NORTHWEST ENVIROMENTAL DEFENSE CENTER
10015 SW Terwilliger Blvd, Portland, OR 97219
PHONE: 503.768.6673 WEB: nedc.org

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.

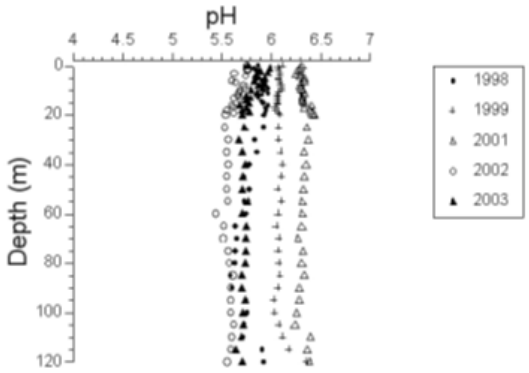
[22] Sierra Club. The Juniper Group. *Keep Waldo Wild: Our Campaign to Protect Lands Surrounding Oregon's Waldo Lake*. 2018.

[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.