

NORTHWEST ENVIRONMENTAL ADVOCATES



October 30, 2014

Andrea Matzke
Oregon Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204

submitted online via: <http://www.oregon.gov/deq/RulesandRegulations/Pages/comments/CWQNH3.aspx>

Re: **Proposed rules re: Water Quality Standards Revisions for Freshwater Ammonia Criteria**

Dear Ms. Matzke:

This letter constitutes the comments of Northwest Environmental Advocates on the proposed changes to Oregon's water quality standards.

I. Ammonia

As the Department of Environmental Quality knows, litigation by Northwest Environmental Advocates brought us to this point wherein Oregon is obligated to address the January 31, 2013 disapproval of Oregon's ammonia criteria by the U.S. Environmental Protection Agency (EPA). For this reason we are eager to see Oregon adopt sufficiently protective ammonia criteria that can be used in Oregon's regulatory programs. We are, however, disturbed by the timing of the public comment period. We are aware, and DEQ has noted in its short summary of the proposed rule, that EPA and the National Marine Fisheries Service (NMFS) have been in discussions about whether the EPA's new 304(a) recommended criteria for ammonia are adequate to address the jeopardy finding in the NMFS biological opinion on EPA's proposed action to approve Oregon's 2004 criteria. In other words, the public is being asked to comment on Oregon's proposed action without the benefit of the expertise from the fisheries experts at NMFS. We believe that this is manifestly unfair.

In the absence of information on whether the proposed Oregon criteria are sufficiently protective of threatened and endangered species in Oregon, we can neither endorse nor reject DEQ's proposal to adopt these specific numeric criteria. We do, however, urge speedy adoption of whatever criteria are deemed protective by NMFS.

In addition, however, we urge DEQ to take the following considerations in mind when adopting the new criteria, considerations which we believe strongly support the elimination of mixing zones for NPDES permitting of ammonia discharges.

Unless a waterbody is violating water quality standards, and often even if it is, DEQ uses mixing zones to allow localized dilution of pollutants. The assumption underlying the use of mixing

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zones is that fish can either avoid them by swimming around them or will experience limited exposure by swimming through them. The result is that areas around point source discharges are allowed to violate chronic criteria. The difficulty with using mixing zones for a pollutant known to harm freshwater mussels is that these assumptions do not apply to freshwater mussels because they do not swim. Instead, where there are current discharges of potentially harmful levels of ammonia, it can be assumed that freshwater mussels have been locally extirpated or are suffering some level of ill health. The question is whether Oregon's water quality standards should guard against perpetuating this status. We think the answer lies primarily in a combination of the following: (1) freshwater mussels are rapidly losing their previous diversity and abundance; (2) freshwater mussels' long life spans result in long-term effects of localized extirpations; (3) freshwater mussels are not only vulnerable but they are intimately linked to the life cycle of species listed as threatened or endangered under the Endangered Species Act; (4) climate change will exacerbate the decline of freshwater mussels; and (5) freshwater mussels are essential to native ecosystems and wildlife.

In other words, Oregon should not only adopt protective numeric criteria but it should adopt rules to ensure those criteria are met in the water as it is experienced by what current information informs us are the most species most sensitive to ammonia pollution: freshwater mussels. Simply put, these criteria should be met at the end-of-pipe and not be allowed mixing zones. Absent the adoption of specific rules to eliminate or limit the use of mixing zones for ammonia, permit writers will continue to issue NPDES discharge permits without regard to discharges' effects on freshwater mussels.

There is evidence of population reductions and extirpations of mussels across the United States and in Oregon:

Freshwater mussels are one of the most endangered groups of animals on Earth. Of the nearly 300 North American species, 35 have gone extinct in the last 100 years. Nearly 25 percent are listed as endangered or threatened under the United States Endangered Species Act and 75 percent are listed as endangered, threatened, or of special concern by individual states. The conservation crisis of freshwater mussels is a result of continent-wide degradation of aquatic ecosystems and is mirrored by declines of other native freshwater fauna.

