



5/28/19

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RE: *Request for state intervention to halt harmful clearcutting operations in the Sutherlin Public Water System (PWS # 4100847)*

Dear Mr. Harris and Mr. Waldren:

The State of Oregon (State) and its designees, including the State Forester and the City of Sutherlin Water Division, have an affirmative statutory and constitutional duty to safeguard drinking water supplies for existing and future generations of water users.¹ Furthermore, in Oregon, water is a public trust resource and the supply of drinking water a protected public use.² Despite this, decades of mismanagement of forestlands has and continues to degrade water flow, water quality, and watershed conditions in public water supply (PWS) source areas statewide.

As recognized by the Oregon Department of Environmental Quality (DEQ) and Oregon Health Authority, industrial forest practices, including clearcutting, timber plantations, dense networks of logging roads and application of chemical herbicides and fertilizers are primary threats in Sutherlin's drinking water protection area.³ As you know, the City of Sutherlin Water Division must take action "to assure that water system facilities are free of public health

¹ ORS 448.273; ORS 537.332(3), (5); ORS 537.334(2).

² See Blumm, M., Doot, E. 2012. Oregon's public trust doctrine: public rights in waters, wildlife, and beaches. *Environmental Law* 42: 375-414.

³ Oregon Department of Environmental Quality (DEQ). 2002. Source Water Assessment Summary Brochure. City of Sutherlin PWS #4100847. Salem, OR: Oregon Dept. of Env'tl. Quality and the Oregon Health Authority.

hazards.”⁴ As such, we are writing to request that you intervene to halt harmful clearcutting operations in Sutherlin’s drinking water supply (PWS #4100847) that are planned for the remainder of 2019. A list of operations of concern are attached as Exhibit A. More details of each can be found by retrieving project plans from Oregon Department of Forestry’s FERNS notification system available online at <https://ferns.odf.oregon.gov/e-notification> and searching with the notification (NOAP) numbers listed on Exhibit A. These planned operations will create an additional 910 acres of clearcut land in a watershed that has already been damaged by industrial logging operations.

These projects, in combination with past, present, and reasonably foreseeable future projects of a similar nature will continue to undermine the City of Sutherlin’s ability to provide stable, clean supplies of water to its customers and increase water treatment costs. These concerns are only will only be exacerbated by the anticipated effects of climate change. Without invention, Sutherlin residents can expect to face:

- **Depleted water supplies.** Dry season stream flows are today dramatically depleted across western Oregon and the Pacific Northwest as a consequence of extensive logging and vegetative regrowth in plantations after logging.⁵ Long-term paired watershed experiments indicate that the conversion of mature and old growth conifer forests to plantations of native Douglas fir produced a persistent summer streamflow deficit of 50 percent relative to reference basins, in plantations aged 25 to 45 years.⁶ Climate change will make matters worse by further reducing dry season flows thereby straining “the ability of existing infrastructure and operations to meet the many and varied water needs of Oregonians.”⁷
- **Warming waters.** As the climate warms and dries in the summer, Oregon’s waterways will also warm. This thermal pollution is intensified by plantation forestry. Department of Forestry modeling concludes that a typical clearcut compliant with the Oregon Forest Practices Act on average, boosts water temperatures by 2.6 degrees Fahrenheit on top of any background increase due to climate change.⁸ According to multiple federal agencies, “the evidence is . . . overwhelming that forest practices on private lands in Oregon contribute to widespread stream temperature problems.”⁹

⁴ OAR 333-061-0025; ORS 448.115 et seq;

⁵ Perry, T. D., Jones, J.A., 2016. Summer streamflow deficits from regenerating Douglas-fir forest in the Pacific Northwest, USA. *Ecohydrology*. 1-13.

⁶ Bureau of Land Management, 2017. Environmental Assessment and Draft Finding of No Significant Impact for the Pickett West Forest Management Project. Grants Pass, OR: USDI Bureau of Land Management Grants Pass Field Office.

⁷ Dalton, M.M., K.D. Dello, L. Hawkins, P.W. Mote, and D.E. Rupp, 2017 *The Third Oregon Climate Assessment Report*, Oregon Climate Change Research Institute, College of Earth, Ocean and Atmospheric Sciences, Oregon State University, Corvallis, OR, page 18.

⁸ Oregon Department of Forestry (ODF), 2015. Detailed analysis: predicted temperature change results. Agenda Item 7, Attachment 3 to the meeting packet prepared for the Board of Forestry, June 3rd, 2015. Salem, OR: ODF.

