BEFORE THE WASHINGTON
DEPARTMENT OF ECOLOGY

Petition for Rulemaking to Adopt a Total	)
Maximum Daily Load and Wasteload	)
Allocations for Nitrogen in Puget Sound	)

OVERVIEW

Northwest Environmental Advocates ("NWEA") hereby petitions the Washington Department of Ecology ("Ecology") to establish a Total Maximum Daily Load ("TMDL") polluted water clean-up plan for nitrogen pollution in Puget Sound pursuant to section 303(d) of the Clean Water Act ("CWA").

Ecology's decades-long failure to develop a TMDL "pollution budget" for nutrient pollution in Puget Sound has resulted in its continuing to unlawfully issue at least 103 National Pollutant Discharge Elimination System ("NPDES") permits that authorize discharges that cause or contribute to violations of water quality standards, causing ever-worsening pollution of the Sound. Ecology's studies have long ago concluded that nitrogen in municipal sewage discharges is causing and contributing to low levels of dissolved oxygen, nuisance algal blooms that result in yet further depressions of dissolved oxygen and have other deleterious effects, the replacement of the Sound's forage fish with jellyfish, and other food web and water quality changes. Yet Ecology has failed to take the action required by the Clean Water Act, namely to develop a TMDL that will establish pollution caps for all sources of nitrogen and ensure that future NPDES permits include the pollution limits required by law.

NWEA has previously demonstrated the illegality of Ecology's permitting of nitrogen discharges to Puget Sound, in a petition to the U.S. Environmental Protection Agency ("EPA")

seeking to terminate Ecology's authority to issue NPDES permits.[1] The 103 wastewater treatment plants at issue include those that discharge directly to the Sound, which Ecology has determined are responsible for 81 percent of Puget Sound anthropogenic nitrogen loads in the summer and 59 percent annually. Sewage treatment plants and some industries that discharge to Sound tributaries, along with nonpoint sources of polluted runoff, make up the remaining anthropogenic nitrogen loading of 19 percent in summer and 41 percent in winter. Yet no discharge permit contains effluent limitations for nitrogen to protect Puget Sound water quality.

Ecology has long acknowledged that nitrogen is causing havoc with water quality in Puget Sound but it has pointedly not committed to developing a Puget Sound TMDL for nitrogen. Instead, Ecology plays with words, talking about the need to "build collaborative partnerships" and "develop meaningful, holistic solutions."[2] Ecology has stated that it may use "alternative management approaches" in lieu of developing the TMDL required by the Clean Water Act but it has never defined these approaches, said when it will use these approaches, committed to these approaches, explained how these approaches will have the same regulatory effect as a TMDL, and it has not demonstrated that these approaches will result in NPDES permit conditions that will ensure that water quality standards are met in Puget Sound.

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[1] *See* NWEA, Before the United States Environmental Protection Agency, *Petition for Corrective Action or Withdrawal of Authorization from the State of Washington to Issue National Pollutant Discharge Elimination System Permits* (Feb. 13, 2017) (hereinafter "NWEA Petition"). This petition to EPA is hereby incorporated in full by reference into this petition for rulemaking as Attachment A.

[2] Ecology, *Saving Puget Sound, Sound Science, Puget Sound Nutrient Source Reduction Project*, (hereinafter "Nutrient Reduction Project"), *available at* http://www.ecy.wa.gov/puget_sound/reducing-nutrients.html (last accessed Aug. 15, 2017).

Moreover, it continues to issue permits that allow the unlimited discharge of nitrogen to Puget Sound. In short, Ecology is hiding behind a smokescreen of meaningless platitudes while deliberately deceiving the public as to its legal obligations under the Clean Water Act.

Ecology's failure to develop a TMDL pollution budget and to control discharges to Puget Sound from wastewater plants stands in stark contrast to the efforts of other states to protect similarly polluted marine waters. For example, the 2001 Long Island Sound Nitrogen TMDL, developed to address increased algal blooms and depressed dissolved oxygen, had by 2009 reduced nitrogen loading by 25 percent from 1990 baseline levels.[3] By 2016, the TMDL had cut nitrogen loads from 106 wastewater plants in Connecticut and New York by 57 percent.[4] With the exception of actions by a few forward-thinking local governments, no such nitrogen reductions are underway in the Puget Sound region because Ecology has failed to develop and implement a TMDL and simultaneously refused to issue permits with nitrogen controls.

This petition is brought pursuant to RCW 34.05.330, which provides for groups to petition state agencies to adopt administrative rules, and RCW 90.48.035, which provides for Ecology to promulgate rules in order to maintain the highest possible standards of all waters of the state. It seeks the initiation of a rulemaking proceeding by the Department of Ecology to adopt a TMDL for nitrogen in Puget Sound and/or to develop such a TMDL and to adopt its wasteload allocations ("WLA") into formal rules.

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[3] EPA, *Restoring the Long Island Sound While Saving Money Lessons in Innovation and Collaboration* (Dec. 2009), *available at* .http://longislandsoundstudy.net/wp-content/uploads/2014/09/TMDL-Fact-Sheet.pdf (last accessed Aug. 30, 2017).

[4] Long Island Sound Study, *Sound Update* (Spring 2017).

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I. SUBJECT OF THE REQUESTED RULE

The subject or purpose of the requested rule is the adoption of an agency, order, or directive that includes the submission of a TMDL[5] to the EPA for nitrogen pollution in Puget Sound. The development and EPA approval of a TMDL is often essential to Ecology's ability to issue NPDES permits that comply with federal and state law because without a TMDL it is difficult to assess the relative responsibilities of various pollution sources for reducing their contributions of pollutants, particularly with a far-field pollutant such as nitrogen that causes a variety of violations of water quality standards, including violations of dissolved oxygen criteria, narrative criteria, and support of designated uses. Ecology's actions and inactions in issuing NPDES permits for discharges to Puget Sound have made clear that this is one such situation.

EPA authorized Washington State to manage the NPDES permit program in the state. *See* RCW 43.21A.020; WAC 173–226–030(5), –050(1). The Washington State Legislature vested Ecology with the authority to issue NPDES permits. RCW 43.21A.020; ch. 90.48 RCW; RCW 90.48.180. These statutory provisions establish Ecology's authority to specify conditions in NPDES permits as necessary to avoid issuing a permit that will cause a permittee to pollute the waters of the state in violation of the public policy declared in RCW 90.48.010:

> It is declared to be the public policy of the state of Washington to maintain the highest possible standards to insure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, and the industrial development of the state, and to that end require the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the state of Washington. Consistent with this policy, the state of Washington will exercise its powers, as fully and as effectively as

[5] This petition refers to a TMDL for nitrogen in Puget Sound in the singular recognizing that it would be counted as many TMDLs.

> possible, to retain and secure high quality for all waters of the state. The state of Washington in recognition of the federal government's interest in the quality of the navigable waters of the United States, of which certain portions thereof are within the jurisdictional limits of this state, proclaims a public policy of working cooperatively with the federal government in a joint effort to extinguish the sources of water quality degradation, while at the same time preserving and vigorously exercising state powers to insure that present and future standards of water quality within the state shall be determined by the citizenry, through and by the efforts of state government, of the state of Washington.