Western freshwater ecosystems have suffered increased levels of alteration and exploitation since settlers first arrived more than 150 years ago. Mussels have been eliminated from portions of rivers and even entire watersheds through the combined effects of habitat loss, pollution, blockage of anadromous fish, and introduced species. The factors that seem to have had the greatest effect on western freshwater mussels include water availability, dams, introduced species, loss of host fish species, and the chronic effects of urbanization, agriculture, and logging on habitat quality. Global climate change will exacerbate the effects of many of these stressors on western ecosystems (see www.epa.gov/climatechange).

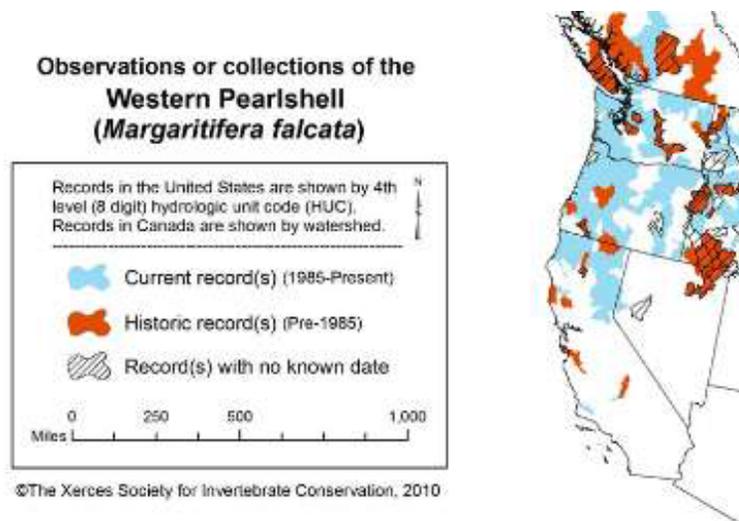
Ethan Jay Nedeau, Allan K. Smith, Jen Stone, and Sarina Jepsen, *Freshwater Mussels of the Pacific Northwest* (2009) (hereinafter "Mussel Guide"), available at http://www.fws.gov/columbiariver/mwg/pdfdocs/Pacific_Northwest_Mussel_Guide.pdf at 11 (footnotes omitted).

Additionally, there is evidence that these losses are due to water pollution, among other factors:

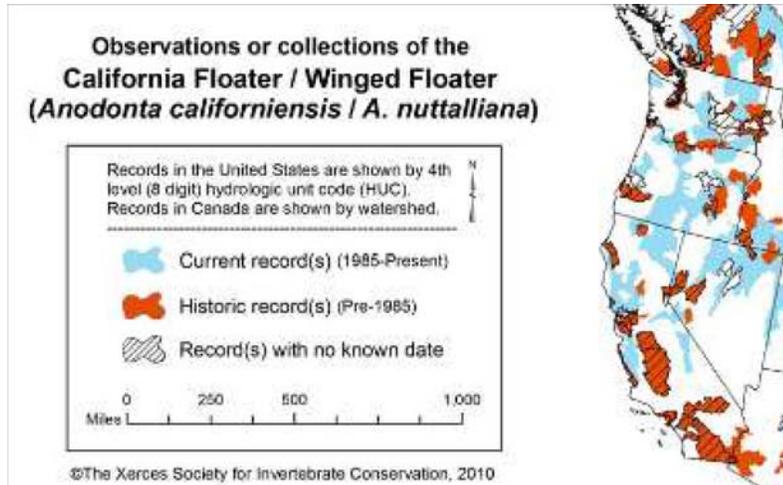
Mussels are sensitive to changes in water quality, habitat, and fish communities. Low dissolved oxygen, chemical contamination, and sedimentation are just three of the myriad stressors that may affect mussels. Due to their reliance on fish to reproduce, loss of host fish will eventually eliminate mussel communities even if other physical and chemical conditions remain suitable for mussels. Mussels accumulate chemical contaminants in their bodies and shells. Tissue concentrations of contaminants such as mercury, lead, dioxin, polychlorinated biphenyls, and polycyclic aromatic hydrocarbons may indicate exposure risk for the entire aquatic community and provide insight into ecosystem health.