⁹ EPA-FWS-NMFS, 2/28/01 Stream Temperature Sufficiency Analysis Letter to ODF and ODEQ.

Warmer water, in turn, will cause “harmful algal blooms to occur more often, in more waterbodies and to be more intense.”¹⁰

- **Increased wildfire risk.** Timber plantations burn hotter and faster than natural forests. This is because they lack the moisture content and structural complexity needed to keep wildfires in check. Decades of monitoring by firefighters and researchers show that fires burning in complex natural forests create a mosaic of intensely burned and relatively untouched areas. On the other hand, fires burning in homogenous tree plantations are more likely to be uniformly severe.¹¹
- **Increased incidence and severity of landslides.** The vast network of clearcuts and logging roads permeating industrial timber plantations present a significant risk of landslides, especially during extreme precipitation events, such as the 1996 floods. Under almost all climate change scenarios for Oregon, the frequency of these events will increase. Maintenance of strong root systems is an important factor in stabilizing soils during these events. Clearcutting reduces the strength of root systems dramatically, and thus is a major factor in increased landslide risk.¹² Logging roads channel water runoff and cause debris torrents that can travel many miles downstream, pick up momentum, and become heavily destructive.¹³ Studies indicate that clearcuts exhibit landslide rates up to 20 times higher than background rates. Near logging roads, landslide rates are up to 300 times higher than in forested areas.¹⁴
- **Increased risk of flooding.** Research has demonstrated that heavily logged watersheds are at a much higher risk of flooding than those maintained in natural forest conditions. For example, Jones and Grant found that logging increased peak discharges by as much as 50% in small basins and 100% in large basins over a 50-year study period. A 2008 Forest Service science synthesis confirmed the detrimental

¹⁰ US Environmental Protection Agency, “Climate change and harmful algae blooms,” available online at: <https://www.epa.gov/nutrientpollution/climate-change-and-harmful-algal-blooms>.

¹¹ See, e.g., Stone, C., Hudak, A., Morgan, P., 2008. Forest harvest can increase subsequent forest fire severity. In Proceedings of the Second International Symposium on Fire Economics, Planning and Policy: A Global View. Armando González-Cabán, ed. Riverside, CA: USDA Forest Service, Pacific Southwest Research Station.

¹² Schmidt, K.M, J. J. Roering, J.D. Stock, W.E. Dietrich, D.R. Montgomery, Schaub, T. 2001. The variability of root cohesion as an influence on shallow landslide susceptibility in the Oregon Coast Range. *Can. Geotech. J* (38): 995-1024.

¹³ Swanson, F. J., J. L. Clayton, W. F. Megahan, Bush, G., 1989. Erosional processes and long-term site productivity, pp. 67-81 in *Maintaining the Long-Term Productivity of Pacific Northwest Forest Ecosystems*. D. A. Perry, R. Meurisse, B. Thomas, R. Miller, J. Boyle, J. Means, C.R. Perry, R. F. Powers, eds. Portland, Oregon: Timber Press.

¹⁴ Heiken, D., 2007. Landslides and Clearcuts: What Does the Science Really Say? Eugene, OR: Oregon Wild.

impacts of logging and logging roads on peak flows across western Oregon and Washington.¹⁵

- **Enhanced habitat for invasive species and organisms that put public health at risk.** Invasive species find few barriers in monoculture tree plantations since key natural processes that keep such species in check have been removed. As succinctly stated by Norse, “in monocultures, without barriers to dispersal, insects and pathogens find unlimited resources in all directions.”¹⁶ As Oregon’s climate changes, a wide variety of non-native plants, insects, and disease-causing organisms, such as viruses, bacteria, prions, fungi, protozoans, and internal (roundworms, tapeworms) and external (lice, ticks) parasites will spread, adversely affecting the health of humans, livestock, and pets in addition to fish and wildlife. A recent Forest Service assessment concluded “[e]vidence suggests that future climate change will further increase the likelihood of invasion of forests and rangelands by nonnative plant species that do not normally occur there (invasive plants), and that the consequences of those invasions may be magnified.”¹⁷
- **Elevated risk of harmful algae blooms.** Harmful algal blooms (HAB) are an urgent concern statewide as climate change unfolds. Industrial forest practices greatly amplify this risk through three channels: (a) by warming waters; (b) by decreasing natural flow rates, and (c) by contaminating water supplies with glyphosate, urea along with other chemicals and fertilizers that enhance HAB growth. With the presence of glyphosate and urea in streams, nontoxic algae growth is inhibited and HABs dominate without competition.¹⁸

In order to mitigate these threats and comply with the State’s duties to safeguard drinking water supplies, CSE, our members and our partners request that the State Forester and the City of Sutherlin Water Division take the following actions:

1. Issue an order to the corporate forestland owners identified in Exhibit A halting implementation of the clearcutting projects identified in Exhibit A because of the risks these projects present to existing and future water supplies.
2. Work with forestland owners to implement climate smart, ecological forestry alternatives to these projects to maximize protection of public trust water resources.

