake. The proposed ORW designation by the state will complement and reinforce the shared Forest Service management objective to protect and maintain the lake's pristine nature while allowing for the enjoyment of the lake by the public. Waldo Lake and its watershed are managed for recreational opportunities that support the economy of surrounding communities. These activities include camping, boating, hiking, fishing, mountain biking, horseback riding and swimming. Recreational management is in balance with the need to protect the pristine water quality of the lake. For example, the Forest Service has installed vault toilets in the campgrounds so that human waste is pumped and removed rather than seeping into the ground where it could contribute nutrients to the lake.

Actions to protect the lake's water quality have also included banning gasoline motor boats and float planes. In addition, the Oregon Department of Fish and Wildlife no longer stocks the lake with fish. In addition, the lake is designated a State Scenic Waterway.

Appendix A, Proposed Rule Amendments

In the following rule excerpts, removed language is in ~~strikeout~~, and added language is underlined.

OAR 340-041-0004
Antidegradation

(8) Outstanding Resource Waters Policy. Where existing high quality waters constitute an outstanding State or national resource such as those waters designated as extraordinary resource waters, or as critical habitat areas, the existing water quality and water quality values must be maintained and protected, and classified as "Outstanding Resource Waters of Oregon."

(a) The commission may specially designate high quality water bodies to be classified as Outstanding Resource Waters in order to protect the water quality parameters that affect ecological integrity of critical habitat or special water quality values that are vital to the unique character of those water bodies. The department will develop a screening process and establish a list of nominated water bodies for Outstanding Resource Waters designation in the Biennial Water Quality Status Assessment Report (305(b) Report). The priority water bodies for nomination include:

(A) Those in State and National Parks;
(B) National Wild and Scenic Rivers;
(C) State Scenic Waterways;
(D) Those in State and National Wildlife Refuges; and
(E) Those in federally designated wilderness areas.

(b) The department will bring to the commission a list of water bodies that are proposed for designation as Outstanding Resource Waters at the time of each triennial Water Quality Standards Review; and

(c) When designating Outstanding Resource Waters, the commission may establish the water quality values to be protected and provide a process for determining what activities are allowed that would not affect the outstanding resource values. After the designation, the commission may not allow activities that may lower water quality below the level established except on a short term basis to respond to public health and welfare emergencies, or to obtain long-term water quality improvements.

(d) The following are Outstanding Resource Waters of Oregon: ~~The North Fork Smith River and its tributaries and associated wetlands, South Coast Basin. See OAR 340-041-0305(4).~~

(A) North Fork Smith River and its tributaries and associated wetlands, South Coast Basin. See OAR 340-041-0305(4).
(B) Waldo Lake and its associated wetlands, Willamette Basin. See OAR 340-041-0345(7).
(C) Crater Lake and its associated wetlands, Klamath Basin. See OAR 340-041-0185(6).

OAR 340-041-0345

Basin-Specific Criteria (Willamette): Water Quality Standards and Policies for this Basin

(7) Outstanding Resource Waters of Oregon (ORW)

(a) Waldo Lake and associated wetlands.

(b) The current high water quality, exceptional ecological values, and existing and designated uses of the ORWs identified in this rule ("these waters") shall be maintained and protected except as altered by natural causes.

(c) No new NPDES discharge or expansion of an existing discharge to these waters shall be allowed.

(d) No new NPDES discharge or expansion of an existing discharge to waters upstream of or tributary to these waters shall be allowed if such discharge would significantly degrade the water quality within these waters.

(e) No activities shall be allowed that would degrade the existing water quality and ecological characteristics and values of these waters.

Appendix B, Federal ORW Regulations

Code of Federal Regulations §131.12 Antidegradation policy and implementation methods.

(a) The State shall develop and adopt a statewide antidegradation policy. The antidegradation policy shall, at a minimum, be consistent with the following:

> …(3) Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected….

(b) The State shall develop methods for implementing the antidegradation policy that are, at a minimum, consistent with the State's policy and with paragraph (a) of this section. The State shall provide an opportunity for public involvement during the development and any subsequent revisions of the implementation methods, and shall make the methods available to the public.

[48 FR 51405, Nov. 8, 1983, as amended at 80 FR 51047, Aug. 21, 2015]

[1] Center for Lakes and Rivers. Portland State University comment letter. 2019.
[2] Wild and Scenic Rivers. 16 USC 1274: Component rivers and adjacent lands.
[3] The Oregon Encyclopedia. *Waldo Lake*. https://oregonencyclopedia.org/articles/waldo_lake/#.W-OFynpKiRs. 2018.
[4] Atlas of Oregon Lakes. Waldo Lake. https://aol.research.pdx.edu/lakes/17090001020920. 2019.
[5] Mark Sytsma, et al., Center for Lakes and Reservoirs Department of Environmental Sciences and Resources, Portland State University, *Waldo Lake Research in 2003.* 2004. p 48.
[6] Douglas W. Johnson. *Waldo Lake, Oregon: Eutrophication of a Rare, Ultraoligotrophic, High-Mountain Lake*. 2000. p 4.
[7] Mark Sytsma, et al., Center for Lakes and Reservoirs Department of Environmental Sciences and Resources, Portland State University, *Waldo Lake Research in 2003.* 2004. p 42.
[8] U.S. Forest Service, *Waldo Lake Area*. https://www.fs.usda.gov/recarea/willamette/recarea/?recid=4528. 2019.
[9] Douglas W. Johnson. *Waldo Lake, Oregon: Eutrophication of a Rare, Ultraoligotrophic, High-Mountain Lake*. 2000. p 2.
[10] Douglas W. Johnson. *Waldo Lake, Oregon: Eutrophication of a Rare, Ultraoligotrophic, High-Mountain Lake*. 2000. p 5.
[11] Al Johnson, Willamette National Forest. *Waldo Lake, A Unique and Fragile Resource.* https://www.fs.fed.us/air/documents/WesternLakesMonitoringWorkshop/Waldo_and_Diamond_Lake.pdf 2020 .
[12] *Id.*
[13] Oregon Wild, *Waldo Lake- Gem of the Cascades*. 2019.
[14] U.S. Forest Service. *Waldo Lake Wilderness*. https://www.fs.usda.gov/recarea/willamette/recreation/recarea/?recid=4482. 2019.
[15] Sierra Club. The Juniper Group. *Keep Waldo Wild: Our Campaign to Protect Lands Surrounding Oregon's Waldo Lake*. https://oregon2.sierraclub.org/juniper-group/waldo/keep-waldo-wild. 2018.
[16] U.S Forest Service, *North Fork of the Middle Fork Willamette River Watershed Analysis*, 1995.
[17] *Id.*
[18] National Wild and Scenic Rivers System. *Willamette River*. https://www.rivers.gov/rivers/willamette.php. 2018.
[19] United States Department of Agriculture Forest Service, *Waldo Lake Wilderness*, Willamette National Forest, https://www.fs.usda.gov/recarea/willamette/recreation/recarea/?recid=4482 (last visited April 14th, 2019).
[20] United States Department of Agriculture Forest Service, *Waldo Lake Area*, Willamette National Forest, 2019.
[21] *Id.*
[22] *Id.*
[23] Pacific Crest Trail Association. Waldo Lake. https://www.pcta.org/journalist/post/waldo-lake/. 2014.
[24] The Oregon Encyclopedia. *Waldo Lake*. https://oregonencyclopedia.org/articles/waldo_lake/#.W-OFynpKiRs. 2018.

Waldo and Crater Lakes Outstanding Resource Waters Advisory Committee Charter

April 8, 2020
Debra Sturdevant

Water Quality Standards Program
700 NE Multnomah St.
Portland, OR 97232
Phone: 503-229-5696
800-452-4011
Fax: 503-229-5850
Contact: Debra Sturdevant
www.oregon.gov/DEQ

DEQ is a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.

State of Oregon
Department of Environmental Quality

Alternative formats

DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email deqinfo@deq.state.or.us.

1. Table of Contents

2. Objectives and Scope

2.1. Policy Objectives

This committee's purpose is to provide early input to the Oregon Department of Environmental Quality on a proposed rulemaking to designate Waldo Lake and Crater Lake as Outstanding Resource Waters (ORW) and to establish policies to protect the current high water quality and unique character of these Oregon waters. The committee fulfills the requirement in Oregon Revised Statutes 183.333 to obtain input from an advisory committee on the fiscal and economic impact of the proposed rule, as described in Section 2.2 below. DEQ does not expect the advisory committee to make decisions or recommendations as a group.

Because the rulemaking for Waldo Lake comes in response to a citizen rulemaking petition, the petition provides the proposed rule language for Waldo Lake. DEQ will develop proposed rule language for Crater Lake. DEQ expects that the rules for Crater Lake will be the same or very similar to the proposed rules for Waldo Lake. However, to the extent that there may be differences to consider, DEQ will seek input on the draft proposed rule language from the advisory committee. See additional information below.

2.2. Fiscal and Economic Impact

ORS 183.333 requires that DEQ ask the committee to consider the fiscal and economic impact of the proposed rules including:

- Whether the rules will have a fiscal impact, and if so, what the extent of that impact will be.
- Whether the rules will have a significant adverse impact on small businesses, and if so, how DEQ can reduce the negative fiscal impact of the rules on small businesses.

2.3. Rulemaking Timeline

The table below shows the major milestones and dates for this rulemaking process.

Milestone	Date
Advisory Committee	May – June 2020
Public Notice and Comment Period	July – August 2020
EQC Field trip (optional)	July 2020
Public Hearings	August 2020
EQC Presentation for Adoption	November 2020

3. Roles

3.1. DEQ Facilitator

The facilitator:

- Encourages open, candid and robust dialogue.
- Starts and ends the meetings and agenda items on time.
- Encourages innovation by listening to all ideas.
- Captures ideas.
- Recognizes when the discussion is outside the scope of the meeting and steers the discussion back to the focus of the meeting.

3.2. Committee Members

Advisory committee members must attend each meeting to ensure continuity throughout the process. An alternate may be assigned if needed. However, it is each committee member's responsibility to fully brief their alternate on all relevant issues and prior committee discussions in order to meet the meeting objectives and keep the project on schedule. The primary and alternate members of the committee cannot participate in the same meeting. If a member's absence is unavoidable, please notify the DEQ project manager.

The committee member:

- Prepares for and sets aside time for the meetings.
- Provides DEQ staff with copies of relevant research and documentation cited during the meeting.
- Stays focused on the specific agenda topics for each meeting.
- Comments constructively and in good faith.
- Consults regularly with constituencies to inform them on the process and gather their input.
- Treats everyone and his or her opinions with respect.
- Allows one person to speak at a time.
- Is courteous by not engaging in sidebar discussions.
- Avoids representing to the public or media the views of any other committee member or the committee as a whole.

3.3. Non-Committee Member Attendees

Those who attend the committee meetings, but are not members of the committee, are there only to observe and not to actively participate. If non-committee members are present at a meeting, the committee has discretion to allow time during the meeting for their comments.

3.4. DEQ Staff

DEQ is committed to making the most effective use of committee member's time by:

- Establishing clear committee goals, meeting objectives and agendas.
- Giving committee members reasonable access to staff.
- Encouraging all members to take part in discussions.
- Providing a clear description of member roles, the committee timeline, the level of agreement expected and feedback on how member input is used.

3.5. DEQ Support and Website

DEQ will post agenda and meeting materials on the advisory committee website at least one week in advance of the meeting. DEQ administrative staff will provide meeting summaries that highlight committee discussions, different perspectives and input of committee members. DEQ will not prepare a formal committee report. DEQ will send draft meeting summaries to the advisory committee for review and input. Final meeting summaries will be posted to the advisory committee website and will be part of the public record.

The advisory committee charter, a full roster of the committee, meeting agendas and minutes, and background materials will all be located, on the advisory committee webpage: Waldo Crater Lake ORW Rulemaking

4. Committee Meetings

All committee meetings will be:

- Open to the public, although the committee will choose whether the public can actively participate in committee meetings.
- Advertised on the DEQ webpage calendar two weeks before the meeting at DEQ Event Calendar.
- Noticed by email to the Water Quality Standards and Rulemaking GovDelivery lists.

The committee is expected to meet two times between May and June 2020 by webinar or at a location convenient to the committee members. The meeting durations may vary depending on topics and committee progress. DEQ may separate discussions regarding Waldo Lake and Crater Lake in order to be respectful of advisory committee members' time if they have a specific interest in one lake or the other. Meeting materials and agenda will be posted to the advisory committee webpage. When DEQ shares information with the committee, DEQ will allow a reasonable timeframe for review and feedback.

4.1. Decision Making

DEQ retains the authority to decide the content of the final proposed rules and rulemaking documents. DEQ will use the committee's discussions in forming its draft proposed rules for the Crater Lake ORW.

The rulemaking petition provides the proposed language for the Waldo Lake ORW. The proposed rules will be published for public review and comment as part of DEQ's rulemaking process.

5. Membership

In convening this committee, DEQ selected members that reflect the range of stakeholders the proposed rules affect, both directly and indirectly. Representatives should be able to consider the policy, fiscal and economic impacts and benefits of the proposed standard on the business or organization they represent.

Advisory Committee Membership	
Committee Members	
Name	**Affiliation**
Rich Miller	PSU Center for Lakes and Reservoirs
Andy Schaedel	Oregon Lakes Association
Mark Riskedahl	Northwest Environmental Defense Center
Lynda Kamerrer	President of Oakridge/Westfir Chamber of Commerce
Kelley Minty Morris	Klamath County
Seth Barnes or Kristina McNitt	Oregon Forest Industries Council
Barry Girt	Volunteer with Friends of Crater Lake NP
Government Advisors	
Jennifer Gibson	Crater Lake National Park
Al Johnson	Willamette National Forest
Randy Jones	DEQ, Eastern Region Regional Solutions
Resource People	
Scott Girdner	Crater Lake National Park
Joy Archuleta	USFS Region 6
Sean Denniston	Crater Lake National Park
Duane Bishop	Willamette National Forest

6. Travel Expenses

DEQ is able to reimburse any in state, out-of-town committee members for travel expenses, if DEQ approves them in advance.

7. Public Records and Confidentiality

Committee communications and records, such as formal documents, discussion drafts, meeting summaries and exhibits are public records and are available for public inspection and copying. DEQ does not assume responsibility for protecting proprietary or confidential business information shared during committee or subcommittee meetings. However, the private documents of individual committee members generally are not considered public records if DEQ does not have copies.

8. Information Exchange

Committee members will provide information as much in advance as possible of the meeting at which such information is used. The members will also share all relevant information with each other to the maximum extent possible. If a member believes the relevant information is proprietary in nature, the member will provide a general description of the information and the reason for not providing it.

9. Public Involvement

All meetings will be open to the public. The committee can choose whether to allow public input during a committee meeting. DEQ may set aside time for the public to speak.

Once the committee process is complete, DEQ will develop draft rules and conduct a public rulemaking process. That process will include a specified period during which the public can submit comments on the proposed rules. DEQ will also hold a public hearing during which any member of the public can submit written or verbal comments. Individual committee members may provide comments to DEQ on the full draft rule at this time. DEQ may modify the final proposed rules based on public comment. DEQ intends to take a final proposed rule to the EQC for consideration at its meeting.

10. DEQ Contacts

Primary Contact:
Debra Sturdevant
Water Quality Standards Program Lead
503-229-6691
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Alternate Contact:
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NORTHWEST ENVIROMENTAL DEFENSE CENTER
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April 22, 2019

Kathleen George, Chair
Oregon Environmental Quality Commission

Richard Whitman, Director
Oregon Department of Environmental Quality DEQ Headquarters Office
811 SW 6th Avenue
Portland, OR 97204-1390

Re: Petition for Designating Waldo Lake as an "Outstanding Resource Water of Oregon" by Rule Amendment

Dear Chair George and Director Whitman:

Pursuant to OAR 137-001-0070 and OAR 340-041-0004(8), the Northwest Environmental Defense Center (NEDC) and co-petitioners Oregon Chapter of the Sierra Club, Oregon Environmental Council, Oregon Wild, Cascadia Wildlands and the Center for Biological Diversity submit the enclosed Petition requesting promulgation of rule amendments to designate Waldo Lake as an "Outstanding Resource Water of Oregon". This petition is exclusively the work product of a team of Lewis & Clark Law School student volunteers led by third-year NEDC law student volunteer Anna Tadio.

Please contact NEDC if you have any questions regarding this petition or would like more information. Thank you for your consideration.

Sincerely,

Mark Riskedahl

Mark Riskedahl, Executive Director
NEDC

BEFORE THE OREGON ENVIRONMENTAL QUALITY COMMISSION

Petition for Rule Amendment Designating Waldo Lake in Lane County as an "Outstanding Resource Water of Oregon"

April 22, 2019

Pursuant to OAR 137-001-0070 and OAR 340-011-0004(8), and the following supporting facts and arguments, the Northwest Environmental Defense Center and co-petitioners Oregon Chapter of the Sierra Club, Oregon Environmental Council, Oregon Wild, Cascadia Wildlands and the Center for Biological Diversity (jointly "NEDC"), on behalf of our thousands of members, petition the Oregon Environmental Quality Commission ("EQC" or "Commission") to promulgate rule amendments designating Waldo Lake in Lane County as an Outstanding Resource Water of Oregon ("OWR").

As per OAR 137-001-0070(1), petitioner is:

Northwest Environmental Defense Center

Lewis & Clark Law School

10015 SW Terwilliger Blvd

Portland, OR, 97219

Interested persons include NEDC and all co-petitioners

As per OAR 137-001-0070(1)(a), proposed rule amendment language to be adopted:

The complete proposed rule language with the suggested **additions** to the existing Antidegradation rule OAR 340-041-0004, and the suggested **additions** to the existing Basin-Specific Criteria rule OAR 340-041-0345 are listed below:

OAR 340-041-0004

Antidegradation

(1) Purpose. The purpose of the Antidegradation Policy is to guide decisions that affect water quality such that unnecessary further degradation from new or increased point and nonpoint sources of pollution is prevented, and to protect, maintain, and enhance existing surface water quality to ensure the full protection of all existing beneficial uses. The standards and policies set forth in OAR 340-041- 0007 through 340-041-0350 are intended to supplement the Antidegradation Policy.

(2) Growth Policy. In order to maintain the quality of waters in the State of Oregon, it is the general policy of the Commission to require that growth and development be accommodated by increased efficiency and effectiveness of waste treatment and control such that measurable future discharged waste loads from existing sources do not exceed presently allowed discharged loads except as provided in section (3) through (9) of this rule.

(3) Nondegradation Discharges. The following new or increased discharges are subject to this Division. However, because they are not considered degradation of water quality, they are not required to undergo an antidegradation review under this rule:

(a) Discharges Into Existing Mixing Zones. Pollutants discharged into the portion of a water body that has been included in a previous mixing zone for a permitted source, including the zones of initial dilution, are not considered a reduction in water quality, so long as the mixing zone is established in accordance with OAR 340-041-0053, there are no other overlapping mixing zones from other point sources, and the discharger complies with all effluent limits set out in its NPDES permit.

(b) Water Conservation Activities. An increase in a pollutant concentration is not considered a reduction in water quality so long as the increase occurs as the result of a water conservation activity, the total mass load of the pollutant is not increased, and the concentration increase has no adverse effect on either beneficial uses or threatened or endangered species in the water body.

(c) Temperature. Insignificant temperature increases authorized under OAR 340-041-0028(11) and (12) are not considered a reduction in water quality.

(d) Dissolved Oxygen. Up to a 0.1 mg/l decrease in dissolved oxygen from the upstream end of a

stream reach to the downstream end of the reach is not considered a reduction in water quality so long as it has no adverse effects on threatened and endangered species.

(4) Recurring Activities. Since the baseline for applying the antidegradation policy to an individual source is the water quality resulting from the source's currently authorized discharge, and since regularly-scheduled, recurring activities remain subject to water quality standards and the terms and conditions in any applicable federal and state permits, certifications and licenses, the following activities will not be considered new or increasing discharges and will therefore not trigger an antidegradation review under this rule so long as they do not increase in frequency, intensity, duration or geographical extent:

(a) Rotating grazing pastures,

(b) Agricultural crop rotations, and

(c) Maintenance dredging.