Mussel Guide at 10 (footnotes omitted). Some of these losses have occurred since November 28, 1975, making them beneficial uses that if not designated are “existing uses” within the meaning of the Oregon antidegradation policy and which, as a consequence, “shall be maintained and protected.” See 40 C.F.R. §§ 131.3(e), 131.12(a)(1).

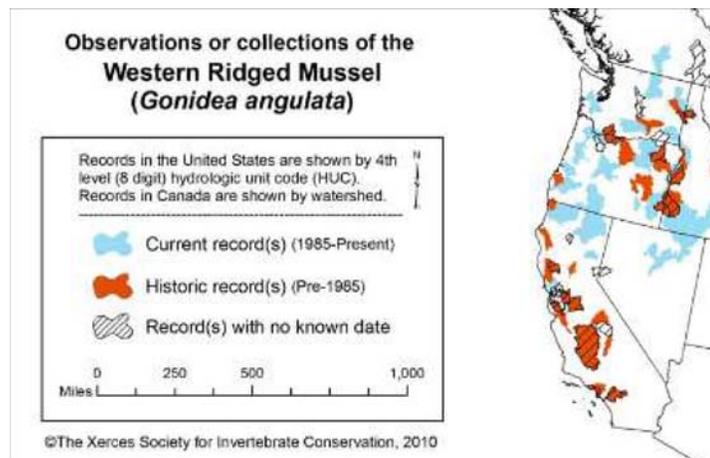
For example, there is evidence of post-1975 extirpations in Oregon of the Western Pearlshell, *Margaritifera falcata*:



Celeste Mazzacano, Ph.D., Freshwater Mussels of the Pacific Northwest (Water Environment School, March 2014) (hereinafter “Presentation”), available at http://www.clackamas.edu/uploadedFiles/Departments/Water_and_Environmental_Technology/Water_Environment_School/Content/Freshwater_Mussels.FULL.pdf, at 23. And, likewise, there is evidence of post-1975 extirpations in Oregon of the California Floater/Winged Floater, *Anodonta californiensis/A. nuttalliana*:



Id. at 25. And, finally, the same is true of the Western Ridged Mussel, *Gonidea angulata*:



Id. at 27. The Xerces Society has determined that of Western mussels, the *Margaritifera falcata* is “Vulnerable,” the *Gonidea angulata* is “Vulnerable,” the *A. beringiana* is “Currently Stable,” the *A. californiensis* / *A. nuttalliana* (Clade 1) is “Vulnerable,” and the *A. kennerlyi* / *A. oregonensis* (Clade 2) is “Currently Stable.” *Id.* at 21

The life span of freshwater mussels is very long. For example, the Western Pearlshell, *Margaritifera falcata*, lives for over 100 years. *Id.* at 22. The Western Ridged Mussel, *Gonidea angulata*, lives 20-30 years. *Id.* at 26. The *Anodonta* lives 10-15 years. *Id.* at 24.

Freshwater mussels depend on species that are themselves in decline. After fertilization, newly formed embryos develop into larvae called glochidia. Mussel Guide at 4. These glochidia depend upon native fish:

Glochidia must encounter and attach to a suitable host fish soon after being released into the water. They form a cyst around themselves and may remain attached for several days or months, depending on the water temperature and mussel species. During this period, fish (particularly migratory species) may swim many miles from where they encountered glochidia and thereby help mussels disperse within a waterbody. When ready, the glochidia release from the fish, burrow into the sediment, and begin their free-living existence. * * * The chances of glochidia finding a host, attaching, landing in a suitable environment, and reaching adulthood are incredibly slim. For example, in a population of the eastern pearlshell (*Margaritifera margaritifera*), which has among the highest fecundity of all mussel species, it was estimated that only one in every 100,000,000 shed glochidia became a juvenile.