¹⁵ Grant, G.E., Lewis, S.L., Swanson, F.J., Cissel, J.H., McDonnell, J.J. 2008. Effect of Forest Practices on Peak Flows and Consequent Channel Response: A State-of-Science Report for Western Oregon and Washington. PNW-GTR-760. Portland, OR: USDA Forest Service, Pacific Northwest Research Station.

¹⁶ Norse, E., 1990. Ancient Forests of the Pacific Northwest. Washington, DC: The Wilderness Society.

¹⁷ Kerns, B., Guo, Q., 2012. Climate Change and Invasive Plants in Forests and Rangelands. U.S. Department of Agriculture, Forest Service, Climate Change Resource Center. Available online at: <https://www.fs.usda.gov/ccrc/topics/climate-change-and-invasive-plants-forests-and-rangelands>.

¹⁸ Glibert, P. M., Harrison, J., Heil, C., & Seitzinger, S., 2006. Escalating worldwide use of urea—a global change contributing to coastal eutrophication. *Biogeochemistry*, 77(3): 441-463.

Such techniques include variable density thinning, individual tree selection, ecological restoration of tree plantations, long rotations and other ecological techniques well documented in scientific literature.¹⁹

3. Pursuant to ORS 527.765, adopt best management practices for forestlands within Sheridan's drinking water protection area (PWS #4100811) to minimize threats from industrial forest practices enumerated above. Clearcutting, application of chemical herbicides, pesticides and fertilizers, as well as construction of new logging roads should be prohibited.
4. Pursuant to Public Trust Doctrine obligations and those of Article XI, Section 4 of Oregon's Constitution investigate and begin the process of collecting damages for impairments to Sutherlin's drinking water supplies associated with past logging activities by corporate forestland owners.²⁰

We welcome the opportunity to discuss these issues and concerns in more detail in the weeks ahead.

Sincerely,



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¹⁹ See, e.g., Kohm, K.A., Franklin, J.A. eds. 1997. *Creating a Forestry for the 21st Century: The Science of Ecosystem Management*. Washington, DC: Island Press; Franklin, J.A., Johnson, K.N., Johnson, D.L. 2018. *Ecological Forest Management*. Long Grove, IL: Waveland Press.

²⁰ As a trustee of drinking water supplies, the State of Oregon and its designees must not only protect drinking water from future impairments but work proactively to restore past damages. See, e.g. Quirke, D. 2016. *The Public Trust Doctrine: A Primer*. A White Paper of the University of Oregon School of Law, Environmental and Natural Resources Law Center. Eugene, OR: ENR. Article XI, Section 4 of Oregon's constitution prohibits takings of public trust resources by corporations without compensation and has been applied to the taking of water supply by private logging companies.

Exhibit A:
Clearcut logging operations proposed in the source water assessment area
for the City of Sutherlin (PWS #4100847)

NOAP #	Landowner	Clearcut acres
2019-730-04580	WY South Valley	117.1
2019-730-01397	WYNR Springfield	112.9
2019-730-01157	WY South Valley	97.7
2019-730-06289	WY South Valley	90.8
2019-730-05844	WY South Valley	89
2019-730-02811	WY South Valley	77.1
2019-730-01802	RRC Operations	62.6
2019-730-00572	Lone Rock Timberland Co.	61.4
2019-730-04249	WY South Valley	54.6
2019-730-04033	WY South Valley	47.4
2019-730-00572	Lone Rock Timberland Co.	45.4
2019-730-01142	RRC Operations	12.7
2019-730-02830	WY South Valley	12.7
2019-730-03473	Justin King	11.8
2019-730-03473	Justin King	6.4
2019-730-01802	RRC Operations	3
2019-730-02663	WY South Valley	2.8
2019-730-01490	Charles White	2.5
2019-730-01143	MSHC Operations	1.6
	Total:	909.5