See also 33 U.S.C. §§ 1311(a), 1342.

II. NEED FOR THE REQUESTED RULE

The requested rule is needed because despite the passage of many years and the expenditure of millions of dollars on its studies of Puget Sound, Ecology has failed to use its modeling results, scientific studies, and NPDES permit monitoring data to develop a TMDL or to commit to developing a TMDL that would allocate relative responsibilities to controlling sources of nitrogen pollution to Puget Sound. *See, e.g.*, Ecology, *South Puget Sound Dissolved Oxygen Study Water Quality Model Calibration and Scenarios* (March 2014) (hereinafter "2014 DO Scenarios")[6] at 22 ("Ecology may not conduct a TMDL if alternative management approaches are used to address violations."). Despite its apparent reliance on "alternative management approaches" and the like (e.g., "nutrient permitting strategy," "TMDL alternative," "integrated approach to nutrient controls," "coordinated permitting strategy"), Ecology has not identified what these approaches are, nor has it committed to use them in any time frame, if ever. It has not committed to developing a TMDL as part of the process of these approaches, as the result of the approaches' failing, or a timeframe for determining that it will not develop a TMDL.

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[6] *Available at* https://fortress.wa.gov/ecy/publications/documents/1403004.pdf (last accessed Oct. 17, 2016).

Neither has Ecology demonstrated that such alternative management approaches will ensure that NPDES permits it issues do not authorize discharges that cause or contribute to violations of water quality standards as required by the CWA.

In fact, the CWA does not allow Ecology to postpone the development of water quality-based effluent limits ("WQBEL") in NPDES permits until completion of either a TMDL or even some alternative management approach. *See NWEA Petition, supra* n. 2 at 8 – 13, 63 – 93; 54 Fed. Reg. 23,868, 23,872–73, 23,875–77 (June 2, 1989); *see also In re Upper Blackstone Water Pollution Abatement Dist*., 14 E.A.D. 577, 604-05 (EAB 2010), *aff'd*. 690 F.3d 9 (1st Cir. 2012), *cert. denied*, 133 S. Ct. 2382 (2013) (expressly rejecting the idea that the permitting authority cannot determine permit effluent limits where a TMDL has yet to be established). However, this is precisely what Ecology is doing when it repeatedly issues NPDES permits to Puget Sound nitrogen dischargers without nitrogen limits. *See id.* at 41 – 63, 71 – 93.

Ecology cannot simultaneously choose not to develop a TMDL and claim that it is waiting to complete a TMDL before it develops the wasteload allocations and effluent limits that are independently required by law when it issues NPDES permits to dischargers of nitrogen into Puget Sound. But that, in fact, is what Ecology is doing.

A. Puget Sound is Awash in Nitrogen Pollution

Ecology has been studying and modeling the effects of nitrogen for decades—at least since the early 1990s—and, therefore, over many five-year NPDES permit cycles. Over those years, Ecology has determined that nitrogen-induced low dissolved oxygen levels are violating water quality standards in many locations in the Sound. *See NWEA Petition, supra* n. 1 at 21 – 24. In addition, Ecology and others have determined that the Sound is impaired by algal blooms,

food web changes, ocean acidification, and large blooms of jellyfish. *Id*. at 24 – 34. Ecology has determined that anthropogenic sources of nitrogen are a significant cause of these violations of numeric and narrative criteria in Washington's water quality standards and, moreover, that "[t]he dominant human sources are through marine point source discharges of treated municipal wastewater." *2014 DO Scenarios, supra* n. 6 at 13; *see also NWEA Petition, supra* n. 1 at 34 – 36. Ecology expects nutrient contributions to grow and other related conditions to worsen such that in the future nitrogen will further exacerbate the Sound's depressed levels of dissolved oxygen. *See id.* at 36 – 37.

The level of pollution; its effects on beneficial uses such as aquatic life, recreation, shellfish harvest, and aesthetics; and the likelihood of both the pollution levels and the effects worsening in the future all point to why Ecology should make the development of a Puget Sound TMDL for nitrogen a priority. The CWA urges states to establish TMDL priorities "taking into account the severity of the pollution and the uses to be made of such waters." 33 U.S.C. § 1313(c)(1)(A). Here, nitrogen pollution that Ecology has determined is from human sources subject to NPDES permits is causing a wide range of impacts to recreational enjoyment, commercial use, aquatic species including threatened and endangered species, and to the food chain that supports almost the entire range of uses of these waters. It is impossible to see how establishing a nitrogen TMDL for Puget Sound is not Ecology's highest priority given the Sound's size, its uses, the severity of its pollution, the pressures of a rapidly growing population, and the millions of dollars spent to date on analyzing the problem.

B. Ecology Routinely Issues NPDES Permits to Dischargers of Nutrient Pollution to Puget Sound Without the Legally Required Effluent Limits on Nutrients

Ecology issues at least 103 NPDES permits to sewage collection and treatment facilities and industrial facilities that discharge nitrogen directly or indirectly to Puget Sound. *See NWEA Petition, supra* n. 1 at 41 – 63. Such permits are required to contain water quality-based effluent limits sufficient to ensure that a permitted discharge does not cause or contribute to violations of water quality standards. *See* 33 U.S.C. §§ 1311(b)(1)(C), 1342(a)(2); 1311(e), 1312(a), 1313(d)(1)(A), (d)(2), (e)(3)(A); 40 C.F.R. §§ 122.4(a), (d), 122.44(d); WAC 173-216-110(1)(d); *see also NWEA Petition, supra* n. 1 at 8 – 17. Even so, as set out in the NWEA Petition, Ecology has issued no permits to sources of nitrogen that establish limits sufficient to ensure that the permitted discharges do not cause or contribute to violations of water quality standards in Puget Sound. *See id.* at 41 – 93.

Since NWEA submitted its petition to EPA, Ecology has proposed to reissue NPDES permits to the following nitrogen sources without nitrogen effluent limits to protect Puget Sound waters for which NWEA has submitted timely public comments on the need for such limits:

- NPDES Permit No. WA0038377 Hartstene Pointe Wastewater Treatment Plant
- NPDES Permit WA0022527 Vashon Wastewater Treatment Plant
- NPDES Permit WA0024074 City of Mount Vernon Wastewater Treatment Plant
- NPDES Permit No. WA0022578 City of Lynden Wastewater Treatment Plant
- NPDES Permit No. WA0020907 City of Bainbridge Island Wastewater Treatment Plant
- NPDES Permit No. WA0030520, Kitsap County Public Works, Central Kitsap Wastewater Treatment Plant
- NPDES Permit No. WA0037061, LOTT Budd Inlet Water Reclamation Facility

Of these, to date, Ecology has issued permits to Vashon, Mount Vernon, Bainbridge Island, and Central Kitsap. In its final fact sheets for these four permits, Ecology responded as follows to