Mussel Guide at 5-6 (footnotes omitted). The host fish for *Margaritifera falcata* are trout and salmon. Presentation at 22.

The goal of Oregon's water quality standards should be to protect species and prevent them from becoming reduced in number to the point where they become candidate species or listed as threatened or endangered. One way to provide that level of protection for species that do not move is to eliminate mixing zones that allow toxicity beyond levels determined to be protective. As EPA states in its guidance on permitting for toxics, the assessment of a mixing zone

should take into consideration the physical, chemical, and biological characteristics of the discharge and the receiving system; *the life history and behavior of organisms in the receiving system*; and the desired uses of the waters. . . . mixing zones should not be permitted where they may endanger critical areas (e.g., drinking water supplies, recreational areas, *breeding grounds, areas with sensitive biota*).

EPA, Technical Support Document for Water Quality-based Toxics Control (March 1991) at 70 (emphasis added). While mixing zones have been allowed based on the two-fold notion that fish can and will avoid mixing zone toxicity or pass through unharmed and that the regulatory agency need only consider protecting the integrity of the waterbody as a whole, this approach ignores species such as freshwater mussels. It is fair to say that when the idea of mixing zones was first created, little if anything was known about the importance and sensitivity of freshwater mussels and certainly the extirpations and population declines were not anticipated. Now, with the knowledge of all of these aspects of freshwater mussels, Oregon should do better than to allow toxicity beyond the levels found by EPA, NMFS, and the U.S. Fish and Wildlife Service to provide adequate protection to these species. We urge DEQ to require that the new ammonia criteria be applied as end-of-pipe limits. At a minimum, DEQ should require the collection and address evidence of localized extirpations of freshwater mussels.

II. Natural Conditions Criteria

We object to DEQ's proposal to add a note to the two provisions that EPA disapproved concerning superseding natural conditions, OAR 340-041-0007(2) and OAR-340-041-0028(8). Instead, the disapproved provisions should be deleted. We are likewise concerned with the ambiguity of the comments, set out in the short summary, that "these provisions may not be applied for Clean Water Act purposes, such as wastewater discharge permits or total maximum

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daily loads.” During DEQ’s September 10, 2014 webinar, we asked why the provisions would remain on the books and we were told first that it was due to the fact that current regulatory documents, such as NPDES discharge permits and Total Maximum Daily Loads (TMDLs), relied on these standards. We were then told that it was due to DEQ’s desire to retain something on the books regarding natural conditions until such time as the state revised the temperature standards. If the natural conditions provisions have no regulatory role whatsoever, it should mean nothing for them to remain on the books. Yet DEQ’s decision to leave them in place suggests that they do have some regulatory meaning. Instead of merely stating that these provisions “are not effective for Clean Water Act purposes,” DEQ should state in writing precisely for what purposes they are effective. For example, perhaps DEQ wants to use them for the purpose of defining applicable water quality standards cited in Oregon statutes regarding state controls on logging and agricultural activities. If so, DEQ is not saying.

We object to the ambiguity of DEQ’s position and urge that the disapproved provisions be removed in their entirety because they are now disapproved water quality standards. There is no basis for a sort of aesthetic rationale for leaving them in place. If they have no legal meaning they should be stricken. If they have a legal meaning, DEQ should tell us what that is.

Sincerely,

A handwritten signature in black ink, appearing to read "Nina Bell". The signature is fluid and cursive, with a large loop at the end.

Nina Bell
Executive Director

Attachments:

Ethan Jay Nedeau, Allan K. Smith, Jen Stone, and Sarina Jepsen, Freshwater Mussels of the Pacific Northwest (2009)
Celeste Mazzacano, Ph.D., Freshwater Mussels of the Pacific Northwest (2014)