(5) Exemptions to the Antidegradation Requirement. Some activities may, on a short term basis, cause temporary water quality degradation. However, these same activities may also have substantial and desirable environmental benefits. The following activities and situations fall into this category. Such activities and situations remain subject to water quality standards, and must demonstrate that they have minimized adverse affects to threatened and endangered species in order to be exempt from the antidegradation review under this rule:

(a) Riparian Restoration Activities. Activities that are intended to restore the geomorphology or riparian vegetation of a water body, or control invasive species need not undergo an antidegradation review so long as the Department determines that there is a net ecological benefit to the restoration activity. Reasonable measures that are consistent with the restoration objectives for the water body must be used to minimize the degradation;

(b) Emergency Situations. The Director or a designee may, for a period of time no greater than 6 months, allow lower water quality without an antidegradation review under this rule in order to respond to public health and welfare emergencies (for example, a significant threat of loss of life, personal injury or severe property damage); and

(c) Exceptions. Exceptions authorized by the Commission or Department under (9) of this rule.

(6) High Quality Waters Policy: Where the existing water quality meets or exceeds those levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, and other designated beneficial uses, that level of water quality must be maintained and protected. However, the Environmental Quality Commission, after full satisfaction of the intergovernmental coordination and public participation provisions of the continuing planning process, and with full consideration of sections (2) and (9) of this rule, and 340-041-0007(4), may allow a lowering of water quality in these high quality waters if it finds:

(a) No other reasonable alternatives exist except to lower water quality; and

(b) The action is necessary and benefits of the lowered water quality outweigh the environmental costs of the reduced water quality. This evaluation will be conducted in accordance with DEQ's "Antidegradation Policy Implementation Internal Management Directive for NPDES Permits and section 401 water quality certifications," pages 27, and 33-39 (March 2001) incorporated herein by reference;

(c) All water quality standards will be met and beneficial uses protected; and
(d) Federal threatened and endangered aquatic species will not be adversely affected.

(7) Water Quality Limited Waters Policy: Water quality limited waters may not be further degraded except in accordance with section (9)(a)(B), (C) and (D) of this rule.

(8) Outstanding Resource Waters Policy. Where existing high quality waters constitute an outstanding State or national resource such as those waters designated as extraordinary resource waters, or as critical habitat areas, the existing water quality and water quality values must be maintained and protected, and classified as "Outstanding Resource Waters of Oregon."

(a) The Commission may specially designate high quality water bodies to be classified as Outstanding Resource Waters in order to protect the water quality parameters that affect ecological integrity of critical habitat or special water quality values that are vital to the unique character of those water bodies. The Department will develop a screening process and establish a list of nominated water bodies for Outstanding Resource Waters designation in the Biennial Water Quality Status Assessment Report (305(b) Report). The priority water bodies for nomination include:

(A) Those in State and National Parks;

(B) National Wild and Scenic Rivers;

(C) State Scenic Waterways;

(D) Those in State and National Wildlife Refuges; and

(E) Those in federally designated wilderness areas.

(b) The Department will bring to the Commission a list of water bodies that are proposed for designation as Outstanding Resource Waters at the time of each triennial Water Quality Standards Review; and

(c) When designating Outstanding Resource Waters, the Commission may establish the water quality values to be protected and provide a process for determining what activities are allowed that would not affect the outstanding resource values. After the designation, the Commission may not allow activities that may lower water quality below the level established except on a

short term basis to respond to public health and welfare emergencies, or to obtain long-term water quality improvements.

(d) The following are Outstanding Resource Waters of Oregon:

(A) The North Fork Smith River and its tributaries and associated wetlands, South Coast Basin. See OAR 340-041-0305(4).

(B) Waldo Lake and its associated wetlands, Willamette Basin. See OAR 340-041-0345(4).

(9) Exceptions. The Commission or Department may grant exceptions to this rule so long as the following procedures are met:

(a) In allowing new or increased discharged loads, the Commission or Department must make the following findings:

(A) The new or increased discharged load will not cause water quality standards to be violated;

(B) The action is necessary and benefits of the lowered water quality outweigh the environmental costs of the reduced water quality. This evaluation will be conducted in accordance with DEQ's "Antidegradation Policy Implementation Internal Management Directive for NPDES Permits and section 401 water quality certifications," pages 27, and 33-39 (March 2001) incorporated herein by reference; and

(C) The new or increased discharged load will not unacceptably threaten or impair any recognized beneficial uses or adversely affect threatened or endangered species. In making this determination, the Commission or Department may rely upon the presumption that if the numeric criteria established to protect specific uses are met the beneficial uses they were designed to protect are protected. In making this determination the Commission or Department may also evaluate other State and federal agency data that would provide information on potential impacts to beneficial uses for which the numeric criteria have not been set;

(D) The new or increased discharged load may not be granted if the receiving stream is classified as being water quality limited under sub-section (a) of the definition of “Water Quality Limited” in OAR 340-041-0002, unless:

(i) The pollutant parameters associated with the proposed discharge are unrelated either directly or indirectly to the parameter(s) causing the receiving stream to violate water quality standards and being designated water quality limited; or

(ii) Total maximum daily loads (TMDLs), waste load allocations (WLAs) load allocations (LAs), and the reserve capacity have been established for the water quality limited receiving stream; and compliance plans under which enforcement action can be taken have been established; and there will be sufficient reserve capacity to assimilate the increased load under the established TMDL at the time of discharge; or

(iii) Effective July 1, 1996, in water bodies designated water-quality limited for dissolved oxygen, when establishing WLAs under a TMDL for water bodies meeting the conditions defined in this rule, the Department may at its discretion provide an allowance for WLAs calculated to result in no measurable reduction of dissolved oxygen (DO). For this purpose, "no measurable reduction" is defined as no more than 0.10 mg/L for a single source and no more than 0.20 mg/L for all anthropogenic activities that influence the water quality limited segment. The allowance applies for surface water DO criteria and for Intergravel dissolved oxygen (IGDO) if a determination is made that the conditions are natural. The allowance for WLAs applies only to surface water 30-day and seven- day means; or

(iv) Under extraordinary circumstances to solve an existing, immediate and critical environmental problem, the Commission or Department may, after the completion of a TMDL but before the water body has achieved compliance with standards, consider a waste load increase for an existing source on a receiving stream designated water quality limited under sub-section (a) of the definition of "Water Quality Limited" in OAR 340-041-0002. This action must be based on the following conditions:

(I) That TMDLs, WLAs and LAs have been set; and

(II) That a compliance plan under which enforcement actions can be taken has been established and is being implemented on schedule; and

(III) That an evaluation of the requested increased load shows that this increment of load will not have an unacceptable temporary or permanent adverse effect on beneficial uses or adversely affect threatened or endangered species; and

(IV) That any waste load increase granted under subparagraph (iv) of this paragraph is temporary and does not extend beyond the TMDL compliance deadline established for the water body. If this action will result in a permanent load increase, the action has to comply with sub-paragraphs (i) or (ii) of this paragraph.

(b) The activity, expansion, or growth necessitating a new or increased discharge load is consistent with the acknowledged local land use plans as evidenced by a statement of land use compatibility from the appropriate local planning agency.

(c) Oregon's water quality management policies and programs recognize that Oregon's water bodies have a finite capacity to assimilate waste. Unused assimilative capacity is an exceedingly valuable resource that enhances in-stream values and environmental quality in general. Allocation of any unused assimilative capacity should be based on explicit criteria. In addition to the conditions in subsection (a) of this section, the Commission or Department may consider the following:

(A) Environmental Effects Criteria:

(i) Adverse Out-of-Stream Effects. There may be instances where the non-discharge or limited

discharge alternatives may cause greater adverse environmental effects than the increased discharge alternative. An example may be the potential degradation of groundwater from land application of wastes;

(ii) Instream Effects. Total stream loading may be reduced through elimination or reduction of other source discharges or through a reduction in seasonal discharge. A source that replaces other sources, accepts additional waste from less efficient treatment units or systems, or reduces discharge loadings during periods of low stream flow may be permitted an increased discharge load year-round or during seasons of high flow, so long as the loading has no adverse affect on threatened and endangered species;

(iii) Beneficial Effects. Land application, upland wetlands application, or other non-discharge alternatives for appropriately treated wastewater may replenish groundwater levels and increase streamflow and assimilative capacity during otherwise low streamflow periods.

(B) Economic Effects Criteria. When assimilative capacity exists in a stream, and when it is judged that increased loadings will not have significantly greater adverse environmental effects than other alternatives to increased discharge, the economic effect of increased loading will be considered. Economic effects will be of two general types:

(i) Value of Assimilative Capacity. The assimilative capacity of Oregon's streams is finite, but the potential uses of this capacity are virtually unlimited. Thus it is important that priority be given to those beneficial uses that promise the greatest return (beneficial use) relative to the unused assimilative capacity that might be utilized. In-stream uses that will benefit from reserve assimilative capacity, as well as potential future beneficial use, will be weighed against the economic benefit associated with increased loading;

(ii) Cost of Treatment Technology. The cost of improved treatment technology, non-discharge and limited discharge alternatives may be evaluated.

Stat. Auth.: ORS 468.020, 468B.030, 468B.035 & 468B.048

Stats. Implemented: ORS 468B.030, 468B.035 & 468B.048

Hist.: DEQ 17-2003, f. & cert. ef. 12-9-03; DEQ 2-2007, f. & cert. ef. 3-15-07

Basin-Specific Criteria

340-041-0345

Basin-Specific Criteria (Willamette): Water Quality Standards and Policies for this Basin

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(4) Outstanding Resource Waters of Oregon (ORWs)

(a)**Waldo Lake and all its associated wetlands in Oregon.**

(b) The current high water quality, exceptional ecological values, and existing and designated uses of the ORWs identified in this rule ("these waters") shall be maintained and protected except as altered by natural causes.

(c) No new NPDES discharge or expansion of an existing discharge to these waters shall be allowed.

(d) No new NPDES discharge or expansion of an existing discharge to waters upstream of or tributary to these waters shall be allowed if such discharge would significantly degrade the water quality within these waters.

(e) No activities shall be allowed that would degrade the existing water quality and ecological characteristics and values of these waters.

As per OAR 137-001-0070(1), co-petitioners submit the following facts and arguments:

Waldo Lake in Lane County and its associated wetlands should be designated as an ORW of Oregon due to its exceptional water quality, the diverse ecosystem it supports, and the unparalleled recreational opportunities it affords. The Commission should designate Waldo Lake as an ORW in order to maintain and protect the levels of water quality needed to support Waldo Lake's existing beneficial uses and to ensure compliance with the state's antidegradation policy.

I. Waldo Lake unequivocally meets the criteria required for ORW designation

A. Waldo Lake Background

Occupying 9.8 square miles in the Willamette National Forest, Waldo Lake sits at the western crest of the Cascade Range, serving as the source for the nationally designated Wild and Scenic North Fork Middle Fork Willamette River.[1] Heralded as the second deepest lake in Oregon with pristine water quality, Waldo Lake stands out as an exceptional aquatic resource for locals and visitors alike.[2] The land surrounding the lake, known as the Waldo Lake Wilderness, is also a nationally recognized wilderness (receiving this designation from Congress in 1984), and is home to a variety of forest ecosystems, mountains, trails, and various natural spaces for outdoor recreation.

Until the 1970s, access to Waldo Lake was limited; the advent of roads and campgrounds in and around the area in the ensuing decades led to increased tourism and, consequently, a substantial decrease in the water quality of the lake and degradation of the surrounding land.[3] While use of gasoline motor boats on Waldo Lake has been banned in recent years, electric motors are still allowed, and tourists travel from all over the world to countenance the pristine beauty and solitude of the region, while also taking advantage of fishing, boating, hiking, camping, and a variety of other activities that Waldo Lake and the surrounding region has to offer.[4] The potential to designate Waldo Lake as an ORW would be an opportunity for Oregon to ensure the preservation of a large non-motorized lake, the likes of which does not exist elsewhere in the Pacific Northwest, by protecting it from further pollution for future generations.

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[1] Wild and Scenic Rivers. 16 USC 1274: Component rivers and adjacent lands.

[2] USDA: Forest Service. *Waldo Lake Area*. https://www.fs.usda.gov/recarea/willamette/recarea/?recid=4528. 2019.

[3] Oregon Wild. *Waldo Lake- Gem of the Cascades*. https://oregonwild.org/waters/wild-scenic/waldo-lake. 2019.

[4] The Oregon Encyclopedia. *Waldo Lake*. https://oregonencyclopedia.org/articles/waldo_lake/#.W-OFynpKiRs. 2018.

In July 2017, the EQC acted to designate the North Fork Smith River an ORW — the first and, to date, only ORW in Oregon.[5] The EPA ratified this decision in October 2017, protecting the North Fork Smith River from further degradation.[6] The following factors contributed to the ORW designation: the North Fork exists entirely on public land; is essential habitat for biodiversity; has "exceptionally high quality waters;" and offers unique recreational opportunities.[7] Similarly, Waldo Lake exists on public land, is habitat for many aquatic and land species, has truly exceptional water quality, and offers recreational opportunities for boating, fishing and other outdoor activities. The North Fork Smith River, is located in the Rogue River-Siskiyou National Forest in Southwest Oregon.[8] Similarly, Waldo Lake and its surrounding lands are located entirely in a national forest, the Willamette National Forest.

Waldo Lake is a rich ecosystem which draws a myriad of tourists every year for fly-fishing, camping, and wildlife observation. It offers access and views of nature to travelers, boaters and bicyclists. Given the extent of human use on Waldo Lake, this source should be protected to the fullest extent possible. Further, Waldo Lake is a source to the North Fork Middle Fork Willamette River, which is designated a Wild and Scenic river.[9]

Waldo Lake has pristine water quality. The North Fork Smith River was designated as an ORW because of its outstanding water quality. The EQC's press release detailed the North Fork Smith River's water quality as "offer[ing] exceptional clarity and a vibrant blue color."[10] Similarly, Waldo Lake has truly exceptional clarity. Waldo Lake is also ultraoligotrophic, a designation connoting a scarcity of plant nutrients and an abundance of oxygen, resulting in unparalleled clarity.[11] A product of its extremely low alkalinity, the waters of Waldo Lake are comparably, if not exceedingly, blue to those of the North Fork Smith River. In fact, Waldo Lake is often

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[5] State of Oregon Department of Environmental Quality. *North Fork Smith River ORW Rules.* https://www.oregon.gov/deq/Rulemaking%20Docs/nfsmithriver2017rules.pdf. 2017.

[6] United States Environmental Protection Agency. *US EPA Region 10.* https://www.oregon.gov/deq/FilterDocs/NFSR-ORWO.pdf. 2017.

[7]State of Oregon Department of Environmental Quality. *North Fork Smith River ORW Rules*. 2017.

[8] United States Department of Agriculture. *North Fork Smith Wild and Scenic River Management Plan.* https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5315366.pdf. 2003.

[9] National Wild and Scenic Rivers System. *Willamette River*. https://www.rivers.gov/rivers/willamette.php. 2018.

[10] Oregon Department of Environmental Quality. *Oregon EQC protects the North Fork Smith River*. https://www.oregon.gov/newsroom/Pages/NewsDetail.aspx?newsid=2164. 2017.

[11] Atlas of Oregon Lakes. Waldo Lake. https://aol.research.pdx.edu/lakes/17090001020920. 2019.

compared to Crater Lake because of the striking blue color of its water. On clear days, visibility in Waldo Lake can reach to depths of 120 feet.

Lastly, the North Fork Smith River is lauded for its recreational opportunities, a fact noted in the petition to designate it as an ORW, which notes that, "The North Fork Smith River system's world-class water based recreation and tourism activities are included in the existing designated beneficial uses of wildlife and hunting, fishing, boating, water contact recreation, and aesthetic quality."[12] In recent years citizens worked together to limit boating on Waldo Lake to human powered boats and electric motors, in an effort to keep the lake's water quality pristine. While boasting everything this list has to offer, Waldo Lake and its surrounding lands also offer spectacular and accessible camping and hiking; in addition to being a retreat for local families and outdoors enthusiasts, the area serves as a corridor for the highly regarded, and more recently popularized, Pacific Crest Trail, which sees thousands of hikers every year. [13]

In sum, Waldo Lake should be designated as an Outstanding Resource Water because it has exceptionally high quality water, is essential habitat for many species, and has unparalleled opportunities for outdoor recreation. If the criteria for the designation of an Outstanding Resource Water were written with an ideal in mind, Waldo Lake most certainly seems to be in the spirit of that language.

B. Waldo Lake's Unique Qualities Make it an Ideal ORW Candidate

The Commission should designate Waldo Lake as an ORW in order to maintain and protect the levels of water quality needed to support the existing beneficial uses and to ensure compliance with the State's Antidegradation Policy.

The existing beneficial uses of Waldo Lake, described below, are due to the pure water quality and the absence of human activities that can cause sources of point and nonpoint pollution (some minor nonpoint pollution may occur due to soil erosion from trails and recreation surrounding the lake). It is in the public interest to maintain and protect the "High Quality Waters" and exceptional water quality of Waldo Lake for fish and aquatic life, rare plant habitats, aesthetic values, and recreation and tourism activities.

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[12] Oregon Department of Environmental Quality. *Petition for the North Fork Smith River.* https://www.oregon.gov/deq/FilterDocs/petitionorwo.pdf. 2016

[13] Pacific Crest Trail Association. Waldo Lake. https://www.pcta.org/journalist/post/waldo-lake/. 2014.

Waldo Lake lies deep within a serene forest environment that supports rare species of moss, unique birds, and a variety of threatened carnivores. Waldo Lake is the source of the North Fork of the Middle Fork of the Willamette River and therefore connected to additional organisms specific to the Pacific Northwest. Waldo Lake has no permanent inlet to bring nutrients into the lake needed for plant growth[14] which is partially responsible for its status as a naturally fishless lake.

Unlike fish, which are not native to the lake, the rare semi-aquatic leafy liverwort, *Marsupella emartinata var. aguatica*, naturally grows on rocks in the splash-zone of the Waldo Lake outlet. This is the only documented occurrence of this moss in Western North America. Two species of salamanders have also been observed in Waldo Lake: the northwestern salamander, *Ambystoma gracile* and the rough skinned newt, *Trachia granulosa*. Only adults and larvae of these species were found in Waldo Lake. Small ponds adjacent to the lake are used as a place to lay eggs and for early larval development.[15] Frogs and toads species are also abundant in the near shore areas of Waldo Lake. These include: the cascade frog, *Rana cascadae*; the western toads, *Bufo boreas*; and the tree frog, *Hyla regilla*.[16]

Waldo Lake occupies about 32 percent of its watershed, meaning almost two thirds of the precipitation that falls in the Waldo watershed arrives indirectly to the lake by way of land.[17] This is significant because the surrounding area plays an important role in the health and quality of the lake. Waldo Lake is situated in the High Cascades, so it is managed by the Willamette and Deschutes National Forest Service.[18] Congress protected the surrounding 39,000-acres of wilderness in 1984 to preserve the area's unspoiled forests, scenic mountains, and backcountry recreation.[19] This wilderness is approximately 98% forested and mostly made up of the noble Douglas fir, Pacific silver fir,[20] and has the largest old growth of Mountain Hemlock stand in the

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[14] U.S. Forest Service, *Waldo Lake Area*. https://www.fs.usda.gov/recarea/willamette/recarea/?recid=4528. 2019.

[15] U.S Forest Service, *North Fork of the Middle Fork Willamette River Watershed Analysis*, 1995.

[16] *Id.*

[17] Salinas. Crater Lake Institute. *Oregon's Two Largest, Deepest, Bluest, Purest Lakes: A Comparison*. 2002.

[18] Oregon Wild. *Waldo Lake- Gem of the Cascades*. https://oregonwild.org/waters/wild-scenic/waldo-lake. 2019.

[19] Oregon Wild, *Waldo Lake- Gem of the Cascades*. 2019.