NWEA's comments pertaining to the lack of a nitrogen effluent limitation in each of the permits:

> **Response**: Ecology has assessed the reasonable potential for the discharge to violate water quality standards and found that the discharge would not do so.
>
> While treated municipal wastewater may be the dominant human source of nitrogen for Puget Sound, the largest overall source of nitrogen is the exchange of marine water with the waters of the Sound. Ecology continues to improve the modeling that allows us to assess the degree to which wastewater treatment plants may be causing or contributing to violations of water quality standards in Puget Sound. In 2014, Ecology completed the report Puget Sound and the Straits Dissolved Oxygen Assessment – Impacts of Current and Future Human Nitrogen Sources and Climate Change through 2070. Since then, Ecology incorporated into its models a more state-of-the-science methodology for accounting for sediment/water column interactions. This model improvement could affect both predictions of water quality impairments (now largely based upon model results), and estimates of nitrogen reductions needed to improve water quality.
>
> As improved modeling results becomes available, Ecology intends to develop a coordinated permitting strategy that will reduce nitrogen discharges to Puget Sound in a cost-effective manner, to achieve the greatest environmental results with the lowest cost to the public. Ecology's ultimate decision to set permit limits for nitrogen discharges to Puget Sound may affect all the permits in the region, and must be based on accurate science.
>
> Ecology concludes that the technology-based limits included in this permit are appropriate.

Ecology, *Fact Sheet for NPDES Permit WA0022527, Vashon Wastewater Treatment Plant, Effective Date: March 1, 2017* (hereinafter "Vashon Fact Sheet") at 57.[7] Ecology's assertion

[7] *See also* Ecology, *Fact Sheet for NPDES Permit WA0024074, City of Mount Vernon Wastewater Treatment Plant, Effective Date: March 1, 2017* (hereinafter "Mount Vernon Fact Sheet") at 69 (verbatim with the exception of the first paragraph, which reads: "Ecology has assessed the reasonable potential for the discharge to violate water quality standards in the near field and downstream to the mouth of the Skagit River and found that the discharge would not violate standards."); *see also* Ecology, *Fact Sheet for NPDES Permit WA0020907, Bainbridge Island Wastewater Treatment Plant, Effective Date: August 1, 2017* (hereinafter "Bainbridge Fact Sheet") at 64 (verbatim with the addition of an additional sentence as follows: "For the most recent information on Ecology's Puget Sound Nutrient Source Reduction Project, please see http://www.ecy.wa.gov/puget_sound/ reducing-nutrients.html."); Ecology, *Fact Sheet for NPDES Permit WA0030520, Central Kitsap Wastewater Treatment Plant, Effective Date:*

that it assessed, but did not find reasonable potential for, nitrogen discharges into Puget Sound is simply at odds with the facts.[8] In the case of Vashon, as with the other permits, Ecology stated only that "[t]he amount of ammonia-based nitrogen in the wastewater also provides an indication of oxygen demand potential in the receiving water."[9] *Id*. at 22. Not only is that sole vague assertion not a reasonable potential analysis, there is no other reasonable potential analysis of the effects of nitrogen discharges on Puget Sound water quality in the fact sheet. *See id.* at 51 – 54 (nitrogen not evaluated in Appendix E technical calculations and ammonia evaluated solely for

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August 1, 2017 (hereinafter "Central Kitsap Fact Sheet") at 70-71 (verbatim as Bainbridge Island).

[8] Note that EPA's permitting guidance states that "[f]or pollutants such as *BOD, nutrients*, or non-conservative parameters, the effects of biological activity and reaction chemistry *should be modeled*, in addition to the effects of dilution, to assess possible impacts on the receiving water." EPA, *National Pollutant Discharge Elimination System (NPDES) Permit Writers' Manual* (Sept. 2010) at 6-24 (emphasis added). There has been no attempt to model the discharge of nitrogen from Vashon or the other recently-permitted discharges. In addition, EPA emphasizes that federal regulations require reasonable potential to be evaluated for narrative criteria, such as "pollutant parameters in amounts that would cause nuisance algal blooms[.]" *Id.* at 6-23. Ecology has entirely ignored its narrative criteria in the fact sheets. EPA also emphasizes the need to document the results of the analysis in the fact sheet to provide "the public a transparent, reproducible, and defensible description of how each pollutant was evaluated, including the basis (i.e., reasonable potential analysis) for including or not including a WQBEL for any pollutant of concern." *Id.* at 6-30. Finally, EPA points out the most relevant to the Puget Sound situation: "where there is a pollutant with a WLA from a TMDL, a permit writer must develop WQBELs or other permit requirements consistent with the assumptions of the TMDL. Even without a TMDL, a permitting authority could, at its own discretion, determine that WQBELs are needed for any pollutant associated with impairment of a waterbody." *Id.* at 6-30.

[9] In the case of Mount Vernon, Ecology only asserted that it evaluated reasonable potential to the mouth of the Skagit River and made no findings with regard to Puget Sound. *See Mount Vernon Fact Sheet*, *supra* n. 7. Evaluating ammonia itself is not a substitute for evaluating the reasonable potential for nitrogen to cause or contribute to violations of water quality standards. *See NWEA Petition, supra* n. 1 at 41 – 45, 50 – 51, 70 – 79, 88; *see also Vashon Fact Sheet, supra* n. 7 at 22; *Mount Vernon Fact Sheet, supra* n. 7 at 28 *Central Kitsap Fact Sheet, supra* n. 7 at 26; *Bainbridge Fact Sheet, supra* n. 7 at 23.

compliance with toxicity criteria). But Ecology did continue to require nitrogen monitoring of the permittee's discharge because, it stated, "[i]t will use this data in the future if Ecology develops TMDLs for dissolved oxygen and establishes WLAs for nutrients." *Id.* at 27. Ecology does not attempt to reconcile the possibility that this permittee may require future limits on nutrients because the agency has determined that human contributions of nitrogen—of which this is one—are causing violations of water quality standards with its assertion that it assessed that this same permittee has no reasonable potential for causing or contributing to violations of water quality standards based on no evaluation whatsoever. Moreover, Ecology's response that it need not impose water quality-based effluent limits in permits for nitrogen dischargers while it continues perfect its water quality model and that it will, in future, make an "ultimate decision" on whether to require permit limits is simply inconsistent with the requirements of the Clean Water Act and basic logic.