[20] U.S. Forest Service. *Waldo Lake Wilderness*. https://www.fs.usda.gov/recarea/willamette/recreation/recarea/?recid=4482. 2019.

state.[21] Hidden within the protected forests are beautiful lake basins, mountain meadows, streams, and several peaks over 7000 feet. Waldo Lake provides a peaceful solitude only attainable in true wildness.[22]

The serene environment surrounding Waldo Lake is home to threatened species such as Spotted Owls, Pine Martens, and the Pacific Fisher. Pacific Fisher populations are thought to be declining in the Deschutes National Forest; however, the Forest Service has not adopted a management plan.[23] Waldo Lake is also habitat for deep forest dwellers such as Pileated Woodpeckers, Spotted Owls, Sooty, and Ruffed Grouse. Furthermore, the region may be a migration corridor for Wolverines, which have recently been photographed on Mt. Adams to the north and in the Sierra Nevada to the south. Wolverines, listed as threatened by the state, have shown up periodically in the Oregon Cascades over the years. Until 2008, Wolverines were thought to be extinct in California since 1910 until one showed up in a camera trap. Similarly, experts believed they were entirely gone in the Cascades south of Mt. Rainier until one also showed up in a camera trap near Mt. Adams in 2006, roughly 40 miles north of Oregon. Waldo Lake provides important habitat for all of these species. Currently unprotected, the lake represents a "missing link" of protected land on the Cascade crest. The designation of the lake would fill-in this link and provide for a protected corridor for these species along the Crest.

Waldo Lake is the source of the North Fork Middle Fork of the Willamette River which was designated as a Wild and Scenic river in 1988.[24] This North Fork of the Middle Fork is one of the few rivers in western Oregon managed for wild trout by the ODFW. Roosevelt elk use this extensive and ecologically diverse river corridor throughout the year, as well as blacktail deer, black bear and cougar.[25] Protecting Waldo Lake will help protect the quality of water in the Willamette River.

In sum, the EQC should grant the petition to designate Waldo Lake as ORW of Oregon in order to maintain and protect the water quality necessary to support the unique aquatic and forest environments.

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[21] Sierra Club. The Juniper Group. *Keep Waldo Wild: Our Campaign to Protect Lands Surrounding Oregon's Waldo Lake*. https://oregon2.sierraclub.org/juniper-group/waldo/keep-waldo-wild. 2018.

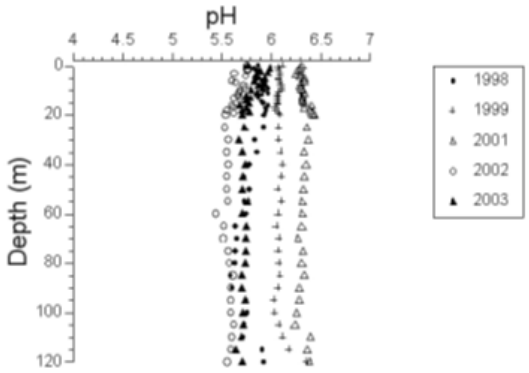
[22] Sierra Club. The Juniper Group. *Keep Waldo Wild: Our Campaign to Protect Lands Surrounding Oregon's Waldo Lake*. 2018.

[23] *Id.*

[24] 16 USC 1274: Component rivers and adjacent lands

[25] National Wild and Scenic Rivers System. *Willamette River*. https://www.rivers.gov/rivers/willamette.php. 2018.

Waldo Lake is the second largest non-alkali lake in Oregon.[26] The pH measurements from Waldo Lake show that the pH rarely exceeds 6.5.[27] The last known measurements were taken from 1998 to 2003. Both in situ and in the laboratory measurements are prone to error because the extremely low ionic strength of the lake requires a longer stabilization period of measuring equipment (Figure 1). The large variation in annual mean pH observed in field-collected data was likely a function of measurement error. [28]



Waldo Lake is known for its outstanding water quality and is thought to be one of the most oligotrophic large lakes in the world. The clarity of the lake is due to a low concentration of suspended particles and a low concentration of dissolved organic substances.[29]
A Secchi Transparency study conducted from 1990 to 2003 measured concentrations of dissolved organic substances. On days where wave and sky conditions provided optimal weather conditions, transparency averaged 37 meters. On days where cloud cover and waves due to winds produced more difficult weather conditions for measuring Secchi depth, transparency averaged 33 meters. (Table 7).[30] A record Secchi depth of 47.9 meters was recorded in 1938.[31]

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[26] Willamette National Forest (N.F.). *Land and Resource(s) Management Plan (LRMP): Environmental Impact Statement*. 1990. p III-18.

[27] Douglas W. Larson. *Featured Lake Waldo Lake: World's Most Oligotrophic Lake?* 2005. p. 29.

[28] Mark Sytsma, et al., Center for Lakes and Reservoirs Department of Environmental Sciences and Resources, Portland State University, *Waldo Lake Research in 2003.* 2004. p 54.

[29] Mark Sytsma, et al., Center for Lakes and Reservoirs Department of Environmental Sciences and Resources, Portland State University, *Waldo Lake Research in 2003.* 2004. p 42.

[30] Mark Sytsma, et al., Center for Lakes and Reservoirs Department of Environmental Sciences and Resources, Portland State University, *Waldo Lake Research in 2003.* 2004. p 48.

[31] Douglas W. Johnson. *Waldo Lake, Oregon: Eutrophication of a Rare, Ultraoligotrophic, High-Mountain Lake*. 2000. p 4.

Table 7: Secchi disk conditions for readings from 1996 through 2003

"Good" conditions		"Bad" conditions	
Date	Secchi Disk Reading (m)	Date	Secchi Disk Reading (m)
06/20/1998	37.5	09/06/1996	20
06/20/1998	39.1	09/19/1999	35
08/16/1998	33	09/19/1999	35.5
07/26/1999	40	05/27/2001	33
07/26/1999	40.5	06/29/2002	32.2
08/31/1999	35	07/29/2002	36.2
10/09/1999	34	07/29/2002	36.5
10/09/1999	34.2	09/21/2003	34
07/07/2001	41.3	09/21/2003	35
08/19/2001	39.8	09/21/2003	36
09/09/2001	34.2		
08/19/2002	35.8		
Total days 9		Total days 6	
Average 37 m		Average 33.3 m	

An early investigation found that the lake's water was extremely diluted and chemically similar to distilled water.[32] Because the watershed is only twice as large as the lake, the amount of water supplied to the lake each year is a small fraction of the lake's total volume. Replacement of the lake's entire volume would require a volume of water input equal to roughly 30 years.[33]

Waldo Lake's exceptional clarity provides incredible recreational opportunities for the many locals and tourists who visit the lake. People come to observe Waldo Lake's unique turquoise and blue hues. Families journey to Waldo for a tranquil and healthy outdoor paradise to safely recreate in and on the water. Because of the low replacement time of the lakes volume of water, the lake is more susceptible to pollution and can't clean itself by cycling through its water as quickly as other lakes.

Table 1. Chemistry of Waldo Lake, Oregon [a, b]			
	n range mean		
Specific Conductance (μmos/cm)	155		2.9-3.8

Douglas W. Johnson. *Waldo Lake, Oregon: Eutrophication of a Rare, Ultraoligotrophic, High-Mountain Lake*. 2000. p 2.

[33] Douglas W. Johnson. *Waldo Lake, Oregon: Eutrophication of a Rare, Ultraoligotrophic, High-Mountain Lake*. 2000. p 5.

Total Alkalinity (mg/l as CaCO3)	150		1.6-3.0
Total dissolved solids (mg/l)	135		<1.0-16.0
Calicium (mg/l)	4		0.123-0.130
Magnesium (mg/l)	4	all	<0.015
Sodium (mg/l)	4		0.098-0.125
Potassium (mg/l)	4	all	<0.050
Silica, dissolved (mg/l)	153		0.12-0.34
Total carbon (mg/l)	5		0.95-5.41
Dissolved carbon (mg/l)	5		0.60-5.02
Total organic carbon (mg/l)	5		0.58-3.99
Dissolved organic carbon (mg/l)	5		0.50-3.40
Bicarbonate (mg/l)	150		0.39-0.71
Nitrite/nitrate-nitrogen(µg/l)	159		<1.0-3.0
Ammonium-nitrogen (µg/l)	155		<1.0-19.0
Total phosphorus (µg/l)	152		<1.0-13.0
Soluble reactive phosphorus (µg/l)	150		<1.0-7.0
[a] After Larson, 2000			
[b] Water samples, collected in vertical profile between 1986-1995, were analyzed by the U.S. Forest Service's Cooperative Chemical Analytical Laboratory at Oregon State University, Corvallis.			

Waldo Lake has world-class recreation that supports the tourism economy of its surrounding communities and central Oregon. Outdoor enthusiasts travel from all over to Waldo Lake for its exceptional water-related tourism and recreational opportunities such as camping, hiking, mountain biking, fishing, boating, swimming, and horseback riding on surrounding trails. Many also use the lake as an access point into the cherished Waldo Lake Wilderness Area. Tourists seek out Waldo Lake to experience the uniquely clear and vibrantly opal waters.[34]

Around Waldo Lake, there are over 200 designated campsites and three different campgrounds: North Waldo, Islet, and Shadow Bay. Campsites are often reserved up to six months in advance and are typically full in August and September, making Waldo Lake one of the most popular camping spots in Central Oregon.[35] Campgrounds are well maintained and equipped with sanitation stations and pit toilets.[36]

The campgrounds at Waldo Lake serve as a launch point for many of the lake's various activities, one of which is hiking on trails to see the exceptional water quality of Waldo Lake. The popular shoreline trail provides visitors with unique views of the lake and the High Cascades while meandering through a high-elevation forest.[37] The Harralson Horse Camp and the North end of Waldo Lake are some of the most popular trailheads in central Oregon because of their beauty and access to countless miles of trails.[38] From the lake, hikers can summit the Sisters peaks, explore Salt Creek Falls (Oregon's third highest waterfall), or visit high alpine lakes such as Rigdon, Wahanna, and Torey Lakes.[39] Waldo Lake is also a popular destination for wilderness enthusiasts since it is the main access point for the Waldo Lake Wilderness area.[40] The wilderness area is 98% forested which attracts tourists.[41] The extremely popular Pacific Crest

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[34] United States Department of Agriculture Forest Service, *Waldo Lake Wilderness*, Willamette National Forest, https://www.fs.usda.gov/recarea/willamette/recreation/recarea/?recid=4482 (last visited April 14th, 2019).

[35] United States Department of Agriculture Forest Service, *Waldo Lake Area*, Willamette National Forest, https://www.fs.usda.gov/recarea/willamette/recarea/?re cid=4528 (last visited April 14th, 2019).

[36] United States Department of Agriculture Forest Service, *Waldo Lake Area*, Willamette National Forest, 2019.

[37] *Id*.

[38] *Id.*

[39] *Id.*

[40] *Id.*

[41] United States Department of Agriculture Forest Service, *Waldo Lake Wilderness*, Willamette National Forest, https://www.fs.usda.gov/recarea/willamette/recreation/recarea/?recid=4482 (last visited April 14th, 2019).

Trail runs though the wilderness area giving hikers from all over the world the opportunity to use Waldo Lakes shores as a break from days of backpacking.

Visitors also experience the trails around Waldo Lake through mountain biking and horseback riding. Many tourists from Bend and other surrounding towns travel to bike the 20-mile Jim Weaver Loop trail through high forests around the lake.[42] This feeds the surrounding communities' recreation economy through bike rentals, car rentals, gear, and guides. Additionally, horseback trail rides are another popular activity on the lake that fuels the tourism and outdoor guide economy. The Harralson Horse Camp is a starting point for many day or overnight trail rides.[43]

Waldo Lake offers visitors a chance to fish and boat on a unique lake. While the lake has not been stocked with fish since 1990, communities of brook trout self-populate the lake and are an exciting catch.[44] Many visitors rent kayaks or paddle boards from nearby towns and explore the uniquely clear and opal waters and Waldo Lake's enchanting rocky islands.[45] There are accommodating boat launches from North Waldo Campground and Day Use Area, Islet Campground and Day Use Area, and Shadow Bay Campground and Day Use Area.[46] While non-motorized boats are the most popular, motorized boats are also allowed on the lake only if they are propelled by an electric motor[47] limiting any pollution to this pristine lake. Lastly, recreational visitors enjoy swimming in one of Oregon's clearest lakes where they can see up to 100 feet deep.[48]

The economy surrounding Waldo Lake relies on its recreation and tourism opportunities and a pristine environment is essential to attracting tourists and outdoor recreation enthusiasts. Waldo Lake's opal tone and crystal clear water offers locals and tourists a place to recreate and will continue to drive new tourism in Central Oregon if the lake remains pristine. A designation as an ORW of Oregon will protect Waldo Lake's water quality for generations to come.

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[42] United States Department of Agriculture Forest Service, *Waldo Lake Wilderness*, 2019.

[43] *Id.*

[44] *Id.*

[45] *Id.*

[46] *Id.*

[47] *Id.*

[48] *Id.*

II. Rule Language

a. **As per OAR 137-001-0070(1)(c), asserted propositions of law:**

40 CFR 131.12(a)(3) - Antidegradation Policy:

"Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected."

OAR 340-013-0005 - Wilderness, Recreational, and Scenic Area Rules - Environmental Standards for Wilderness Areas:

"Therefore, it is declared to be the policy and purpose of the Department of Environmental Quality to maintain the environment of wilderness areas essentially in a pristine state and as free from air, water, and noise pollution as is practically possible and to permit its alteration only in a manner compatible with recreational use and the enjoyment of the scenic beauty and splendor of these lands by the citizens of Oregon and of the United States."

OAR 340-041-0002(44) – Definition:

"'Outstanding Resource Waters' means waters designated by the EQC where existing high quality waters constitute an outstanding state or national resource based on their extraordinary water quality or ecological values or where special water quality protection is needed to maintain critical habitat areas."

OAR 340-041-0004(1) – Antidegradation Purpose:

"The purpose of the Antidegradation Policy is to guide decisions that affect water quality such that unnecessary further degradation from new or increased point and nonpoint sources of pollution is prevented, and to protect, maintain, and enhance existing surface water quality to ensure the full protection of all existing beneficial uses. The standards and policies set forth in OAR 340-041-0007 through 340-041-0350 are intended to supplement the Antidegradation Policy."

OAR 340-041-0004(6) - High Quality Waters Policy:

"Where the existing water quality meets or exceeds those levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, and other designated beneficial uses, that level of water quality must be maintained and protected."

OAR 340-041-0004(8) - Outstanding Resource Waters Policy:

“Where existing high quality waters constitute an outstanding State or national resource such as those waters designated as extraordinary resource waters, or as critical habitat areas, the existing water quality and water quality values must be maintained and protected, and classified as "Outstanding Resource Waters of Oregon”.”

OAR 340-041-0004(8)(a)(B, E) - Outstanding Resource Waters:

“(a) The Commission may specially designate high quality water bodies to be classified as Outstanding Resource Waters in order to protect the water quality parameters that affect ecological integrity of critical habitat or special water quality values that are vital to the unique character of those water bodies. The Department will develop a screening process and establish a list of nominated water bodies for Outstanding Resource Waters designation in the Biennial Water Quality Status Assessment Report (305(b) Report).

ORS 468B.015(5) – Water Quality, Public Health and Safety, Water Pollution Control – Policy:

“To cooperate with other agencies of the state, agencies of other states and the federal government in carrying out these objectives.

[Formerly 449.077 and then 468.710; 2009 c.248 §1]”

b. **As per OAR 137-001-0070(2), petitioner requests amendments to existing rules:**

This Petition requests that the Commission add rule language to OAR 340-041-0004 and OAR 340- 041-0345 and does not propose to revise or delete any current rule language. The Petition does not dispute the continued need for the existing rules. Rather, the proposed rule additions seek to implement the existing rules by designating “Outstanding Resource Waters of Oregon”. The existing rule allowing designation of waters as ORWs fulfills state responsibilities under the Federal Clean Water Act and is consistent with federal regulations.

c. **As per OAR 137-001-0070(2)(a), options to reduce negative economic impact on business:**

The economy of Lane County is in part based on maintaining the current high-water quality of Waldo Lake. This is discussed above relative to the recreational activities. Therefore, adopting this Petition will provide positive economic impacts.

d. **As per OAR 137-001-0070(2)(b), continued need for the existing rules:**

The existing rules are based on the Federal Clean Water Act. An August 8, 2013 USEPA letter and document to the Oregon DEQ regarding the Federal Antidegradation Policy gave a favorable opinion of the existing rules.

e. **As per OAR 137-001-0070(2)(c), complexity of the existing rules:**

The existing rules are not overly complex and similar rule versions have been successfully implemented in many states. For example, the North Fork Smith River and associated tributaries were successfully designated as an ORW.

f. **As per OAR 137-001-0070(2)(d), extent to which the existing rules overlap, duplicate, or conflict with other state or federal rules and with local government regulations:**

Waldo Lake is surrounded by Willamette National Forest and Waldo Lake Wilderness, a nationally recognized wilderness area. An ORW designation would be compatible with the National Forest, and federal Wilderness objectives.

g. As per OAR 137-001-0070(2)(e), degree to which technology, economic conditions, and other factors have changed in the subject area:

Waldo Lake in Oregon is an undeveloped wilderness area as discussed above. The basin has not experienced significant human caused changes. The natural conditions of the watershed support the local economies. Citizen efforts to protect Waldo Lake cumulated in a motorized boating ban, which only allows electric motor boats on the lake. This was an effort to use technology to limit the impact of point source pollution into Waldo Lake. An ORW designation fits these purposes.

III. Waldo Lake Warrants ORW Designation

The Commission should designate Waldo Lake and its associated wetlands in Lane County as an ORW because of its exceptional ecological quality, the habitat it provides to many species, and the recreational opportunities it offers. Consistent with the Commission's previous ORW designation of the North Fork Smith River system, the designation of Waldo Lake will protect a distinct aquatic ecosystem, valuable natural waters, and a place for outdoor tourism in Central Oregon. Supported by the increase in public support for protecting the lake, Waldo Lake is an ideal candidate for the Commission to move forward in its protection of Oregon's high-quality waters and beneficial uses as required under state and federal law.

Waldo Lake unequivocally meets the requirements to be designated as an ORW. As an ultra-oligotrophic lake, comparable to distilled water, Waldo Lake is one of the clearest lakes in the world, constituting an important state and national resource. This high-quality water is central to the area's watershed. It is the source of the North Fork Middle Fork of the Willamette River, a nationally designated Wild and Scenic River, and lies in the forests and scenic mountains of the High Cascades. The lake itself represents a significant portion of the unprotected environment in the area. Thus, this designation will ensure the preservation of the entire corridor of the Cascade Crest, essential habitat for deep forest dwellers and numerous threatened species such as Spotted

Owls, Pine Martins, and Pacific Fisher.

An ORW designation will ensure Waldo Lake remains a recreational gem. The lake's shorelines provide miles of trails and campgrounds which are situated with a focus on enjoying the renowned waters of the lake. As one of the most popular camping spots in Oregon, Waldo Lake is central to Oregon's backcountry recreation and tourism. Outdoor enthusiasts from across the country come to enjoy the hiking trails, mountain biking, fishing, boating, swimming, and horse trails in the area. The lake also provides access to the Waldo Lake Wilderness Area and the Pacific Crest Trail. An ORW designation for Waldo Lake will help maintain and protect this environment from activities that would degrade its unique water quality and thereby preserve Waldo Lake as an outdoor attraction that supports outstanding tourism opportunities.

Oregon Department of Environmental Quality
July 18-19, 2019
Oregon Environmental Quality Commission Meeting
Action Item E

Petition to Conduct Rulemaking To Designate Waldo Lake and its Associated Wetlands Outstanding Resource Waters

DEQ recommendation to the commission

DEQ recommends that the Environmental Quality Commission direct DEQ to initiate rulemaking on the rule amendments proposed by the Northwest Environmental Defense Center on April 22, 2019.

DEQ recommends that the commission allow DEQ to conduct the rulemaking on a time schedule that does not delay projects currently in progress and considers other program priorities.

Overview

Summary of Petition

The Oregon Environmental Quality Commission and DEQ Director Whitman received a petition from the Northwest Environmental Defense Center, dated April 22, 2019, requesting that the commission promulgate rules to designate Waldo Lake and its associated wetlands as Outstanding Resource Waters of Oregon. Waldo Lake is located in Lane County in the high Cascade Mountains. The petition is included as Attachment A of this report. The location of Waldo Lake is provided in Figure 1, and a map of the lake basin is provided in Figure 2, both below.

Based on the petition submittal date of April 22, 2019, the commission has, by statute, until July 21, 2019 to take action on the petition.

DEQ requested public comment on whether to deny the petition or initiate rulemaking proceedings. In accordance with OAR 183.390(3), DEQ specifically requested comment on whether options exist to achieve the rules' goals with less negative economic impact. The petition contains proposed rule language that would designate the Outstanding Resource Waters and establish policies to protect these waters.

If the commission directs DEQ to begin rulemaking, DEQ will proceed with a rulemaking process that will include an opportunity for public comment on the rule language proposed by the petition.

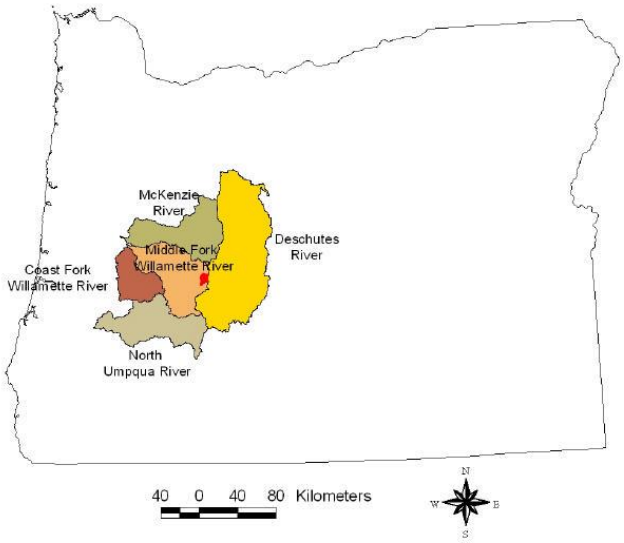


Figure 1: Waldo Lake basin (red) in the Oregon Central Cascades. From: Waldo Lake Research in 2003, Center for Lakes and Reservoirs at Portland State University, Portland, Oregon. 2004.

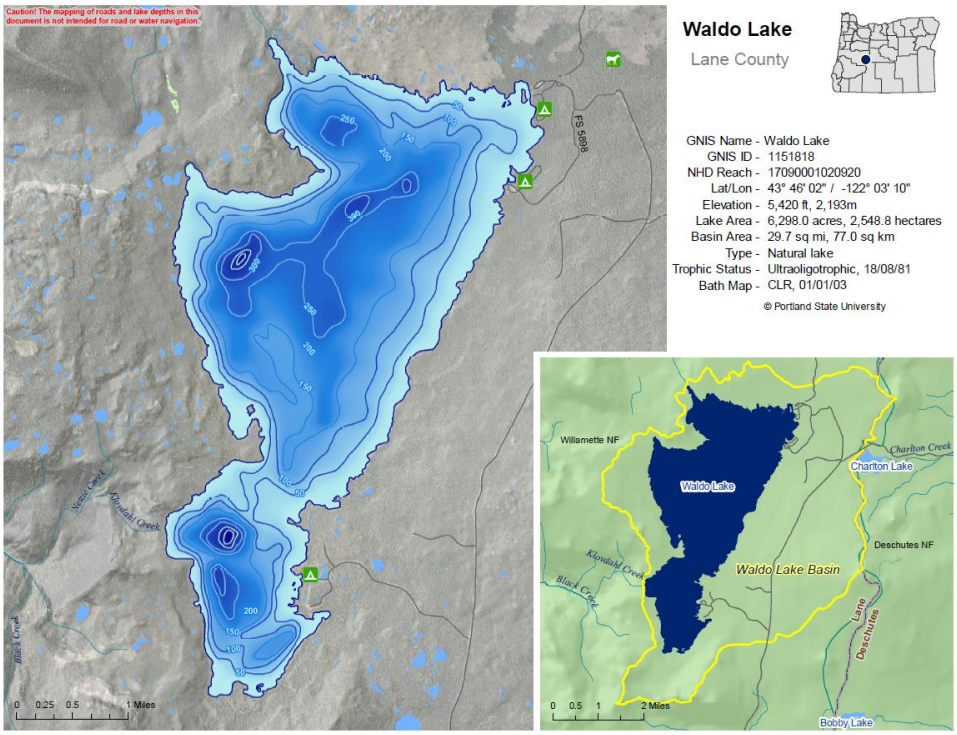


Figure 2. Waldo Lake depth and the lake basin. From: Atlas of Oregon Lakes, 1985-2019, Center for Lakes and Reservoirs at Portland State University, Portland, Oregon. https://aol.research.pdx.edu/lakes/17090001020920

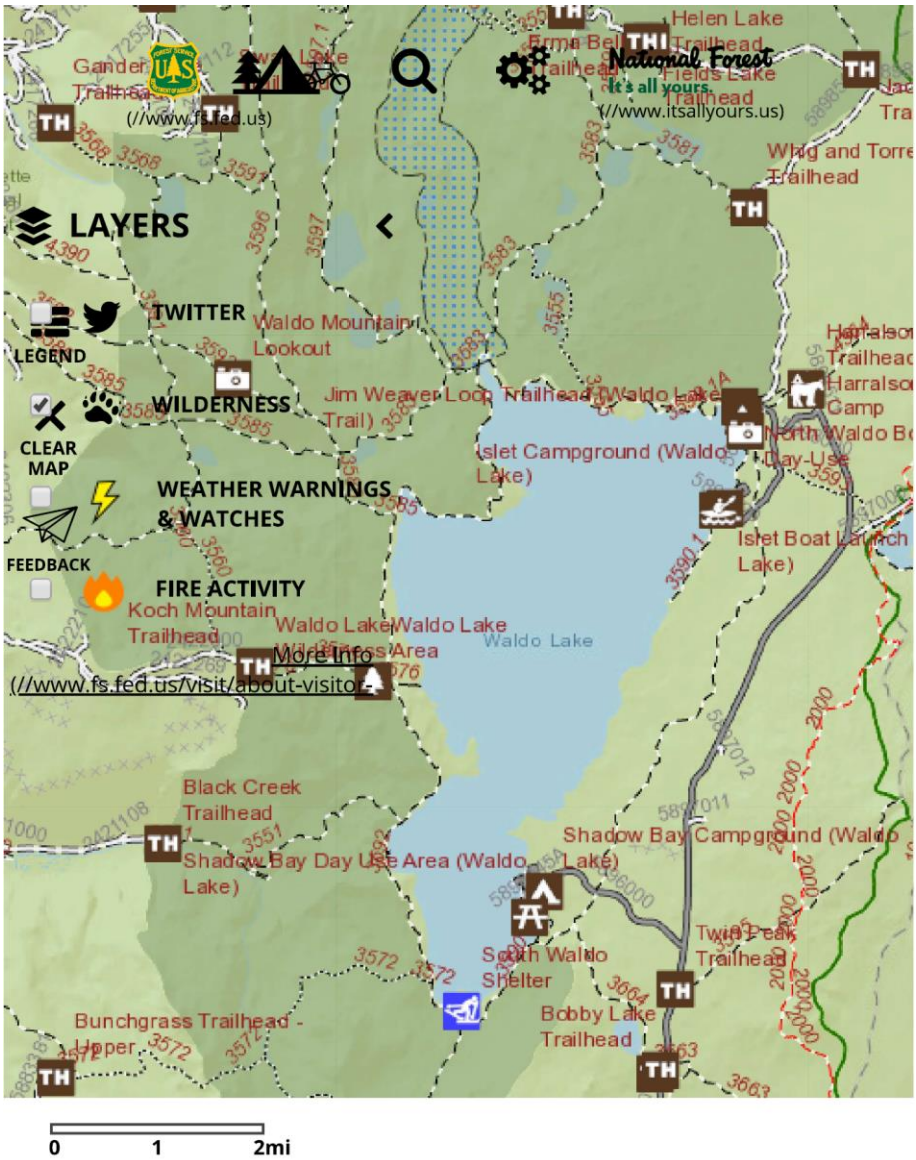


Figure 3. Waldo Lake Vicinity – Willamette National Forest Land Uses

Rule Amendments Proposed by the Petition

The petition proposes to amend OAR 340-041-0004(8), the Outstanding Resource Waters Policy in Oregon's Antidegradation rule, to designate Waldo Lake and its associated wetlands as Outstanding Resource Waters.

The petition also proposes to amend OAR 340-041-0345, Water Quality Standards and Policies for the Willamette Basin, to protect the current high water quality, exceptional ecological values and existing and designated uses of these waters. The proposed rule amendments would prohibit new or expanded wastewater discharges and other activities that would degrade water quality. Exceptions are allowed to respond to emergencies and for restoration or enhancement activities.

The proposed rule amendments are shown on pages 6 and 9 of the Petition in Attachment A. The proposed rule additions are in brown text within that document.

Background: Rulemaking Petitions

Oregon law allows an interested person to petition an agency to promulgate, amend or repeal a rule. Oregon Revised Statute 183.390 and administrative rules at OAR 340-011-0046 and 137-001-0070 describe the requirements for the petition and for agency review. The petition to amend a rule must clearly show the proposed rule revisions and provide facts and arguments supporting the proposal. According to the statute, the agency must either deny the petition or initiate rulemaking proceedings within 90 days of receiving the petition.

Upon its review, the commission may:

1. Deny the petition,
2. Direct DEQ to initiate rulemaking proceedings based on the rules proposed by the petition, or
3. Deny the petition but direct DEQ to take some other action.

In reviewing a petition to amend or repeal a rule, the commission shall consider several questions listed in OAR 137-001-0070 and ORS 183.390. Each of these considerations is discussed in the section titled "DEQ Evaluation of the Petition" below.

Background: Outstanding Resource Waters

Oregon's water quality standards define three classifications of state waters: water quality limited, high quality and outstanding resource waters. As stated in OAR 340-041-0004(8) and the associated definition in 340-041-0002 (45), Outstanding Resource Waters are high quality waters that have extraordinary or unique character or ecological value, or are critical habitat areas, such that they constitute an outstanding state or national resource. The special water quality and ecological values of these waters must then be protected in accordance with Oregon's antidegradation policy.

While the Outstanding Resource Waters Policy has been in Oregon's water quality standards rules for more than 20 years, the commission designated Oregon's first Outstanding Resource Waters, the North Fork Smith River and its tributaries and wetlands, in 2017.

Other states have designated Outstanding Resource Waters and adopted policies to protect those waters. The policies vary from state to state, but they generally limit or prohibit new permitted wastewater discharges and also state that other activities cannot be allowed to degrade the existing high quality and special characteristics or values of the Outstanding Resource Waters. Oregon's policy for the North Fork Smith River and the proposed policy for Waldo Lake follow this approach.

DEQ Evaluation of the Petition

Petition Requirements

DEQ finds that the petition meets the administrative requirements for a rulemaking petition and that the proposed rule amendments are ready to undergo rulemaking proceedings. The rulemaking process will include another opportunity for public comment on the proposed rule language. DEQ may recommend revisions to the proposed rule language in response to public comment if the agency finds the revisions to be appropriate or clarifying.

1. DEQ finds that the petition meets the requirements in OAR 137-001-0070 (1) and (1) (a).
   - The petition provides information about the petitioner. (Attachment A, page 2)
   - The proposed rule amendments are correctly placed within the OAR 340-041 and clearly indicate all additions in bold and underlined type. There are no proposed deletions of rule language. (Attachment A, pages 3-9)

2. DEQ finds that the petition meets the requirements in OAR 137-001-0070 (1) (b) and (c). The petition includes facts and arguments in sufficient detail to show the reasons for and effects of adoption of the proposed rule amendments.
   - The reasons for and effects of the proposed rule amendments are included in the Petition (Attachment A, pages 1-10, 13-14)
   - The petition contains a statement of the propositions of law asserted by the petitioner. The petition states that the proposed rule additions seek to implement existing state rules and fulfill state responsibilities under the federal Clean Water Act and are consistent with federal regulations. The petition cites the following regulations and statutes:
     - The state's antidegradation policy, which includes the outstanding resource waters policy, found at OAR 340-041-0004 (1), (6) and (8) and OAR 340-041-0002 (44).
     - State environmental standards for wilderness areas [OAR 340-013-0005], which state that it is the policy and purpose of DEQ to maintain the environment of wilderness areas in a pristine state, free from water pollution and in a manner compatible with recreation use and enjoyment of the scenic beauty and splendor of these lands.
     - Federal regulations pertaining to antidegradation [40CFR131.02 (a) (3)], which state "where high quality waters constitute an outstanding national resource… that water quality shall be maintained and protected."
     - Oregon statute 468B.015(5), which declares that it is the policy of the state to cooperate with other agencies of the state, other states and the federal government in carrying out water quality and pollution control objectives.
   - The commission's statutory basis for regulating water quality in Oregon and adopting the proposed rule amendments comes from ORS 468B.010, 468.015 and 468B.035

3. DEQ finds that the petition meets the requirements of OAR 137-001-0070 (2). The petition contains comment on each of the required considerations (Attachment A, pages 12-13).

(a) Options for achieving the existing rules' goals while reducing the negative economic impact on businesses:

The petition notes that the economy in Lane County is in part based on maintaining the current high water quality of Waldo Lake.

DEQ adds that the Waldo Lake basin is entirely within the Willamette National Forest and these lands are not used for logging. The Outstanding Resource Waters designation is consistent with the management plans and objectives of the land owner, the U.S. Forest Service, to manage the basin for wilderness, developed use and semi-primitive non-motorized dispersed recreation. In written comments, the Forest Service supports the designation and notes it has implemented policies to ensure that water quality is protected, such as upgrades to sanitation facilities in developed campgrounds and a prohibition of camping on islands.

DEQ received no public comment that any economic activity would be hindered or precluded by the proposed rules. No options were suggested in the public comment received that would achieve the goal of the outstanding resource water policy in another manner and reduce negative economic impacts to businesses. Therefore, it does not appear, based on the information in front of DEQ at this time, that the designation would have a negative economic impact on businesses currently operating in the area.

If the commission approves DEQ to initiate a rulemaking process, DEQ will convene a fiscal impact Advisory Committee and prepare a fiscal impact statement to further evaluate this question. DEQ will also provide another opportunity for the public to comment on the rule language and to suggest alternatives to reduce any economic impact of the proposed rules on businesses.

(b) The continued need for the existing rule:

The petition requests that the commission add rule language to OAR 340-041-0004 and OAR 340-041-0345 and does not propose to revise or delete any current rule language. The petition does not dispute the continued need for the existing antidegradation rule or the existing basin water quality standards. Rather, the proposed amendments implement the existing antidegradation rule by designating Waldo Lake and its associated wetlands as Outstanding Resource Waters. The existing rules fulfill state responsibilities under the federal Clean Water Act and are consistent with federal regulation.

(c) The complexity of the existing rule:

> The proposed rule is not complex and DEQ expects that implementation of the rule will not be complex. The Waldo Lake watershed is entirely under the ownership and management of one federal agency whose management policies for this area are consistent with the rule.

(d) The extent to which the rule overlaps, duplicates or conflicts with other state rules or federal regulations and, to the extent feasible, with local government regulations:

> The proposed designation is compatible with the federal Wilderness Management Plans of the U.S. Forest Service for this area, the federal Roadless Area rule, the State Scenic Waterways Act, and the Oregon Marine Board prohibition on gasoline-powered motor boats in Waldo Lake. The Outstanding Resource Waters designation would add clear and enforceable water quality protections to these waters that are consistent with federal regulations and the management goals of the U.S. Forest Service, the sole land owner.

(e) The degree to which technology, economic conditions or other factors have changed in the subject area affected by the rule:

> The petition notes that increased access to Waldo Lake and accompanying tourism since the 1970s led to a decrease in water quality of the lake and surrounding land, but also noted that gasoline motor boats have been banned on Waldo Lake. The petition also noted that the area relies on these tourism opportunities to support the local economy.

4. As required by OAR 137-001-0070(3), DEQ invited public comment on the rule amendments proposed by the petition and requested comment on whether options exist for achieving the substantive goals of the rule in a way that reduces the negative economic impact on businesses. DEQ received 2,155 comments from 1,945 citizens and five organizations. The comments received are summarized later in this report.

Reasons for and Effects of Outstanding Resource Water Designation for Waldo Lake

The primary facts and arguments for the designation provided in the petition are summarized here. The petition provides additional detail and references.

1. Waldo Lake is remote and pristine. The basin is entirely on public land in the Willamette National Forest. The majority of the lake basin is managed as Wilderness, developed use and semi-primitive non-motorized dispersed recreation. There are three developed campgrounds and one horse camping facility on the lake.

2. Waldo Lake has exceptionally high water quality according to users, information in the petition, the US Forest Service, and data collected by DEQ as part of the National Lakes Assessment. The waters are renowned for their outstanding clarity. The petition and many comment letters, including a comment letter from the Willamette National Forest noted that the lake is chemically similar to distilled water. The Center for Lakes and Rivers at Portland State University noted in a comment letter that the clarity of Waldo Lake has averaged 125 feet since 2001 and reached as deep as 160 feet, greater than the deepest clarity ever recorded at Crater Lake. The Center for Lakes and Reservoirs also noted that due to the clarity, mosses and liverworts have enough light to grow to a depth of 420 feet.

3. The petition and public comment letters noted that water in Waldo Lake has a long replacement time because of its small watershed. As a result of this long replacement time and exceptionally low levels of dissolved substances in the water, the lake is more susceptible to pollution than other lakes.

4. Waldo Lake is the headwater source of the North Fork of the Middle Fork Willamette River, which is a Wild and Scenic river. Protecting Waldo Lake will help protect the quality of water in these rivers.

5. Waldo Lake and its basin support rare plant and animal species. These include the rare semi-aquatic leafy liverwort, *Marsupella emartinata var. aguatica,* which naturally grows on rocks in the splash-zone of the Waldo Lake outlet. In addition, the petition notes the presence of a number of amphibians in Waldo Lake including the Northwestern salamander, *Ambystoma gracile,* the rough skinned newt, *Trachia granulosa,* the cascade frog, *Rana cascadae*; the western toad, *Bufo boreas* and the tree frog, *Hyla regilla*. The surrounding watershed also provides habitat for spotted owls, pine martens and the Pacific fisher.

6. Waldo Lake and its watershed are managed for recreational opportunities that support the economy of surrounding communities. These activities include camping, boating, hiking, fishing, mountain biking, horseback riding and swimming. The petition notes that campgrounds are often reserved up to six months in advance. However, recreation management is balance with the need to protect the pristine water quality of the lake in several ways. Gas powered motor boats and float planes are not allowed on the lake. And the lake is no longer stocked with fish; the only fish remaining in the lake are naturalized populations from earlier stocking.

The effect of an Outstanding Resource Waters designation would be to provide added protections to these waters as stated in the proposed amendments to OAR 340-041-345. The proposed rules would prohibit new permitted point source discharges to Waldo Lake or its tributaries and would prohibit other activities that would degrade the current high water quality and exceptional ecological characteristics and values of these waters.

Parties interested in and potentially affected by the designation include recreational enthusiasts who visit Waldo Lake, such as kayakers, hikers, mountain bikers and fishers, recreation-related businesses, and individuals interested in maintaining pristine waters or protecting rare plants and biodiversity. People who recreate or conduct research on Waldo Lake, or on the North Fork of the Middle Fork Willamette River, are directly affected by the decision. Potentially affected parties also include those who might have an interest in the land being available for future economic use, such as logging, mining, or other economic development. However, DEQ received no comments or information regarding any interest in these types of economic use in the future.

Key policy and technical issues

1. Process for Outstanding Resource Waters designation

    Oregon's ORW policy at 340-041-0004(8) states that DEQ will develop a screening process and establish a list of nominated water bodies for ORW designation and that DEQ will bring a list of water bodies proposed for designation as Outstanding Resource Waters at the time of each triennial water quality standards review. DEQ initiated development of a process many years ago, however due to position reductions at the time, the project was not completed. Waldo Lake was one of the waterbodies identified as a candidate for designation at that time.

    The fact that DEQ had not yet completed this process does not preclude the commission's authority to designated Outstanding Resource Waters, particularly in response to a citizen rulemaking petition.

2. The need for the Outstanding Resource Waters designation

    The purpose of the Outstanding Resource Waters policy is to protect the existing high water quality and ecological values of the waters and prevent a lowering of water quality. An Outstanding Resource Waters designation and the associated protections for those waters are intended to maintain and protect existing high or unique water quality and by extension, to prevent activities and sources that would alter or degrade the water body.