Ecology has been warned by EPA that its approach to permitting "could lead to NPDES permits that do not comply with federal law and regulation[.]" Letter from Randall F. Smith, EPA, to Megan White, Ecology, Re*: EPA Comments on Proposed Section 3.3.11 "TMDL's and WLA's and 303(d) - Interim Permitting" of Department of Ecology's Permit Writer's Manual* (June 25, 2002). As EPA explained to Ecology, use of the state's guidance could unlawfully make it "possible to write permits that defer actions to meet water quality standards until such time in the future as a TMDL is completed." *Id*. at 1. EPA pointed out that "when point sources are discharging pollutants that are significant contributors to impaired water quality . . . it is essential to use permits as a tool to require reductions for those pollutants, even if a TMDL has not yet been completed." *Id.* at 2. Presciently, EPA noted that "[i]n many cases, TMDLs are

years away." *Id*. In its attachment, EPA noted specifically that "[t]he requirement to include limits as stringent as necessary to meet water quality standards applies regardless of the TMDL schedule for the water body" and that "any valid receiving water data must be considered in the development of effluent limits, regardless of whether or not the data is sufficient for 303(d) listing purposes." *EPA Comments on Proposed Section 3.3.11 "TMDL's and WLA's and 303(d) - Interim Permitting" of Department of Ecology's Permit Writer's Manual* at 1. EPA went on to say that Ecology's proposed solution, to use current performance as an "interim" limit, was misleading and not likely to conform to legal requirements. *Id*. at 1, 2. Finally, EPA noted that if portions of the guidance were

> implemented aggressively, this permitting practice [of using interim limits] is giong to result in significant reductions for significant dischargers. Otherwise, allowing successive permit cycles to determine what treatment is achievable and then allowing a compliance schedule to get to that level of treatment, could result in long periods of time over which no reductions in pollutants occur. Again, it is not clear how this process results in permit limits which will assure that water quality standards will be met.

Id. at 2. EPA's concerns of 2002 proved correct, as Ecology's permitting has merely perpetuated and exacerbated the nitrogen pollution in Puget Sound, with no reductions in sight. Ecology has chosen to ignore its obligations to issue lawful NPDES permits and has failed to develop a TMDL that would ensure future permits would meet the requirements and goals of the Clean Water Act.

Ecology has also failed to either define or to act on its purported "coordinated permitting strategy," including to explain how such a strategy could meet the requirements of the CWA to evaluate whether discharges have the reasonable potential to cause or contribute to violations of water quality standards "account[ing] for existing controls on point and nonpoint sources of

pollution" and to ensure that, in fact, the discharges do not cause or contribute to violations of standards. 40 C.F.R. § 122.44(d)(1)(ii); *see also id.* at § 122.4(a), (d). For example, a "coordinated *permitting* strategy," by definition, would not include controls on nonpoint sources, an evaluation of current controls on nonpoint sources, allocations to nonpoint sources, or an evaluation of whether nonpoint source controls are adequate to establish reasonable assurance such that point sources could be made less stringent than they otherwise would need to be. *See id*. § 130.2(i). Ecology's oral explanations of its Nutrient Reduction Project, *supra* n. 2, have focused on its plans to "turn the dial" on inputs of nitrogen in its models to measure changes in effects to dissolved oxygen as a means of determining whether nutrient controls could be limited to only certain wastewater treatment plants, along with nonpoint sources. Such dial-turning cannot take the place of TMDL-based load allocations to nonpoint sources upon which Ecology may rely for the issuance of NPDES permits because there is no way to test the reasonable assurance that such nonpoint source controls will be implemented and no accountability if they are not. In the absence of a TMDL for nitrogen, Ecology is required to assume for the purposes of permitting that there are no nonpoint source controls.

The same is true of "turning the dial" on point sources other than the one under consideration by a permit writer, who is limited to taking into consideration "existing controls" on point sources when he or she determines a permittee's reasonable potential to violate water quality standards. 40 C.F.R. § 122.44(d)(1)(ii). A TMDL, with its established wasteload allocations that must be incorporated in future permits, *id.* § 122.44(d)(1)(vii)(B), and approved by EPA, provides the assurance that assumed reductions by other point sources may be lawfully taken into account when deriving water quality-based effluent limits for a permittee. A dial-

turning strategy provides no such assurances.

Ecology's same oral explanations, while acknowledged nitrogen's effects on nuisance algal growth, ocean/coastal acidification, and the Puget Sound food web, have made very clear that Ecology intends to focus solely on dissolved oxygen using its model, a model that is focused exclusively on predicting levels of dissolved oxygen. That approach will not result in Ecology's issuing permits that ensure that discharges do not cause or contribute to violations of water quality standards, which include narrative criteria and designated uses. Because Ecology has not adopted numeric criteria for nitrogen, it is required to rely on narrative criteria and uses to ensure full support of the uses. *See, e.g.*, 40 C.F.R. § 122.44(d)(1)(vi) ("Where a State has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits [using one of three options]."); *see also id.* § 122.44(d)(1)(vii)(A). The development of a TMDL, however, would require Ecology to evaluate how all nitrogen sources could be controlled to meet narrative criteria and designated uses in addition to applicable numeric criteria. 33 U.S.C. § 1313(d)(1)(C); *see also Anacostia Riverkeeper, Inc. v. Jackson*, 798 F.Supp.2d 210, 224-35 (D.D.C. 2011) ((("TMDLs must implement all water quality standards made applicable to a water body under state law").

Finally, a coordinated permitting strategy likely would also omit required elements of a TMDL, such as a margin of safety that takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality, seasonal variations, and critical conditions. *See, e.g.*, 40 C.F.R. § 130.7(c). If such a strategy did contain all of these qualities,

there would be no reason for Ecology to not call the result a TMDL and submit it to EPA for approval.

C. The Clean Water Act Requires Development of a TMDL

The Clean Water Act requires the development of a TMDL for nitrogen in Puget Sound. The purpose of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). The CWA also establishes an "interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife." *Id*. To both ends, the Act requires states to develop water quality standards that establish, and then protect, the desired conditions of its waterbodies. *Id*. § 1313(a). Water quality standards designate desired "uses" for the waters, as well as numeric and narrative "criteria" to protect the uses. *Id*. § 1313(c)(2)(A). Together, the designated uses and criteria, along with an antidegradation policy, constitute water quality standards. *Id*.; 40 C.F.R. §§ 131.3(i), 131.6. Water quality standards "provide the legal basis for control decisions under the Act." 40 C.F.R. § 130.0(b). Achieving them is one of the Act's "central objectives." *Arkansas v. Oklahoma*, 503 U.S. 91, 106 (1992).

Once approved by EPA, water quality standards serve two primary roles under the CWA. First, they are the regulatory basis for NPDES permits and other regulatory approvals for the "discharge" of pollutants. 33 U.S.C. §§ 1311(b)(1)(C), 1342, 1344(p), 1341(a)(1). Second, EPA-approved water quality standards are the regulatory basis of the TMDL program under CWA Section 303(d), 33 U.S.C. § 1313(d), the purpose of which is to clean up waterbodies that fail to achieve water quality standards. *Id*.

Section 303(d) requires states to identify waters that fail to meet applicable standards. *Id*.

§ 1313(d)(1)(A). For each of these "impaired" waters, the state must develop a TMDL "to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality." *Id*. § 1313(d)(1)(C).