    In this instance, pursuing the Outstanding Resource Waters designation and maintaining the current values of these waters provides a useful and efficient way to fulfill DEQ's responsibility to protect water quality and beneficial uses, particularly for waters such as Waldo Lake that are unique and more susceptible to pollution.

3. Does Waldo Lake qualify as an Outstanding Resource Water?

    Based on the information provided by the petition and through the public comment, DEQ recommends that there is substantial evidence that Waldo Lake qualifies as an outstanding state and national resource for its unique water quality, ecological values, and importance for recreation and research.

This conclusion is supported by information from the Willamette National Forest, which is the landowner and manager. Comments from the Center for Lakes and Reservoirs, the Oregon Lakes Association, Oregon Wild and the U.S. Environmental Protection Agency, and many citizens in Oregon, as well as nationwide, also support the Outstanding Resource Waters designation.

4. Coordination with other state and federal agencies

Designation of Waldo Lake as an Outstanding Resource Waterwould be consistent with the following policies and efforts:

- Management Plan of the Willamette National Forest, the sole land manager, for Waldo Lake;
- Wilderness Act and National Forest Roadless Rule;
- State Scenic Waterways Act;
- Federal Wild and Scenic River Designation for the North Fork of the Middle Fork Willamette River; and
- Oregon Marine Board's 2010 decision to ban gasoline-powered boats and a subsequent decision to ban float planes.

While Outstanding Resource Waters designation under the Clean Water Act is consistent with these efforts, it also fulfills the unique role of focusing on the protection of the water quality and ecosystem values of these waters.

Summary of Public Comment

Public Notice

DEQ requested public comment on the petition and proposed rules. DEQ asked for comment by:

- Sending a GovDelivery email on May 3, 2019, to the water quality standards rulemaking list.
- Posting information about the petition on DEQ's web site: http://www.deq.state.or.us/wq/standards/orwo.htm

Request for other options

During the public comment period, DEQ requested public comment on whether options exist for achieving the rules' substantive goals in a way that reduces the negative economic impact on businesses.

Comments

This report summarizes comments received by the close of the comment period on June 3, 2019. DEQ received a total of 2,155 comments from 1,945 individuals and five organizations during the comment period. Original comments are available from DEQ.

Unlike a formal rulemaking process, DEQ is not required to write a response to comments on the petition. Due to the short time frame for a petition decision, DEQ has not developed written responses to each comment.

No commenters opposed the petition. The only commenter that did not directly support the petition provided questions regarding the impact of the petition on non-degrading recreational activities on Waldo Lake. That commenter did not subsequently provide any comments in support of or against the petition. In addition, EPA expressed support for appropriate use of DEQ's antidegradation provisions including designation of Outstanding Resource Waters.

The vast majority of comments (2,114 of the 2,155) came from online delivery services from environmental organizations who are listed as petitioners.

The supporting comments recognized the following exceptional qualities and values of Waldo Lake and its tributaries:

1. The waters have exceptional water quality and clarity, are in pristine condition and have water quality comparable to distilled water.
2. The clarity and color of the waters enhances the Lake's scenic and recreational value.
3. Waldo Lake serves as the headwaters of the North Fork of the Middle Fork of the Willamette River, which has designation as a Wild and Scenic River.
4. Much of the watershed is a Wilderness area or protected under the Roadless Area Conservation Rule, providing exceptional opportunities for recreation.
5. Waldo Lake is the only lake in Oregon designated as a State Scenic Waterway.
6. Oregon has already taken steps to protect Waldo Lake from pollution caused by motorized boats, float planes and fish stocking.
7. The Forest Service has long recognized the importance of protecting the water quality of Waldo Lake.

The supporting comments also included the following:

1. Waldo Lake supports a local recreation industry.
2. As the first ORW for a lake, Waldo Lake would be a great reference lake for water quality studies.
3. Several personal stories regarding trips to Waldo Lake for recreation, as well as the current ban on gas-powered motorboats, float planes and fish stocking.
4. There is a need to safeguard wild places while they still exist.

DEQ received comments from five organizations: the U.S. EPA, the Willamette National Forest, the Center for Lakes and Reservoirs, the Oregon Lakes Association and Oregon Wild.

The Willamette National Forest supported Oregon DEQ in moving forward with rulemaking on the petition. The Forest Service letter recognized the clarity and

fragility of the Lake and its ecosystem and recognized the exceptional aesthetic and recreational values. The letter also noted that the watershed is managed primarily as Wilderness, which balances the needs for unmodified natural environments with recreational, scientific, biological and educational values. The letter noted that a non-degradation management policy is followed to maintain the area in a near natural state while allowing recreation opportunities that do not interfere with natural processes.

The Center for Lakes and Reservoirs at Portland State University provided a letter supporting the petition to designate Waldo Lake as an Outstanding Resource Water. This letter provided water clarity data that it has collected for many years and noted that the maximum clarity measured at Waldo Lake (160 feet) is greater than that of Crater Lake (143 feet). The letter also noted that the clarity allows mosses and liverworts to grow to a depth of 420 feet.

The Oregon Lakes Association provided a letter supporting the petition. This letter noted characteristics that Waldo Lake shares with Crater Lake, including water clarity and the pristine nature of its watershed, and also noted that Waldo Lake differs from Crater Lake due to its low buffering capacity and its situation at a lower altitude. This letter also noted that the watershed is mostly surrounded by a federal Wilderness area and that it serves as the headwaters for a Wild and Scenic River. Oregon Lakes Association noted the importance of the lake for recreation and wildlife habitat. Finally, this letter noted that the low turnover rate at Waldo Lake and low concentrations of dissolved materials makes it susceptible to pollution.

Doug Heiken submitted a letter on behalf of Oregon Wild, one of the petitioners. In addition to many of the comments made by many other individuals and organizations, the Oregon Wild letter provided a list of relevant management policies that Outstanding Resource Waters designation would complement:

- The campgrounds around Waldo Lake were specially designed to protect the shoreline, including reasonable limits on chainsaws and generators
- To make sure that nutrients are not added to the lake, the Forest Service replaced the old septic system toilets with enclosed composting toilets and vault toilets, and closed the sewage holding tank dump station
- The Forest Service designated the area immediately around the lake as “non-motorized recreation" use
- Motorized vehicles and snowmobiles are restricted to existing roads, of which there are few in the watershed
- The Oregon Department of Fish and Wildlife stopped stocking fish in Waldo Lake
- In 1997, the Forest Service adopted a Water Quality Strategy for Waldo Lake
- In 1998, the Forest Service proposed an implementation guide for its Waldo Lake Basin Plan, in which dispersed camping is prohibited in the fire area bordering the north shore of Waldo Lake
- Long-term mooring of sailboats not allowed
- Precautions have been developed to avoid impacts to the lake during fire-fighting operations, including the Forest Service adopting new national direction concerning the use of fire retardant near lakes and rivers

The Oregon Wild letter also highlighted existing policies in favor of recreation for Waldo Lake, many of which are noted under this report's "Key Policy and Technical Issues."

A letter from EPA indicated support for implementing Oregon's antidegradation policy, including designating waters for Outstanding Resource Water protection. EPA offered support to DEQ if the petition is granted.

Next Steps

Notification

DEQ will notify the petitioner in writing of the commission's decision. DEQ will also post notice of the commission decision on the web site and send electronic notice of the decision through the GovDelivery system to all persons who commented on the petition.

Rulemaking

If the commission directs DEQ to initiate rulemaking, DEQ staff will develop a project plan and schedule for the rulemaking process, which will include another opportunity for public comment on the rule language.

Because DEQ is not aware of an urgent need to complete the designation quickly, DEQ is proposing to schedule this rulemaking so that it does not delay projects currently in progress or other high-priority water quality program work. Commission action on the proposed rules will be scheduled for a future meeting.

State of Oregon
Department of Environmental Quality Memorandum

Date: July 5, 2019

To: Environmental Quality Commission

From: Richard Whitman, Director

Subject: Agenda item F, Action item: Initiate Outstanding Resource Water designation for Crater Lake
July 18-19, 2019, EQC meeting

Why this is important

DEQ received a petition in April 2019 to designate Waldo Lake, and its associated wetlands, as Outstanding Resource Waters. In reviewing that petition, DEQ staff considered the opportunity to add Crater Lake, a unique waterbody in Oregon, to the rulemaking process for designation as a way to ensure a corresponding level of protection for Crater Lake, the centerpiece of the only National Park in Oregon. Crater Lake is the deepest lake (1,949 feet) in the United States. The lake has no streams flowing into or out of it. All water that enters the lake is eventually lost from evaporation or subsurface seepage. According the U.S. Park Service, the lake is one of the most pristine in the world.

DEQ recommendation and proposed motion language

DEQ recommends that the commission direct DEQ to include Crater Lake in the Outstanding Resource Waters designation rulemaking process with Waldo Lake and its associated wetlands, and adopt appropriate policies to protect Crater Lake under that designation.

Proposed motion language:

> *"I move that the Oregon Environmental Quality Commission direct DEQ to include Crater Lake in the Outstanding Resource Waters designation rulemaking along with Waldo Lake and its associated wetlands, and develop appropriate policies to protect Crater Lake at the same time."*

Background information

"Outstanding Resource Waters" are waters designated by the EQC where existing high quality waters constitute an outstanding state or national resource based on their extraordinary water quality or ecological values or where special water quality protection is needed to maintain critical habitat areas (OAR 340-041-0002(44)). In addition, the commission's rules identify the following as priority areas for an ORW designation:

(A) Those in State and National Parks;
(B) National Wild and Scenic Rivers;

(C) State Scenic Waterways;
(D) Those in State and National Wildlife Refuges; and
(E) Those in federally designated wilderness areas.

Further, EPA rules also specifically identify protection of water quality for waters within national parks as a priority for state protection from degradation.

> 40 CFR 131.12 (a) The State shall develop and adopt a statewide antidegradation policy. The antidegradation policy shall, at a minimum, be consistent with the following:
>
> * * *
>
> **(3)** Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

Crater Lake is a very clear, deep lake contained within a volcanic crater. The lake is a unique and highly valued natural resource in Oregon Crater Lake is fully contained within Crater Lake National Park, the state's only national park. While there are few threats to Crater Lake at this time, and the National Park Service currently manages the lake to maintain its pristine nature, the proposed designation and adoption of a policy to protect Crater Lake from degradation will complement and reinforce a shared state and federal objective of protecting this waterbody.

The NPS "Foundation Document" for Crater Lake (https://www.nps.gov/crla/getinvolved/upload/CRLA_Foundation-Document_emailsize-508.pdf) (the basis for the Park Service's management planning), identifies the following as among the fundamental resource values for the park:

> "Crater Lake National Park's world-renowned caldera holds one of the clearest, bluest, and deepest lakes in the world. Its clarity and color is due in great part to the lack of suspended particulates and extremely low organic productivity. It contains significant and active hydrothermal features, which, among other lake qualities, have made it one of the most extensively monitored lakes of its size in the world. Its impressive scale and geographic setting within the high Cascade Mountains create lasting memories and inspire visitors."

The National Park Service has a long-term monitoring program for water quality and other environmental characteristics of the lake, which (because of

the relative lack of anthropogenic land use impacts) makes the lake an important laboratory for long-term baseline water quality conditions.

The following is a summary from the Crater Lake Institute of the importance of the lake in terms of its quality:

> "Crater lake is a world-class laboratory for studying lakes because of its pristine condition. Because it is preserved in a national park it is expected that there will be minimal future onsite impacts from human activities. The lake provides scientists and park managers with a gauge for assessing changing environmental conditions external to the Park. Long-term monitoring of Crater Lake has been used to develop a baseline of information about the natural dynamics and complexity of the lake. This baseline will serve as a reference when studying the impacts of global climate change and human activities, such as agriculture and urban growth, on other lakes. Scientists working with the U.S. Geological Survey, the National Park Service, and Oregon State University have systematically studied Crater Lake for the last two decades. Long-term monitoring of this lake is a priority of Crater Lake National Park and will continue far into the future."

http://www.craterlakeinstitute.com/general-natural-history-articles/natural-history-flora-and-fauna-articles/two-decades-of-research-at-crater-lake/2/

Crater Lake also is highly significant to Native American tribes. The Klamath Tribes, which include the Klamath, Modoc and Yahooskin band of the Snake, knew Crater Lake as *gii-was,* meaning "a sacred place." The Cow Creek Umpquas also knew and respected Crater Lake. Native Americans experienced the collapse of Mount Mazama about 7,700 years ago, and have many stories about the creation of Crater Lake and its many features. Crater Lake was used as a place for vision quests and prayer, and the surrounding areas were important for their resources and cultural traditions.

Please see the two figures on the next page for the geographic location of Crater Lake, and some detail on the Crater Lake National Park area.

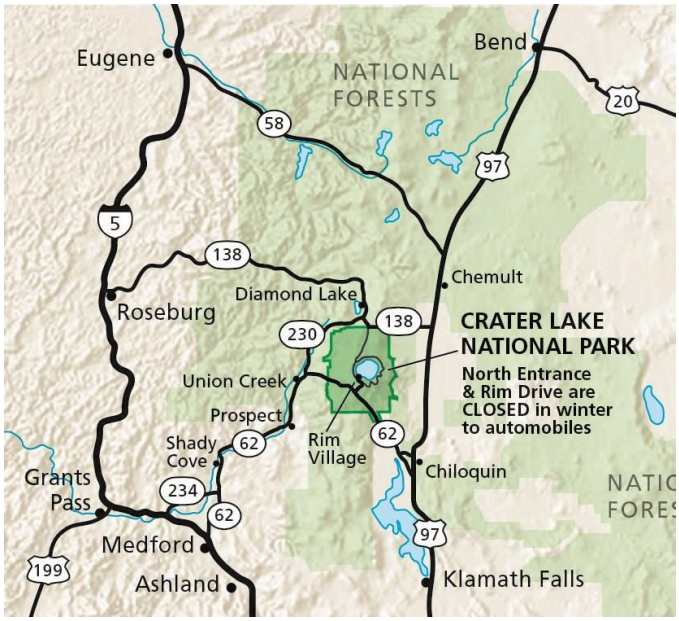


Figure 1. Location of Crater Lake, Oregon. From: National Park Service brochure, online

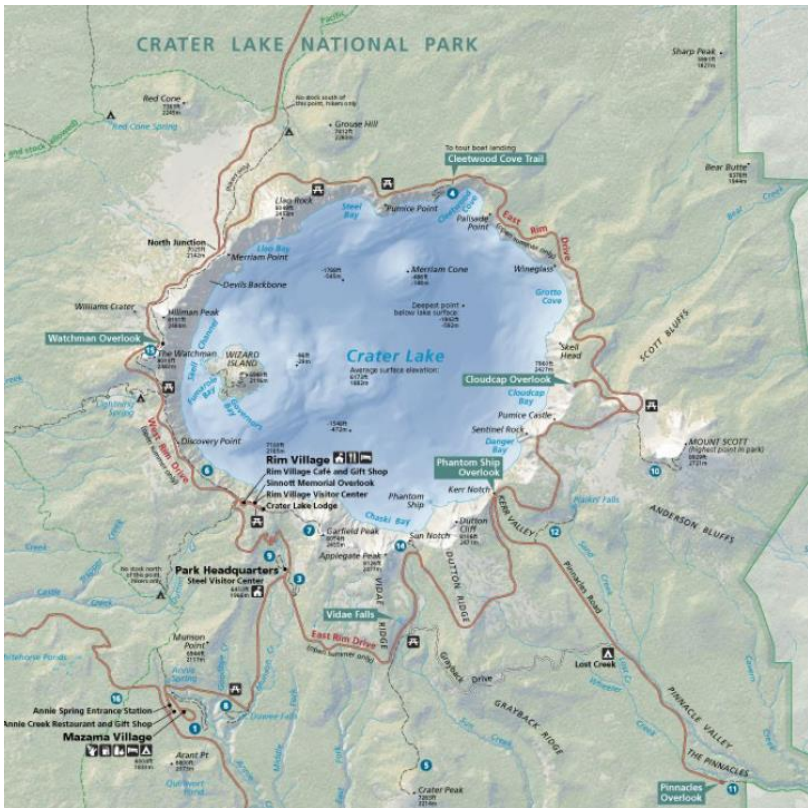


Figure 2. Detail of Crater Lake, Oregon. From: http://www.craterlakeinstitute.com/what-to-do/directions-and-maps/more-of-crater-lake/

EQC involvement and next steps

Based on the outstanding quality of its waters, the importance of the lake for long-term research on global processes affecting water quality, and the cultural significance of the lake, DEQ recommends that the commission direct DEQ to include Crater Lake in the Outstanding Resource Waters designation rulemaking process with Waldo Lake.

If approved for rulemaking by the EQC, DEQ will work with the Park Service and other interested partners to develop appropriate and its associated wetlands, and adopt appropriate specific antidegradation policies to protect water quality in the lake, taking into consideration the Park Services General Management Plan. DEQ would then provide that information to the rulemaking Advisory Committee for review and comment.

This information will also be made available, together with the proposed rule, for public comment. DEQ would then make a final recommendation to the commission concerning whether to designate Crater Lake as an Outstanding Resource Water and, if so, what specific policies should accompany such a designation.

Report prepared by Debra Sturdevant and Aron Borok
Water Quality Division, Standards and Assessment Program

Waldo and Crater Lake Outstanding Resource Waters Rulemaking

Water Quality Standards Program

Advisory Committee Meeting 1
May 27, 2020

Background

- Outstanding Resource Water Policy
- Waldo Lake Petition and EQC Direction
- Rulemaking Process and Timeline

Outstanding Resource Water Policy

Antidegradation policy:

- 3 classes of waters
  - impaired
  - high quality
  - **outstanding resource waters**

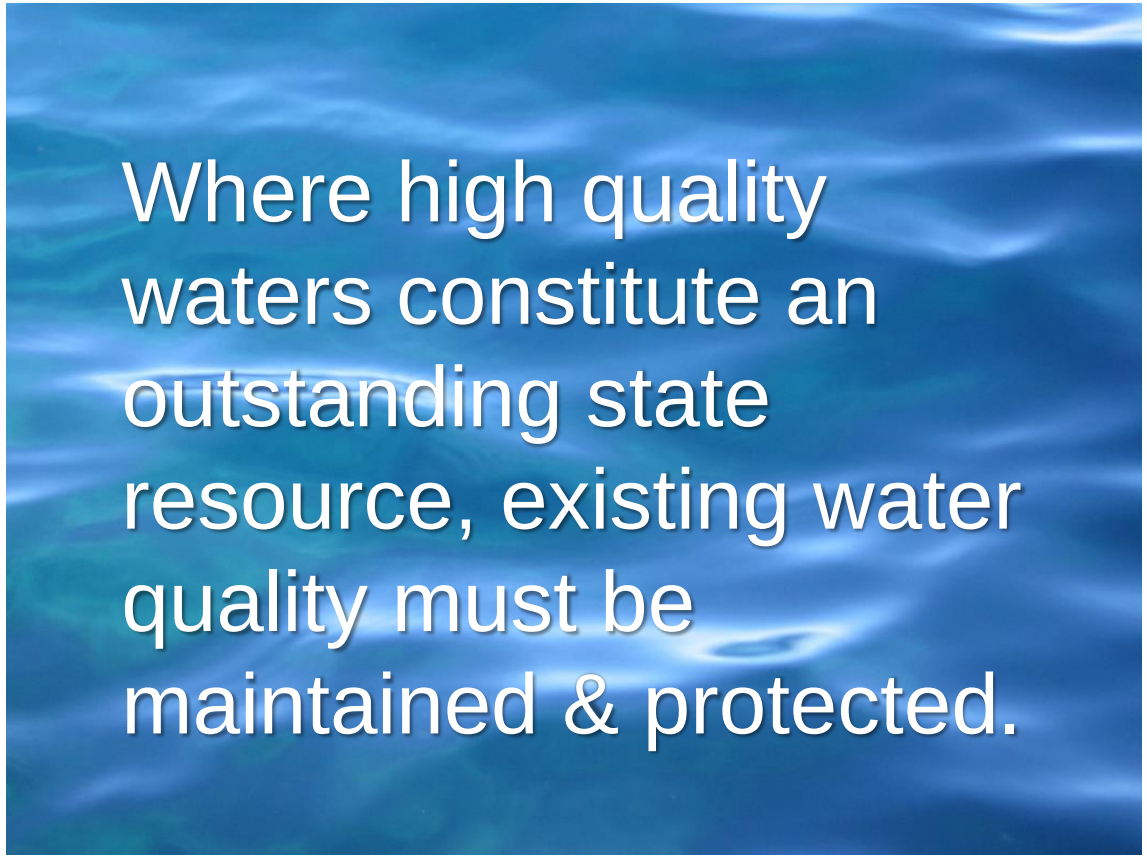


Photo courtesy of Lesley Merrick, DEQ

2019 Waldo Lake Petition

- Submitted by Northwest Environmental Defense Center on behalf of several NGOs
- Rulemaking to:
  - Designate Waldo Lake and wetlands ORWs
  - Protect current water quality and ecological integrity

Photo courtesy of USFS

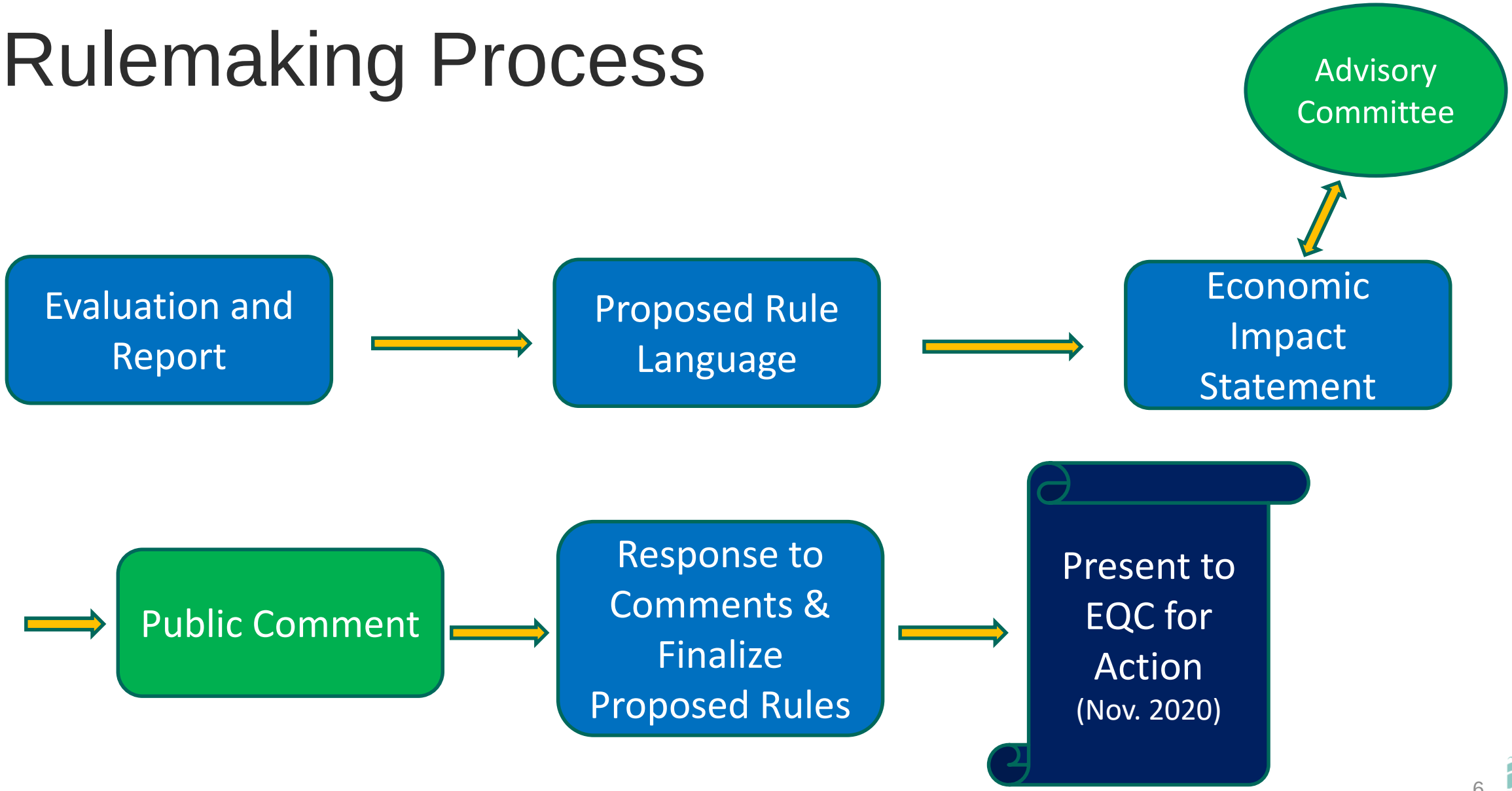
EQC Action

Granted the petition July 2019

Directed DEQ to conduct a rulemaking process:

- Designate Waldo Lake and associated wetlands as ORWs
- Designate Crater Lake an ORW
- Adopt policies to protect these waters

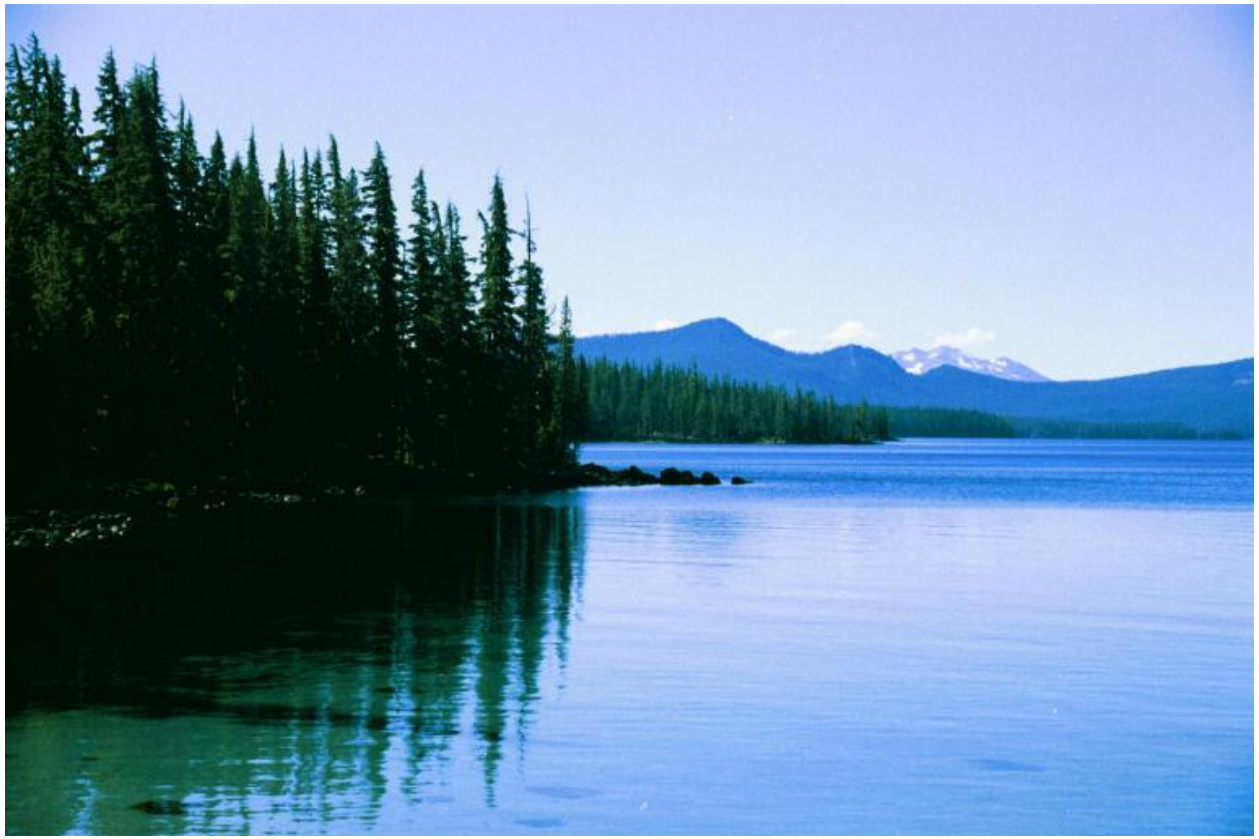
Rulemaking Process



Rulemaking Timeline

Milestone	Date
Advisory Committee	May – June 2020
Public Notice and Comment Period	July – August 2020
EQC Field trip (optional)	July 2020
Public Hearings	August 2020
EQC Presentation for Adoption	November 2020

Waldo Lake ORW Qualifications

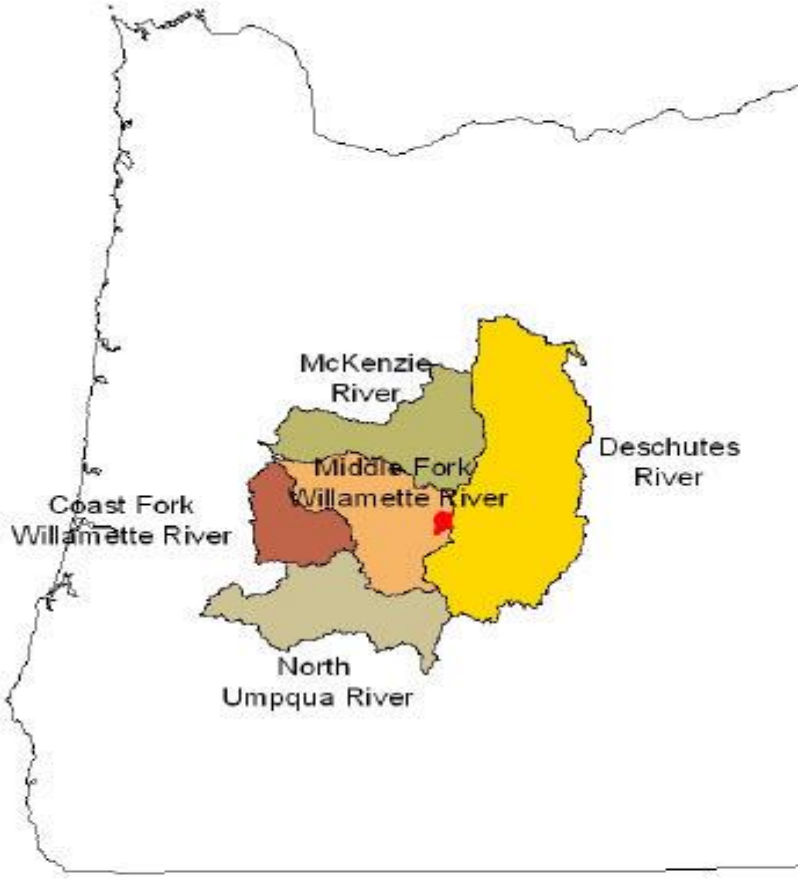


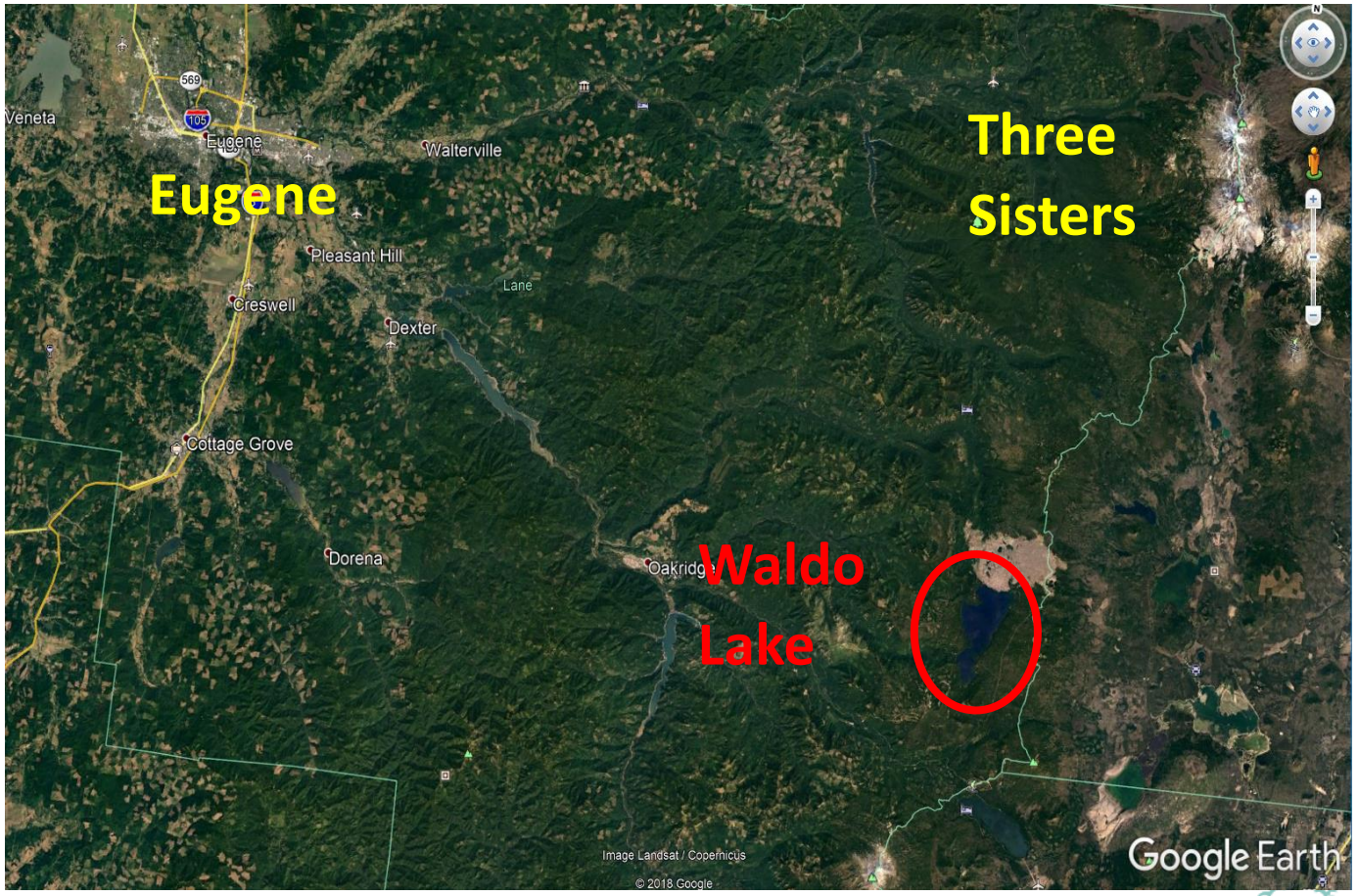
Water Quality Standards Program

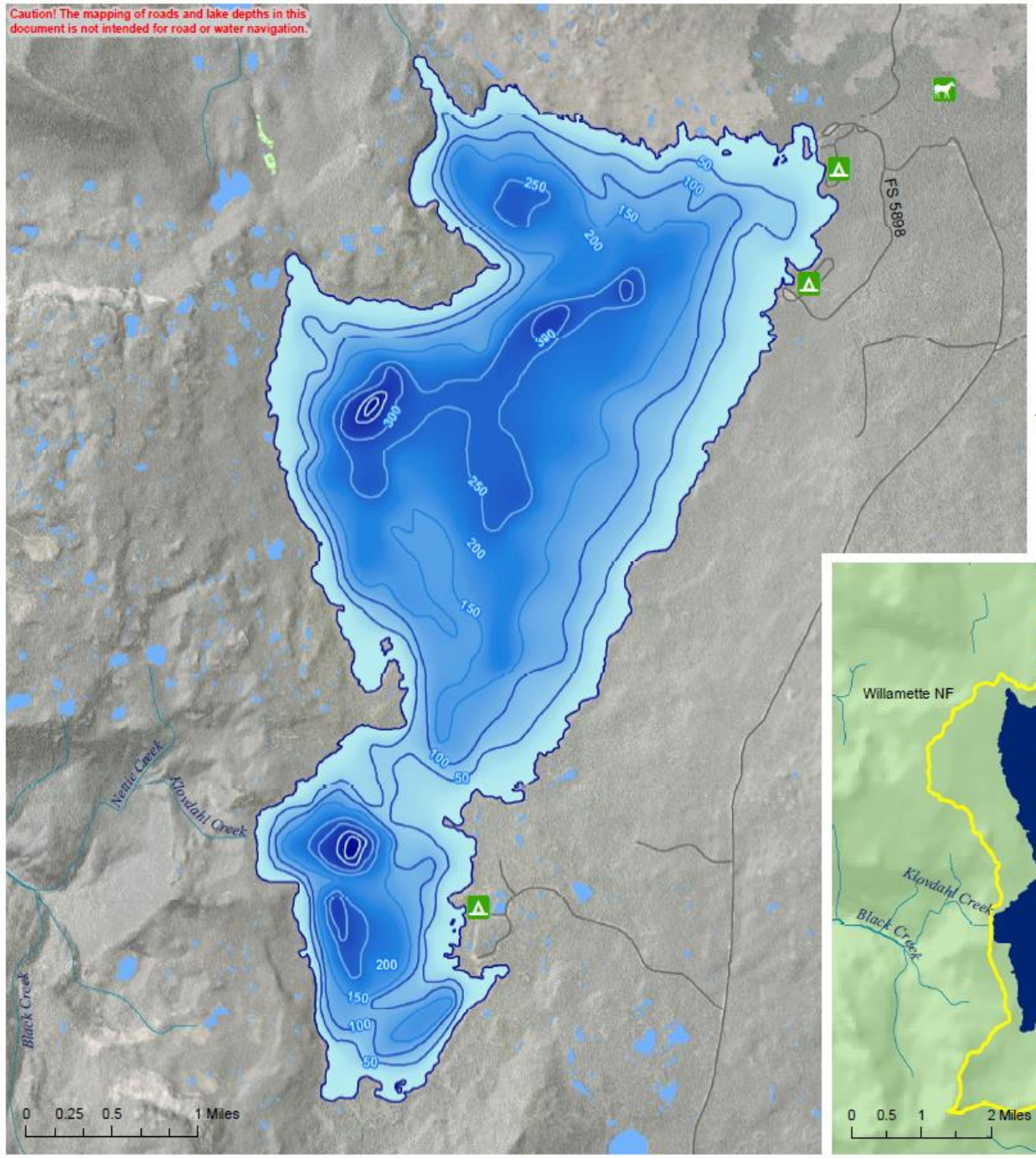
Advisory Committee Meeting 1
May 27, 2020