A TMDL represents the total amount of pollution that can enter a waterbody, on a daily basis, while still meeting applicable standards; this is also known as "loading capacity." *Id*; 40 C.F.R. § 130.2(f). Like cutting slices of a pie, portions of the loading capacity are then "allocated" between pollution sources. 40 C.F.R. § 130.2(i). Portions allocated to point sources are called wasteload allocations (WLA). *Id*. § 130.2(h). Portions allocated to "nonpoint" sources—such as runoff from logging and farming—are load allocations (LA). *Id*. § 130.2(g). Thus, the TMDL is the "sum of the individual WLAs for point sources and LAs for nonpoint sources and natural background." *Id*. § 130.2(i). TMDLs serve the goal of restoring waterbodies by identifying, and then allocating, the total amount of allowable pollution. *See Pronsolino v. Nastri*, 291 F.3d 1123, 1126, 1128 (9th Cir. 2002). When allocations are met, water quality standards will be attained. *Id*. at 1129. NPDES permits must comply with both water quality standards and wasteload allocations. 40 C.F.R. § 122.44(d)(1)(vii)(A), (B).

Although Ecology has not seen fit to identify waters as impaired by nuisance algal growth, impairments to the food chain and other ecological impairments caused by nitrogen pollution, it has listed numerous segments of Puget Sound on the Washington 303(d) list. *See NWEA Petition* at 23 – 24. It has also conducted research and obtained data demonstrating widespread impairments that it has not included on the 303(d) list that, nonetheless, would be included in a TMDL for nitrogen in Puget Sound and which are required to be taken into

consideration when it issues NPDES permits for the discharge of nitrogen. *Id*. at 24 – 37. Taken together, the Clean Water Act requires Ecology to develop a TMDL for nitrogen in Puget Sound.

D. A TMDL is Needed to Ensure that NPDES Permits Issued by Ecology Contain Sufficient Conditions to Meet Legal Requirements

A TMDL for nitrogen in Puget Sound is needed to ensure that Ecology begins to issue NPDES permits that meet federal and state law. While Ecology could—and in fact is required to—issue permits in the absence of a TMDL, there is simply no argument that having permit writers attempt to identify effluent limits consistent with federal regulations, one-by-one for over 100 permits, is efficient or would likely properly account for cumulative effects of multiple sources. Moreover, the development of a Puget Sound TMDL is a good policy choice because it allows Ecology and other entities to develop a binding plan for all nitrogen sources in a single action. And, finally, a Puget Sound TMDL is crucial to the accurate development of many other TMDLs in the Puget Sound region that pertain to watersheds that drain to—and contribute to—nitrogen loading in the Sound.

1. A Puget Sound Nitrogen TMDL Will Simplify an Otherwise Difficult Permitting Task

Ecology's continued issuance of NPDES permits in the absence of a Puget Sound nitrogen TMDL has failed to ensure that the permits meet legal requirements and that water quality standards will be met. *See generally NWEA Petition, supra* n. 1. In fact, Ecology's studies have demonstrated that in the absence of controls on municipal and industrial dischargers—the very controls Ecology routinely avoids requiring in the permits it issues—water quality standards will continue to be violated by human contributions and that violations will become both more extensive and more severe in the future. *See id.* at 17 – 41. Ecology's failure

to take any regulatory actions to control nutrients discharged to Puget Sound by sewage treatment systems sufficient to meet water quality standards demonstrates that likely nothing short of a TMDL can provide the region-wide analysis and control actions that are necessary to *ensure* that each permit has been considered in light of the discharges and contributions from other permits and nonpoint sources and the controls that are or are not being applied to those sources, as the law requires.[10] *See* 40 C.F.R. § 122.4(a), (d). While this analysis—putting the individual discharger into the context of other pollution sources— is required for the issuance of each permit regardless of the existence of a TMDL, 40 C.F.R. § 122.44(d)(1)(ii), the absence of a TMDL makes making that analysis for each individual permit far more difficult. And in fact, Ecology has not been making the required analyses when it issues individual permits, let alone including water quality-based effluent limits in the permits. *See NWEA Petition, supra* n. 1 at 41 – 93; *see also supra* at 9 – 13.

The assessment of whether a discharger will cause or contribute to violations of water quality standards taking into account other sources of the same pollutant is part of the process of a permit writer's determining whether a permit has "reasonable potential" to violate a numeric or narrative criterion. 40 C.F.R. § 122.44(d)(1)(i), (ii). In the absence of a TMDL, if a permit does have reasonable potential, it must also contain an effluent limit for that pollutant. *Id*. at (iii), (iv), (v), (vi). Washington case law has established that these specific federal provisions mean precisely what they say with regard to Ecology's being required to conduct reasonable assurance

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[10] State-EPA Nutrient Innovations Task Group, *An Urgent Call to Action: Report of the State-EPA Nutrient Innovations Task Group* (Aug. 2009) (hereinafter "An Urgent Call to Action") *available at* https://www.epa.gov/sites/production/files/documents/nitgreport.pdf at 21. The Task Group recommended the "implement[ation of] large-scale watershed TMDL[s]," which describes precisely a Puget Sound nitrogen TMDL.

determinations. *See Spokane County v. Sierra Club*, No. 47158-2-II, slip op. at 13–17 (Wash. Ct. of App. Div. II Aug. 16, 2016). In *Spokane County*, the court held that even where Ecology had very few data points, it still did not have the discretion to not conduct the reasonable potential analysis and that the analysis required the consideration of other sources of the pollutant. *Id.* at 16–17 ("The plain language of the [federal] regulation does not grant Ecology discretion to delay a reasonable potential analysis entirely."). Ecology only had discretion in how it conducted the analysis. *Id*. at 17.

The court went on to underscore the problem with the permittee's proposed approach to Ecology's making a reasonable potential finding in which Ecology would not conduct the analysis in the first instance if it did not have sufficient information:

> Following Spokane County's argument to its natural conclusion reveals its tenuousness. *The permitting authority would be encouraged to avoid and defer analyses meant to protect water quality, so as to not trigger other regulation requirements*. For these reasons, we reject Spokane County's argument.

Id. (emphasis added). Ecology's failure to conduct reasonable potential analysis on the discharge of nitrogen from each of the dischargers to Puget Sound—while baldly asserting that it did conduct them—fits the court's description precisely. By finding no reasonable potential for discharges of nitrogen to cause or contribute to violations of water quality—on the basis of no actual analysis and in the face of innumerable statements by Ecology that these sources collectively are causing those violations—Ecology has purposefully not triggered the regulatory requirement to include a water quality-based effluent limit for nitrogen in each of the permits. That, in *Spokane County,* Ecology refused to conduct a reasonable potential analysis and in the case of the Puget Sound permits it asserts without proof that it conducted the analysis but found

no reasonable potential is a distinction without a difference. It appears that the intention behind the assertion is to avoid the court's holding in *Spokane County*.

A TMDL for Puget Sound would negate the need for triggering these required but difficult evaluations in each permit as it would, in essence, make the required reasonable potential analysis for all the sources of nitrogen in one document. Moreover, a TMDL would take the existing controls on point and nonpoint sources into account, as federal regulations require to be done in conducting a reasonable potential analysis, because that is the role of a TMDL. In doing so, the TMDL would generate wasteload allocations for all permittees, which would expedite the issuance of permits with the required effluent limits. A TMDL would also ensure compliance with water quality standards other than the dissolved oxygen numeric criteria upon which Ecology plans to rely. *See supra* at 15.