Debra Sturdevant | Oregon Department of Environmental Quality

Location of Waldo Lake



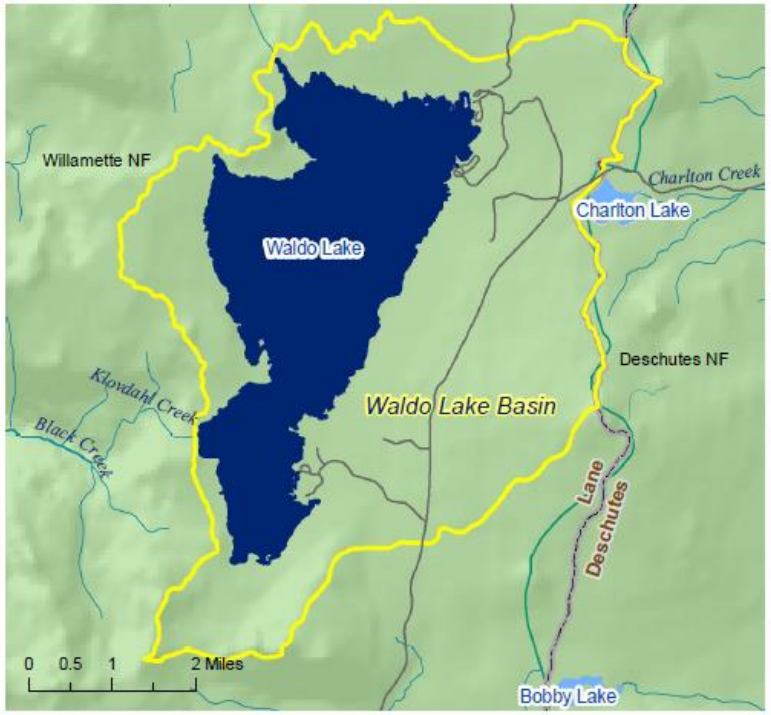




Waldo Lake

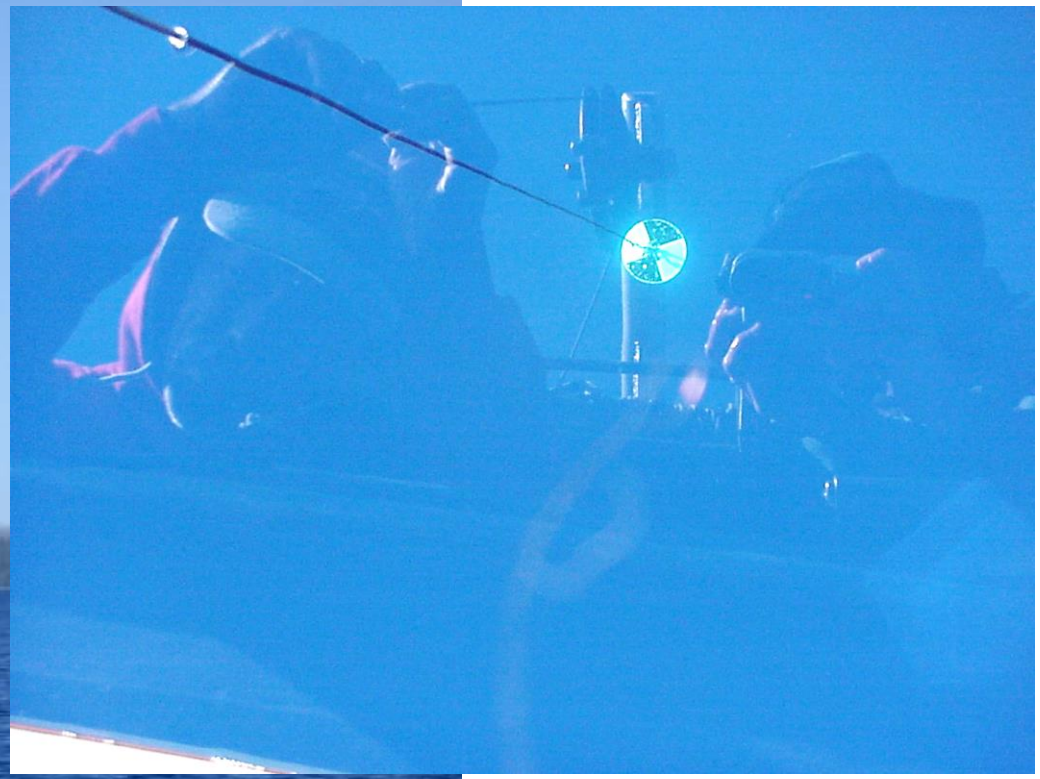
Lane County

GNIS Name - Waldo Lake
GNIS ID - 1151818
NHD Reach - 17090001020920
Lat/Lon - 43° 46' 02" / -122° 03' 10"
Elevation - 5,420 ft, 2,193m
Lake Area - 6,298.0 acres, 2,548.8 hectares
Basin Area - 29.7 sq mi, 77.0 sq km
Type - Natural lake
Trophic Status - Ultraoligotrophic, 18/08/81
Bath Map - CLR, 01/01/03



Map courtesy Center for Lakes and Reservoirs, Portland State University

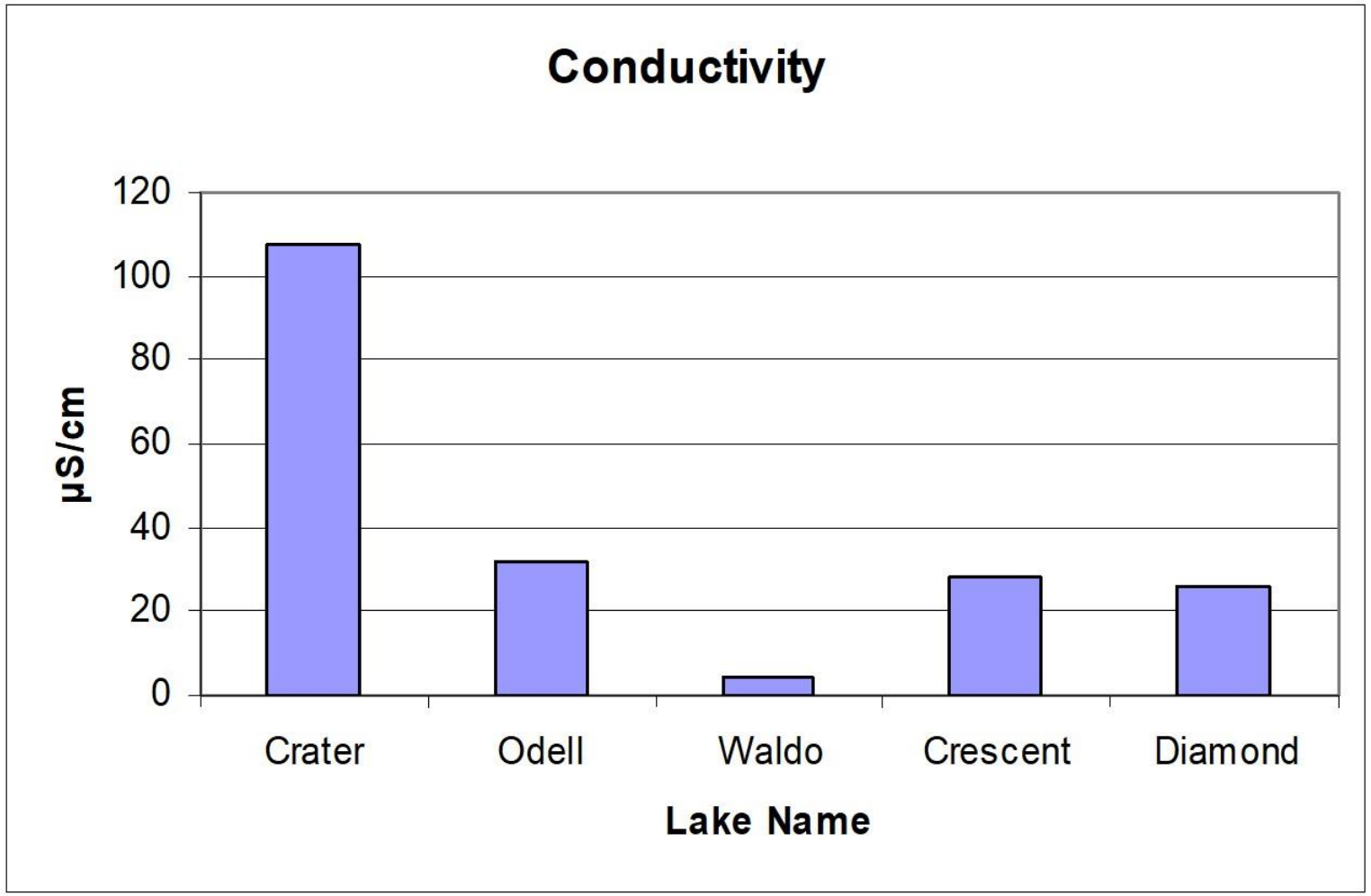
Water Quality



- Clarity
  - Ultra-oligotrophic
  - 125’ on average
- Small watershed
  - Long replacement time
  - Susceptible to pollution

Photo by Leslie Merrick

Water Quality



Research Opportunities

Ecological Value

- Leafy liverwort
- Amphibians
- Upland habitat for spotted owls, pine martens, Pacific fisher

Northwest Salamander

Recreation

- kayaking
- fishing
- swimming
- hiking
- mountain biking
- camping

Source of the *wild & scenic* North Fork of Middle Fork Willamette River

Current Protections

- Forest Service management goals
  - Wilderness and Roadless
  - Non-degradation
  - Recreation
- Gas-powered motor and float plane bans
- No fish stocking
- State Scenic Waterway

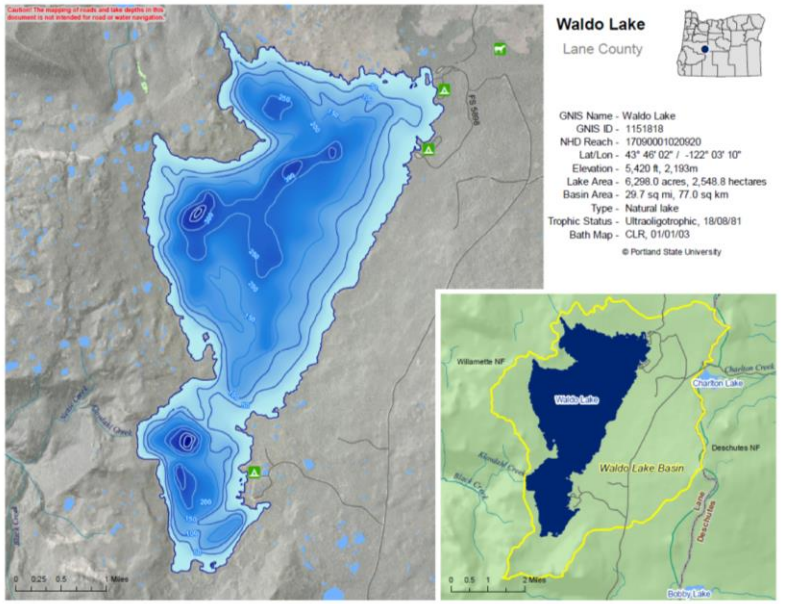
Photo from USFS

Findings

- Waldo Lake and its associated wetlands qualify as Outstanding Resource Waters based on their water quality, ecological, and recreational values.
- Proposed rule implements ORW policy
- State protection to complement and support USFS management goals

Proposed Protection Rule

- Prohibit new NPDES discharges.
- Prohibit activities that would degrade the existing water quality and ecological values.



Map courtesy Center for Lakes and Reservoirs, Portland State University

Proposed Rule Language

(7) Outstanding Resource Waters of Oregon (ORWs)

(a) Waldo Lake and associated wetlands.

(b) The current high water quality, exceptional ecological values, and existing and designated uses of the ORWs identified in this rule ("these waters") shall be maintained and protected except as altered by natural causes.

(c) No new NPDES discharge or expansion of an existing discharge to these waters shall be allowed.

(d) No new NPDES discharge or expansion of an existing discharge to waters upstream of or tributary to these waters shall be allowed if such discharge would significantly degrade the water quality within these waters.

(e) No activities shall be allowed that would degrade the existing water quality and ecological characteristics and values of these waters.

Fiscal and Economic Impacts

Waldo and Crater Lake Outstanding Resource Waters Rulemaking

Advisory Committee Meeting 1

May 27, 2020; 1 p.m. – 4:30 p.m.

Presentation outline

- What is a Fiscal and Economic Impact Statement?
- How and why does DEQ develop the statement?
- Waldo and Crater Lake Fiscal Impacts
- Questions and Discussion

What is a fiscal impact statement?

- Identification of entities the proposed rule may economically affect
  - State agencies
  - Units of government
  - The public
  - Small and large businesses

- Projection of any significant economic impact

- Cost of compliance for affected businesses

ORS **183.335 (2)(b)(E)**

- Requires a statement of fiscal impact identifying entities that may be economically affected by the proposed rule
- If possible, an estimate of the economic impact
- Utilize available information to project any significant economic effects on businesses
- Inclusion of a cost of compliance effect on small businesses.

ORS 183.336 Cost of compliance for small businesses

- An estimate of the number of small businesses subject to the proposed rule
  - Identification of the types of businesses and industries
- Cost of administrative and professional services required for compliance with the rule
  - Equipment, supplies, labor and increased administration required
- How DEQ involved small businesses in the development of the rule

Waldo Lake

- No impact or positive economic impact from recreation and tourism

Photo from USFS

Waldo Lake- Agencies and governments

- No expected impacts to the U.S. Forest Service, DEQ, or local governments

- Current management plan is in agreement with proposed rules
  - No expected need for permits, personnel hours, or other administrative costs

Waldo Lake

- Current activities are all in compliance with the proposed rules
  - Regional revenue may increase if recreation increases
- Management plan by U.S. Forest Service is already in agreement with the proposed ORW designation
  - No expected costs for changing management
- No impact to the public

Waldo Lake- Cost of compliance, businesses

- Large businesses (> 50 employees)
  - No anticipated impacts on large businesses
  - None were identified within the area

- Small businesses (<50 employees)
  - Indirect positive impacts on six local businesses
    - Odell Sportsman Center, Manley's, The Café, Gilchrist Grocer and Deli, Mohawk Restaurant, Crescent Shell
  - Businesses providing lodging and accommodations may benefit

Crater Lake

- Either no economic impact or positive impact from increased recreation and tourism

Crater Lake- Overview

- National Park Service encourages visitor access
  - Over 700,000 recreation visitors in 2019
  - Contributes about $32 million to Klamath County tourist revenue (~16% of Counties' total revenue)

- Crater Lake NP contributes $81 million annually
  - Klamath County, Central Oregon, Upper & Lower Rogue Valley, Willamette Valley

Crater Lake- Agencies and governments

- No expected impacts to the National Park Service, DEQ, or local governments

- Current management plan is in agreement with proposed rules
  - No expected need for permits, personnel hours, or other administrative costs

Crater Lake

- Current activities are all in compliance with the proposed rules
  - Designation is unlikely to influence the number of visitors because it is a National Park
    - May be a minimal positive economic impact or no impact
- Management plan by National Park Service is already in agreement with the proposed ORW designation
  - No expected costs for changing management
- No impact to the public

Crater Lake- Cost of compliance, businesses

- Large businesses (> 50 employees)
  - No anticipated impacts on large businesses

- Small businesses (<50 employees)
  - Businesses associated with recreation and tourism may benefit

Crater Lake- Research

- Most studied caldera lake in the world
  - Internationally recognized research
- Environmental monitoring program since 1983
  - Water quality, pollution, abiotic and biotic measurements
- Proposed rules would likely support continued research
  - May provide economic benefit

Summary of impacts from proposed rules

- No negative economic impacts are expected for either Waldo or Crater Lake
- A positive impact on regional revenue associated with recreation and tourism may occur for Waldo Lake
- Small businesses near Waldo Lake may be positively impacted if tourism increases