Similarly, discharges must demonstrate compliance with downstream water quality standards. 40 C.F.R. §§ 122.4(d), 131.10(b), WAC 173-201A-260(3)(b) ("Upstream actions must be conducted in manners that meet downstream water body criteria.").[11] Yet, without a TMDL, such an analysis is challenging.[12] With a Puget Sound TMDL in place, Ecology would no longer be able to avoid setting effluent limits for nitrogen in any NPDES permits for which such limits are required to ensure that such discharges are not causing or contributing to violations of water quality standards in Puget Sound.

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[11] Note that in *Spokane County*, the facility in question discharges to a part of the Spokane River that is not on the 303(d) list for PCBs. *Spokane County*, slip op. at 3.

[12] The State-EPATask Group agreed. Note the group's three references to the need to meet downstream water quality standards in the context of (1) water quality standards, (2) non-municipal NPDES permits, and (3) numeric nutrient criteria. *See An Urgent Call to Action, supra* n. 10 at 30.

Ecology is on record that TMDLs are necessary to evaluating and controlling certain discharged pollutants, namely nutrients:

> One type of analysis is for pollutants such as BOD or nutrients which may cause an impact some distance from the point of discharge and for which mixing zones are not applicable.
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> * * *
>
> Nutrients are another class of pollutants which would be examined for impacts at some point away from the discharge. . . . The impact of nutrients is very difficult to predict and usually there are several point and nonpoint sources contributing to a nutrient problem. . . . A permit manager should point out any suspected nutrient problems to the unit and section supervisor. *Suspected water quality problems due to nutrients are best handled by a TMDL process conducted by the EA Program*.

Ecology, *Water Quality Program Permit Writer's Manual* (revised Jan. 2015)[13] at 176 – 177. Even so, Ecology's guidance states correctly that "[i]n the absence of a basin TMDL and the resultant WLA, the permit writer must develop an individual WLA." *Id*. at 193. However, as discussed in the NWEA's petition to EPA, Ecology then proceeds to dismantle federal permitting requirements in the remainder of its discussion concerning the issuance of permits where there is no TMDL, particularly for far-field effects. *See e.g., id*. at 194 ("A water body listed on the 303(d) list is not a presumption of impairment unless the listed section is the point of discharge."); *see also id*. at 194 – 200; *NWEA Petition, supra* n. 1 at 84 – 87.

This absence of required regulatory action by Ecology is not entirely surprising. The State-EPA Nutrient Innovations Task Group observed over six years ago that "[c]urrent tools such as numeric nutrient criteria, *water quality assessments and listings*, urban stormwater controls, *POTW nutrient limits*, and animal feedlot controls are *underused and poorly*

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[13] *Available at* https://fortress.wa.gov/ecy/publications/documents/92109.pdf (last accessed Aug. 30, 2017).

coordinated." *An Urgent Call to Action, supra* n. 10 at 31 (emphasis added). This observation describes Ecology's inactions perfectly.

2. A Puget Sound TMDL is Required for Public Policy Purposes

In addition to the central role played by TMDLs in the issuance of NPDES permits, to the extent that the modeling and analysis have already demonstrated a need to control nutrient sources that are not direct dischargers to Puget Sound, a TMDL is required to identify the degree and location of nutrient controls needed on those upstream sources in the watersheds that drain to the Sound. These sources include dischargers to tributaries, permitted and unpermitted stormwater sources, permitted and unpermitted CAFOs, and nonpoint sources such as logging, farming, and on-site septic systems. In addition, while urban stormwater may have lower pollutant concentrations than other nonpoint sources, particularly for sediment and nutrients, the large annual volume of urban runoff makes it a key nitrogen contributor. *See An Urgent Call to Action, supra* n. 10 at 14.

Large geographic scale TMDLs, such as this petition seeks, allow for public debate on precisely the issue highlighted by the State-EPA Task Group:

> All major sources of nutrients must be held accountable for their contributions to the problem. The valid and growing perception that nutrient reduction burdens are not equitably shared or cost-effectively managed across all sources or between upstream and downstream contributors is a major barrier to accelerating progress. There is growing reluctance and resistance on the part of highly regulated entities and downstream users to pay for increasingly expensive loading reductions, even where necessary and possible, when upstream sources are not held responsible for their own nutrient contributions to the same watershed. Combating the challenge of widespread nutrient pollution will require a renewed emphasis on prevention and a profound change in how we share accountability and responsibility between sources, within watersheds, and across state lines.

Id. at 33. In contrast, the "coordinated permitting strategy" proposed by Ecology does not

address those sources of nitrogen that are not controlled by NPDES permits. Therefore, by definition, such a "strategy" cannot meet Ecology's stated goal of being "cost-effective" and "achiev[ing] the greatest environmental results with the lowest cost to the public." Only a TMDL can accomplish that task because only a TMDL takes into consideration all sources.

In addition, TMDLs provide the context for evaluating and implementing broader solutions. For example, a TMDL could be used to require or motivate municipalities to provide sewer collection and treatment to households that are currently using on-site septic systems that do not remove nitrogen. It would certainly ignite public debate on whether the extensive use of on-site septic systems in the Puget Sound region is good public policy and whether additional regulation is needed. To the extent that limits on nutrient discharges from NPDES dischargers exceed the ability of technology or other practical considerations to meet those limits, the analytical framework of a TMDL could be used to allow dischargers to achieve permit limits by trading or offsets with nonpoint sources. (Water pollution trading in the absence of a TMDL provides no assurance that a permitted source is not causing or contributing to violations of water quality standards for, among other reasons, there is no established baseline for nonpoint sources and there is no basis for the wasteload allocations.) And a TMDL is essential to allow the state and EPA to assess whether predicted and assumed reductions from nonpoint sources—upon which wasteload allocations to NPDES sources are required to have been based—have actually taken place over time. (If those assumed reductions are proven false, further point source reductions will have to be required in future permits.) Such clarity is particularly necessary given the continuing ineffectiveness of Ecology's nonpoint source control program to achieve widespread pollution controls.

Assessing the degree of nonpoint source control success is also good public policy because the costs of cleaning up impaired waters will devolve onto dischargers—and their ratepayers—alone if other sources do nothing. As the State-EPA Nutrient Innovations Task Force observed:

> Growing resistance of heavily regulated point sources to accept major increases in required loading reductions when unregulated nonpoint sources that might be contributing substantial nutrient pollution to the same watershed are not held accountable (through, for example, regulation under the CWA) for achieving comparable load reductions[.]

An Urgent Call to Action, supra n. 10 at 22; *see also* 40 C.F.R. § 130.2(i) ("If Best Management Practices (BMPs) or other nonpoint source pollution controls make more stringent load allocations practicable, then wasteload allocations can be made less stringent. Thus, the TMDL process provides for nonpoint source control tradeoffs.").