Questions and Discussion

Crater Lake ORW Qualifications

Water Quality Standards Program

Advisory Committee Meeting 1
May 27, 2020

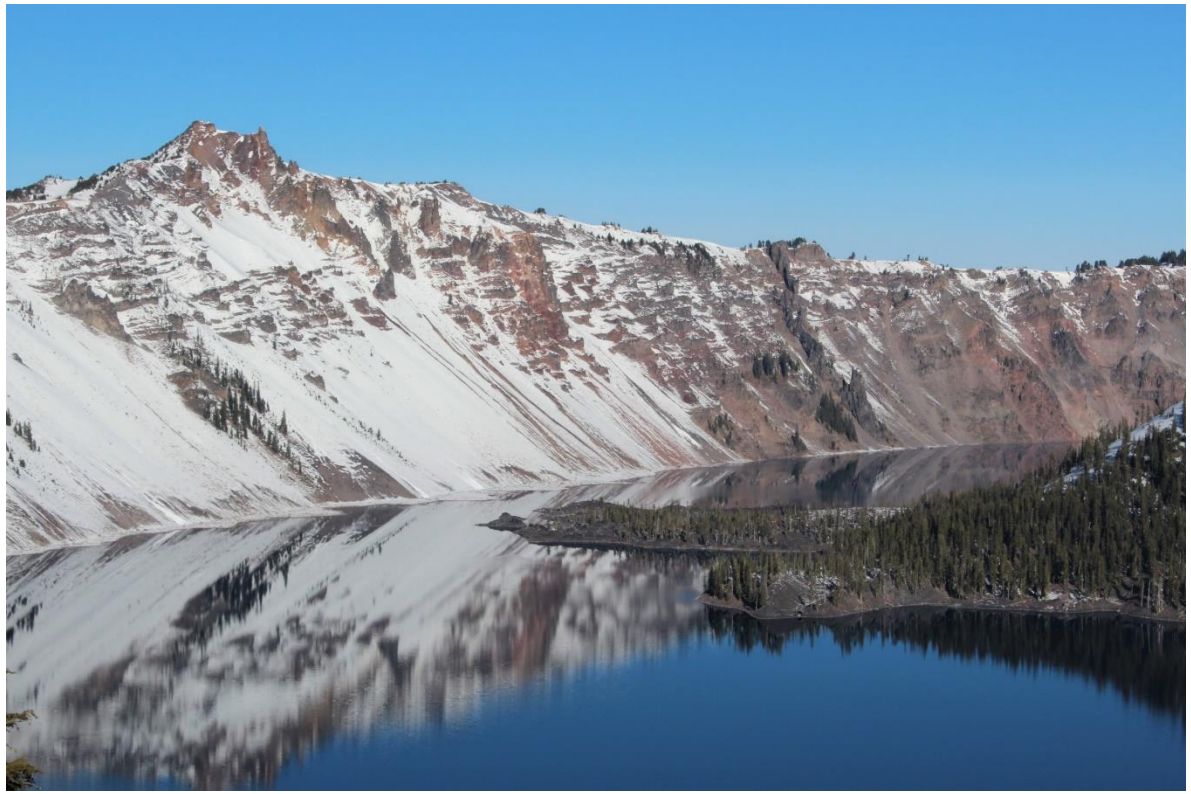


Photo credit: Debra Sturdevant

Location


To Portland
Florence
38
Eugene
Bend
20
NATIONAL FORESTS
58
97
101
5
Coos Bay
138
Bandon
Roseburg
138
42
230
Crater Lake National Park
Rogue
62
NATIONAL FORESTS
Gold Beach
Grants Pass
62
Medford
Cave Junction
101
46
Ashland
Klamath Falls
39
Oregon Caves National Monument
199
ORE.
CALIF.
97
139
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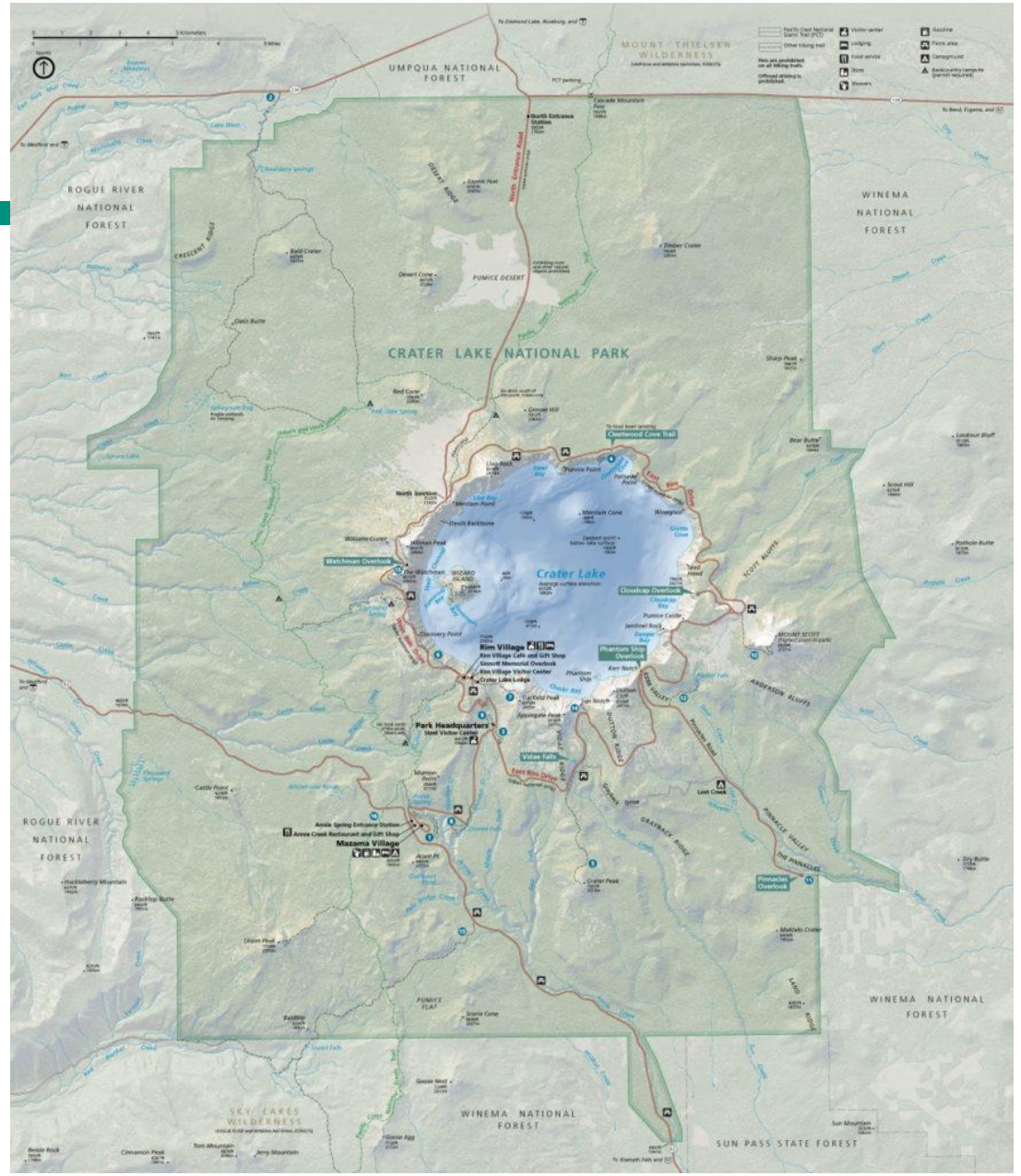
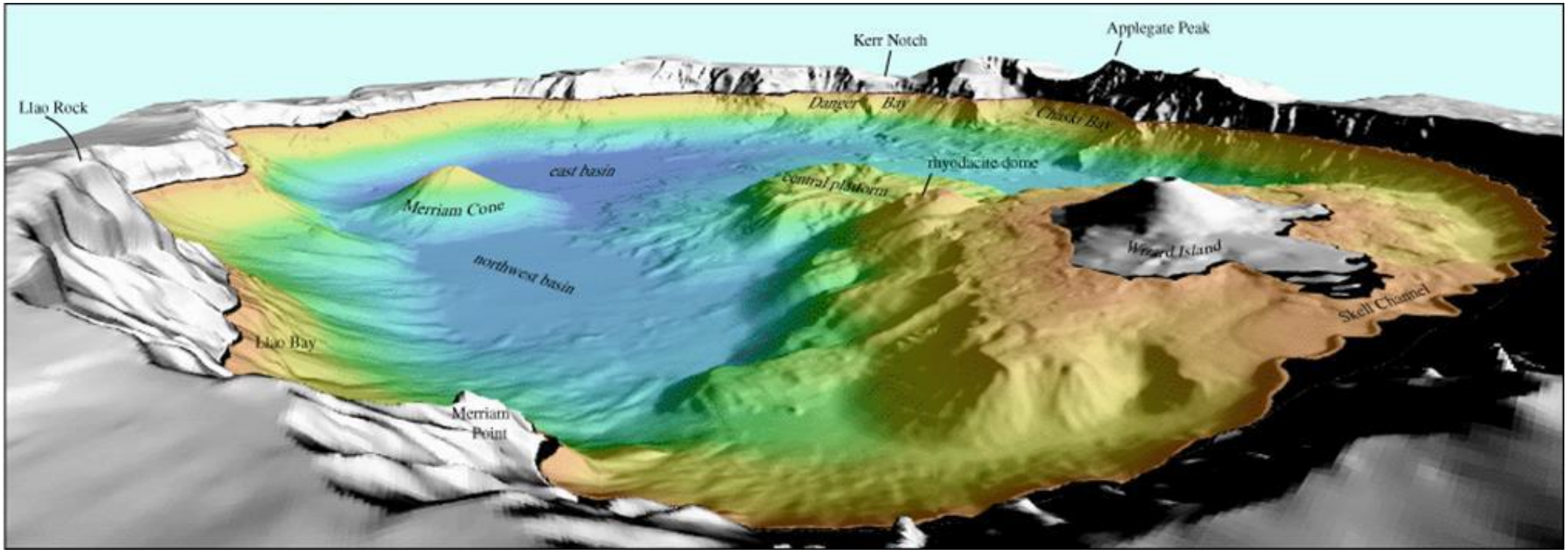
Crescent City
Redwood National and State Parks
To Redding
Lava Beds National Monument


UMPQUA NATIONAL FOREST
MOUNT THIELSEN WILDERNESS
ROGUE RIVER NATIONAL FOREST
WINEMA NATIONAL FOREST
CRATER LAKE NATIONAL PARK
Crater Lake
Rim Village
Park Headquarters
Mazama Village
ROGUE RIVER NATIONAL FOREST
WINEMA NATIONAL FOREST
SKY LAKES WILDERNESS
SUN PASS STATE FOREST

USGS shaded relief perspective image of Crater Lake looking southwest.



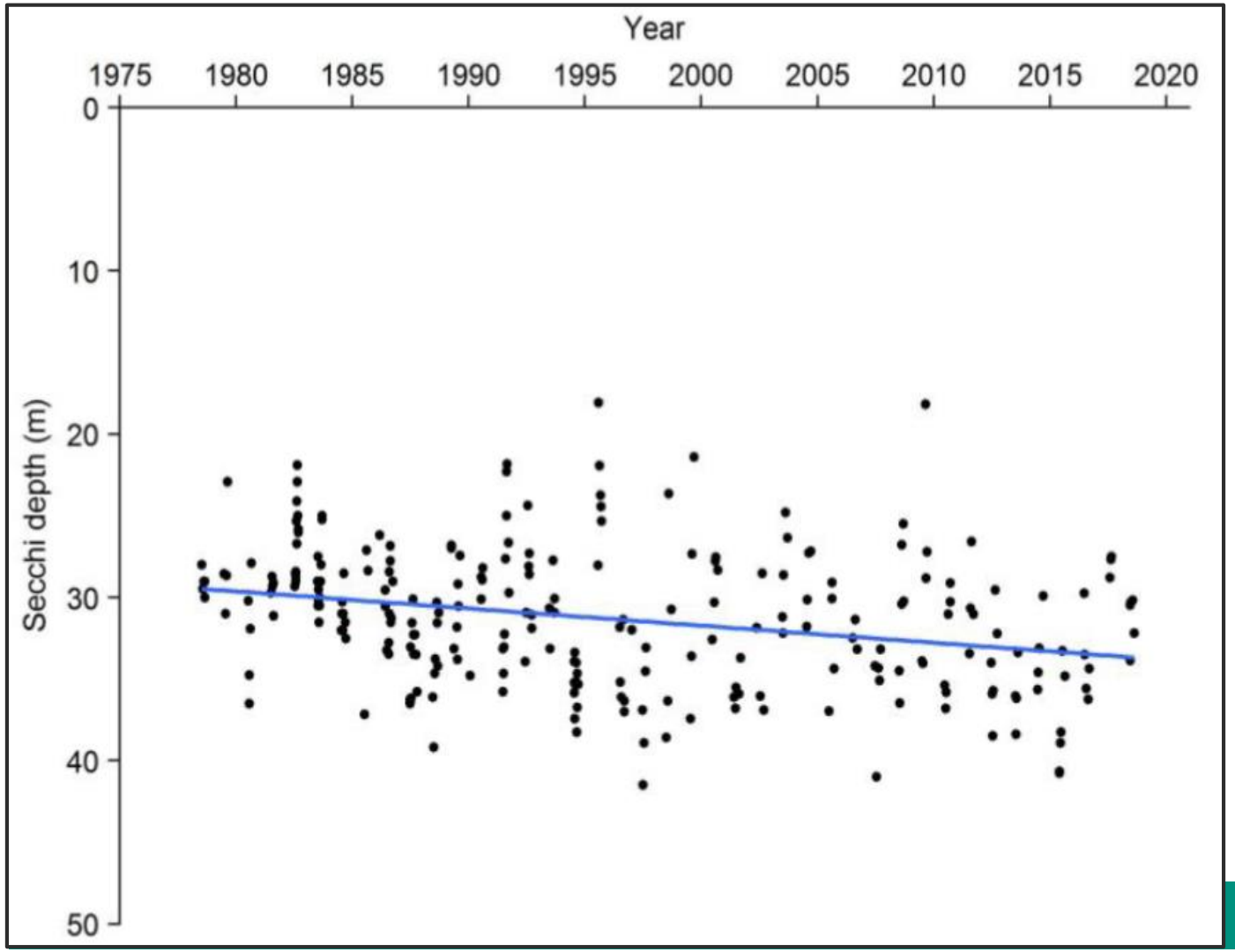
- In Mt. Mazama caldera, formed roughly 7700 years ago.
- Deepest lake in the United States

Crater Lake

Photo credit: Debra Sturdevant

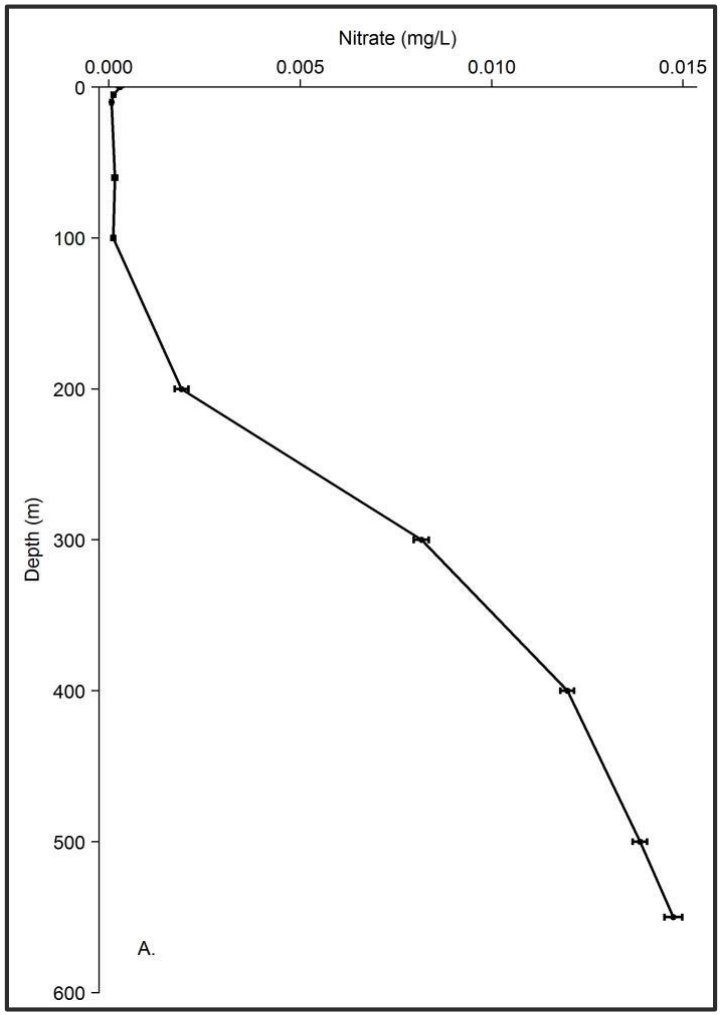
Water Quality

Extremely Clear and Un-Productive

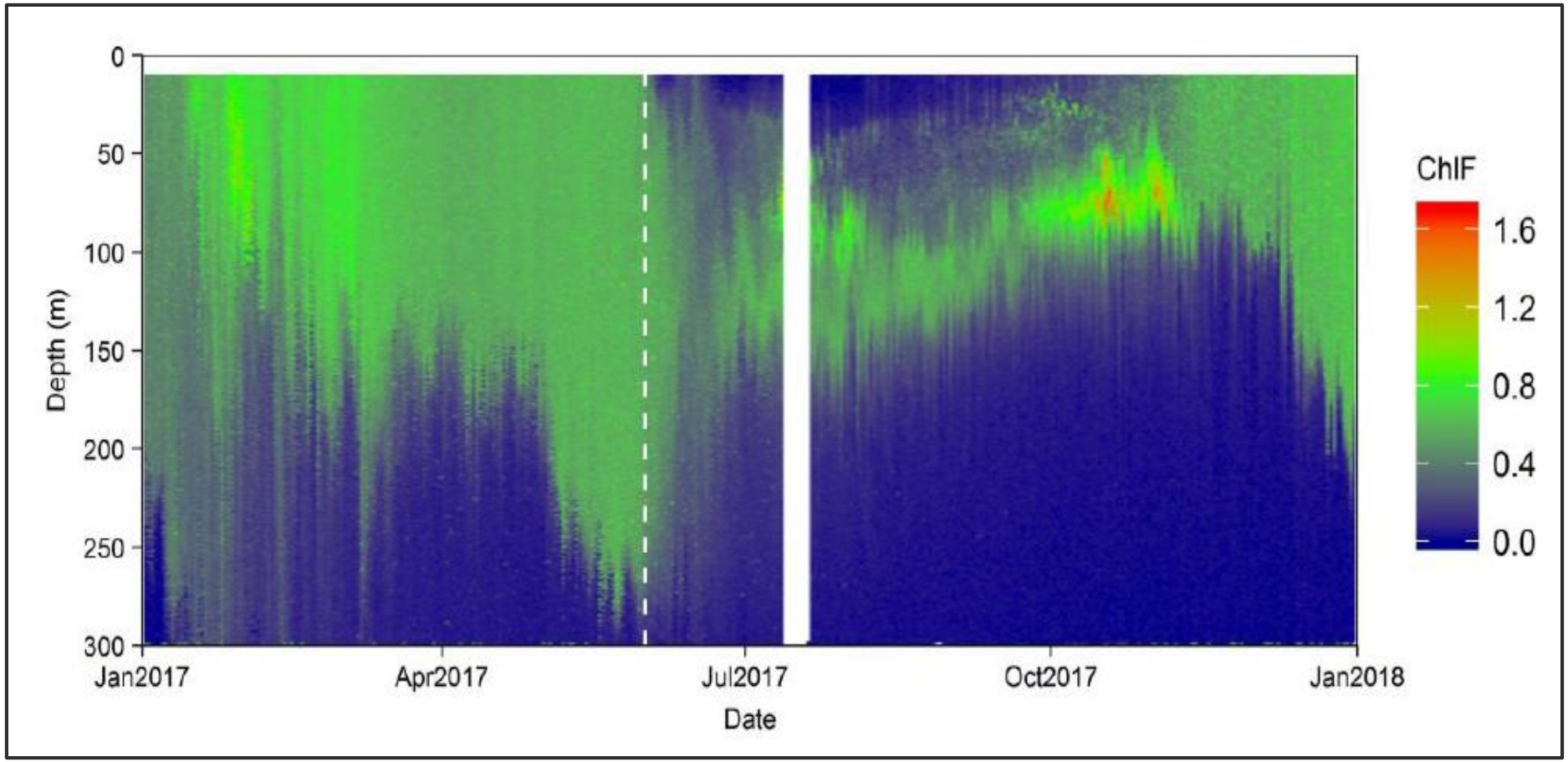


Water Quality

- No streams flow in or out
- Little transport of sediment or organic matter into lake
- Low levels of nutrients
- Low productivity (algal growth)



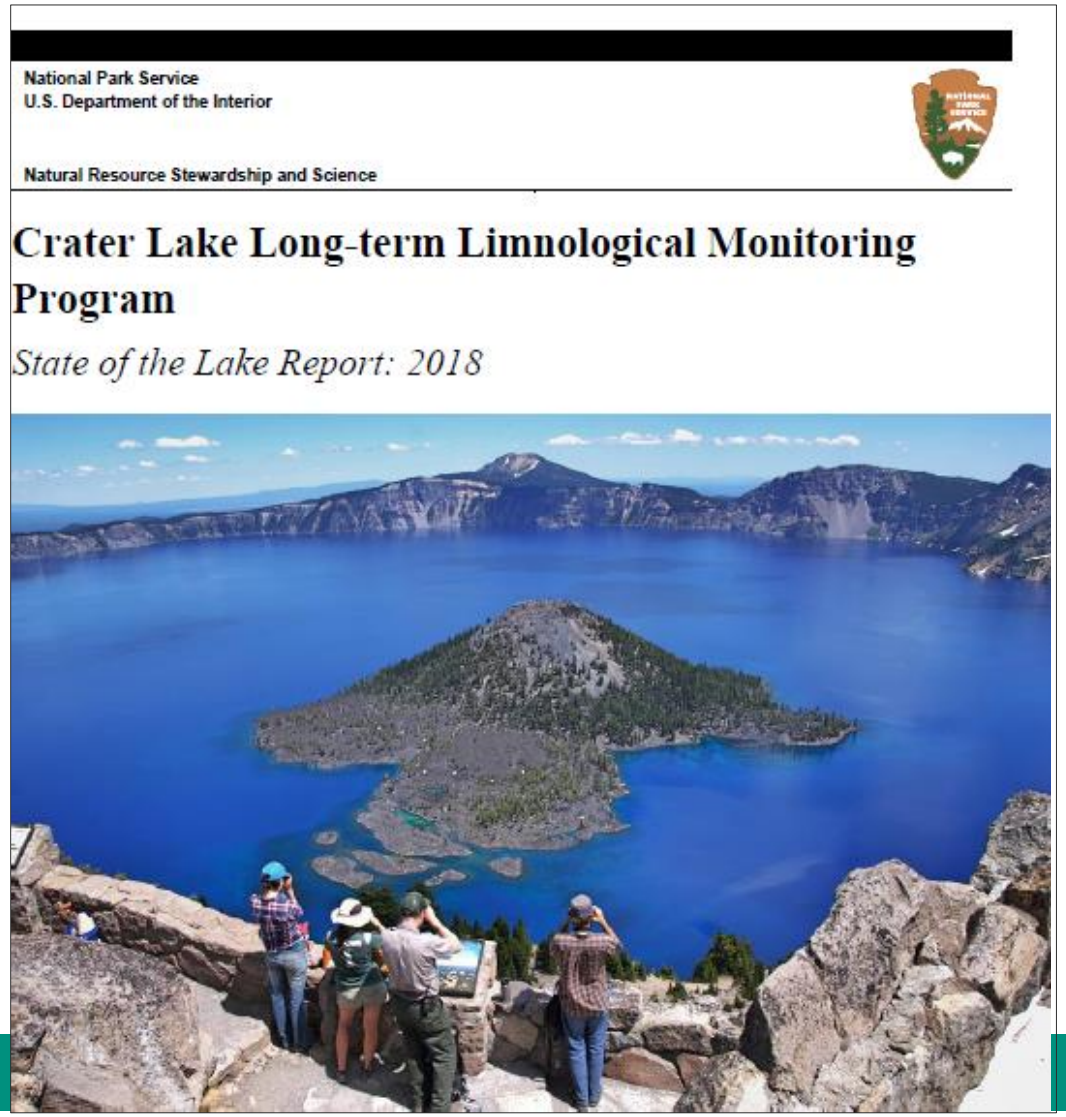
Water Quality



Ecology

- Mazama newt – endemic
- Two phytoplankton communities in summer, due to stratification
- Few taxa of zooplankton compared to other lakes

Research


National Park Service
U.S. Department of the Interior
Natural Resource Stewardship and Science
Crater Lake Long-term Limnological Monitoring Program
State of the Lake Report: 2018


LAKE RESEARCH

Recreation

- Oregon's only National Park
- Over 700,000 visitors in 2019
- Summer and winter activities
- Concessions services

Photo credit: Debra Sturdevant

Lake Management

Photo credit: Debra Sturdevant

Discussion Draft Rule Language

(6) Outstanding Resource Waters of Oregon (ORWs)

(a) Crater Lake.

(b) The current high water quality, exceptional ecological values, and existing and designated uses of Crater Lake shall be maintained and protected except as altered by natural causes.

(c) No new NPDES discharge or expansion of an existing NPDES discharge to Crater Lake shall be allowed.

(d) No new NPDES discharge or expansion of an existing NPDES discharge to waters upstream of or tributary to Crater Lake shall be allowed if such discharge would significantly degrade the water quality within the lake.

(e) No new or increased activities shall be allowed that would degrade the existing water quality and ecological characteristics and values of Crater Lake, except on a short term basis to respond to public health and welfare emergencies, or to obtain long-term water quality improvements.

(f) The Environmental Quality Commission acknowledges the mandate of Crater Lake National Park to also manage the park for the purpose of providing public access and enjoyment.