TMDLs also have the benefit of demonstrating the degree to which additional regulatory programs are needed or existing ones need to be expanded. For example, the State-EPA Nutrient Innovations Task Group noted that although "livestock production is a leading source of nitrogen pollution, significant parts of this activity nonetheless remain generally unregulated." *An Urgent Call to Action, supra* n. 10 at 16. Likewise, TMDLs assist with expanding regulatory control of urban stormwater using residual delegation authority. *See id.* at 26. Converting the nonpoint source of on-site septic systems to sewer systems is yet another example. The TMDL is the appropriate venue to discuss who will have to pay for what in order to clean up Puget Sound and to ensure that all sources are accounted for.

3. A Puget Sound TMDL is Essential to the Development of Some Upstream Watershed TMDLs

A Puget Sound TMDL is also needed so that Ecology can complete yet other TMDLs for tributary watersheds either because those watershed TMDLs require downstream marine targets for nitrogen and/or because nitrogen coming from Puget Sound is an external source that must be accounted for in the marine waters of watershed TMDLs themselves. A case in point is the Deschutes River Basin/Budd Inlet TMDL. Both the freshwater of the river and the marine water of the inlet do not meet water quality standards for a range of pollutants and parameters. *See, e.g.*, Ecology, *Water Quality Improvement Projects, Deschutes River Basin Area*.[14]

The use of Clean Water Act regulatory programs to address the pollution problems of the Deschutes River and Budd Inlet has proven particularly elusive. EPA, along with state and local governments, in response to widespread concern over environmental health of Puget Sound, developed an action plan in 1991 "to reduce water quality problems in the Budd Inlet system." U.S. EPA, *Budd Inlet Urban Bay Action Program: 1991 Action Plan* (July 1991) (hereinafter "Budd Inlet Action Plan")[15] at ix, 1. Starting in 1988—29 years ago—EPA had identified eutrophication in southern Budd Inlet as a high priority. *Id*. at x; *see also id.* at 15,[16] 18. Five wastewater treatment plants were identified as NPDES-permitted sources of contaminants

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[14] *Available at* http://www.ecy.wa.gov/programs/wq/tmdl/deschutes/index.html (last accessed Aug. 8, 2017).

[15] *Available at* https://nepis.epa.gov/Exe/ZyPDF.cgi/9100YQGN.PDF?Dockey=9100YQGN.PDF (last accessed Aug. 30, 2017).

[16] "Low oxygen levels, often below 3.0 mg/L, occur throughout the southern portion of the inlet in the late summer. Oxygen levels below 5.0 mg/L can be fatal to fish and invertebrates. The full temporal and spatial extent of eutrophication and oxygen depletion in Budd Inlet is unknown and constitutes a significant data gap (Tetra Tech 1988)." *Id.* at 15.

(LOTT, Tamoshan, Beverly Beach, Seashore Villa, and Boston Harbor), *id*. at 18, and nonpoint sources were also identified as sources, *see, e.g., id.* at 20. Despite its objective to "implement corrective actions to reduce or eliminate eutrophication," *id*. at 3, this extensive plan contains zero references to CWA section 303(d) or TMDLs, *see id.* at x – xi, 4, 60 – 63. Instead, the plan asserts the preferred approach to implementation of pollution controls is "to work cooperatively with all involved parties" because "[v]oluntary commitment to perform the actions set forth in the action plan is the most efficient and cost-effective approach to addressing point and nonpoint contamination sources in Budd Inlet."[17] *Id*. at 7. It is unclear why any agency would consider the NPDES permitting program "voluntary" or fail to view its regulatory provisions as "efficient."

Among proposed monitoring actions was an unfunded action item with no target date to "conduct nutrient loading/abatement study of Budd Inlet." *Id*. at 69. The only specified sources of nutrients identified to be investigated were salmon rearing pens in Percival Cove, *id*. at 70, and nutrient inputs from throughout the Deschutes basin, *id*. at 77. No reference was made to additional data pertaining to wastewater treatment plants. An exchange of letters between Ecology and the Squaxin Island Tribe, *id.* at A-9 – A-14, confirms the tribes's "extreme[] concern[] about nutrient loading in Budd Inlet as this problem is perhaps the most significant cause of fish mortality in the inlet." Letter from Jeff Dickison, Squaxin Island Tribe, to Melany

[17] Notwithstanding this approach, the plan notes that LOTT "will construct a nitrogen-removal facility that will significantly decrease the amount of nitrogen being discharged to Budd Inlet" by 1993 under an enforcement order or face a construction moratorium. *Id.* at 49, 50. An enforcement order is not a voluntary.

Vorass, Ecology (June 22, 1990).[18]

Ecology began working on developing a TMDL for the three connected waters of the Deschutes River, Capitol Lake, and Budd Inlet in 2002, 15 years ago. *See, e.g.,* Memorandum from Mindy Roberts, et al., Ecology, to Files, *Re: Final Reconnaissance Study Plan for Deschutes River/Capitol Lake/Budd Inlet Total Maximum Daily Loads* (July 31, 2003).[19]

In 2012, 10 years later, Ecology was still working towards completing a TMDL for the river, inlet, and the lake. *See* Ecology, *Deschutes River, Capitol Lake, and Budd Inlet Temperature, Fecal Coliform Bacteria, Dissolved Oxygen, pH, and Fine Sediment Total Maximum Daily Load Technical Report, Water Quality Study Findings* (June 2012).[20] Although the draft TMDL covered all three waters in September 2015, by the time Ecology completed the TMDL later that year, it no longer covered the marine portion, Budd Inlet. *Compare* Ecology, *Deschutes River, Capitol Lake, and Budd Inlet Total Maximum Daily Load Study Supplemental Modeling Scenarios* (Sept. 2015)[21] *with* Ecology, *Deschutes River, Percival Creek, and Budd Inlet Tributaries: Temperature, Fecal Coliform, Bacteria, Dissolved Oxygen, pH, and Fine Sediment Total Maximum Daily Load*: *Water Quality Improvement Report and Implementation*

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[18] *See supra* n. 15 at A-13 – A-14.

[19] *Available at* http://www.ecy.wa.gov/programs/wq/tmdl/deschutes/technical_reports/reconplan_deschutes.pdf (last accessed Aug. 30, 2017).

[20] *Available at* https://fortress.wa.gov/ecy/publications/documents/1203008.pdf (last accessed Aug. 30, 2017).

[21] *Available at* https://fortress.wa.gov/ecy/publications/documents/1503002.pdf (last accessed Aug. 30, 2017).

Plan - FINAL (Dec. 2015)[22] (emphasis added). The option of separating Budd Inlet from the Deschutes River watershed in order to avoid the issue of Puget Sound's contribution to the violations of water quality standards in Budd Inlet was apparently floated by Ecology in late 2013 or early 2014.

In response, Thurston County Commissioners strongly opposed the approach, instead urging Ecology to not separate the two and to not further delay the Budd Inlet TMDL just because Ecology had information that:

> water quality violations in Budd Inlet are caused not only from pollution sources within the watershed, *but also from pollution sources outside of the watershed . . .* [that] means that Ecology will have to mandate that other counties, cities, and/or sewer utilities in Puget Sound take actions, such as nutrient removal at sewage treatment plants, to achieve water quality standards in Budd Inlet.

Letter from Karen Valensuela, Chair, Thurston County Board of County Commissioners, et al. to Lydia C. Wagner, Ecology, *Re: Deschutes River/Budd Inlet TMDL Completion Schedule* (Jan. 17, 2014)[23] (emphasis added) at 1. The Commissioners continued:

> The Puget Sound Partnership's 2013 State of the Sound report says, "The largest driver of declining marine water quality has been increasing nitrate concentrations. . . . Over the past 14 years, nitrate levels have increased steadily despite ocean variability." The water quality problems in Budd Inlet and Puget Sound are consequences of pollution throughout the region, and *it is essential that everyone take action to significantly reduce their share of nitrogen pollution to South Puget Sound*.
>
> We request that Department of Ecology finish the Deschutes River/Budd Inlet TMDL as soon as possible for the entire watershed, both freshwater and marine. . . . To address the external sources, we suggest that Ecology set a nutrient load

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[22] *Available at* https://fortress.wa.gov/ecy/publications/documents/1510012.pdf (last accessed Aug. 30, 2017).

[23] *Available at* http://www.ecy.wa.gov/programs/wq/tmdl/deschutes/advisorycomm/17Jan14TCCommissionersLtr.pdf (last accessed Aug. 30, 2017).

> allocation in the TMDL for those external sources entering Budd Inlet and begin the necessary work with other South Sound jurisdictions to reduce their contribution.
>
> This TMDL began in 2002[.] . . . the longer the process takes, and the older the data that serves as the basis for action recommendations becomes, the less effective the TMDL will be.

Id. at 2. In reply, Ecology merely stated that it had only "limited information on the impact of individual sources of pollution located outside of Budd Inlet." Letter from Rich Doenges, Ecology, to Thurston County Commissioners, *Re: Deschutes River/Budd Inlet TMDL Completion Schedule* (Feb. 19, 2014).[24] Ecology proceeded to make the decision to split the TMDL into two pieces in April, 2014. *See* Ecology, *Deschutes River, Capitol Lake, and Budd Inlet TMDL Advisory Group Meeting* (June 26, 2014)[25] at 5. It has been over three years since the County Commissioners urged comprehensive action.

Ironically, Ecology proved the point made by Thurston County about the negative effect of the passage of time on the TMDL and its data. Ecology's advisory committee posed the following question to the agency: "Will [wastewater treatment plants] from Pierce County, Shelton, or other locations be included in the Budd Inlet model?" Ecology responded as follows: "Ecology staff stated scenarios of future conditions will include the new operational specs of these facilities, but that it would be inappropriate to use for the current condition scenario in the model since that was built and calibrated around 2006 data." Ecology, *Deschutes River, Capitol*

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[24] *Available at* http://www.ecy.wa.gov/programs/wq/tmdl/deschutes/advisorycomm/19Feb14EcyResponseTCCLtr.pdf (last accessed Aug. 30, 2017).

[25] *Available at* http://www.ecy.wa.gov/programs/wq/tmdl/deschutes/advisorycomm/62614DeschutesAdvMtgNotesFinal.pdf (last accessed Aug. 30, 2017).

Lake, and Budd Inlet TMDL Advisory Group Meeting (Oct. 30, 2014)[26] at 2.

Moreover, despite Ecology's having submitted the final Deschutes TMDL to EPA in September 2015, EPA has yet to act on the submission. This likely reflects EPA's serious concerns about the weaknesses in the TMDL that was submitted and EPA's proposal that Ecology withdraw some or all of the TMDL. *See, e.g.*, Email from Andrew Kolosseus, Ecology, to Chrisopher Zell, EPA, Re: *Deschutes TMDL* (Oct. 27, 2016). However, EPA's withdrawal option was not "flying with" Ecology. *Id.* Apparently reflecting EPA concerns about the dissolved oxygen portion of the Deschutes TMDL that Ecology was either unwilling to either fix or withdraw, Ecology recently wrote EPA asking that the federal agency "focus on 23 segments impaired by water temperature, fecal coliform bacteria, and fine sediment." Letter from Heather R. Bartlett, Ecology, to Michael Lidgard, EPA (July 17, 2017). Ecology added that it plans to submit a completed Budd Inlet TMDL to EPA by 2021, which would be only 19 years since Ecology began working on it. These delays with the Deschutes and Budd Inlet TMDLs are the result of Ecology's failure to have completed a Puget Sound TMDL.

Another example of a long-delayed nutrient TMDL affected by Ecology's inaction on Puget Sound concerns the Lower White River, which flows into the Puyallup River before entering Puget Sound. *See* Ecology, *Review Draft Assimilative Capacity Study for Nutrient Loading in the Lower White River* (Dec. 1999)[27] (hereinafter "White River Study"). High pH

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[26] *Available at* http://www.ecy.wa.gov/programs/wq/tmdl/deschutes/advisorycomm/103014DeschutesAdvMtgNotesFinal.pdf (last accessed Aug. 30, 2017).

[27] *Available at* https://fortress.wa.gov/ecy/publications/publications/0003001.pdf (last accessed Aug. 30, 2017).

values caused by excessive nutrients made an "assimilative capacity study . . . a high priority." *Id*. at 1. This study was to be "the first step in developing a total maximum daily load (TMDL) for nutrients for the White River." *Id*. Due to the significant interest and overlapping jurisdiction of the Muckleshoot Indian Tribe, EPA, Ecology, and the tribe signed an agreement to develop a pH TMDL for the Lower White River. *Memorandum of Agreement Among the Muckleshoot Indian Tribe, the Washington State Department of Ecology, and the U.S. Environmental Protection Agency Relating to the Development of a TMDL for the Lower White River* (Oct. 6, 2001).[28] The document asserted that the TMDL would focus on phosphorus, noting that the tribe, however, "believes that nitrogen, in addition to phosphorus, may also be an appropriate target for allocation[.]"

A TMDL for biochemical oxygen demand and ammonia-nitrogen in the Puyallup River basin had previously been submitted to EPA in 1994. Ecology, *Total Maximum Daily Load Fact Sheet [for 23 waterbody segments in the Puyallup River basin]* (Sept. 9, 1994).[29] This TMDL included almost 30 miles of the White River and established allocations for biological oxygen demand (BOD) and ammonia-nitrogen. *Id*. at 3, 5 – 6. It was not adequate, however, to address the pH problem in the White River. Noting that "[n]utrient levels in the White River [that affect pH] have been increased over natural levels by human-related causes," the 1999 study focused on both point and nonpoint sources of phosphorus and nitrogen. *White River Study* at 3, 19 – 20.

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[28] *Available at* http://www.ecy.wa.gov/programs/wq/tmdl/WhiteRvr/LowerWhite MOA.pdf (last accessed Aug. 30, 2017).

[29] *Available at* https://fortress.wa.gov/ecy/publications/documents/9410202.pdf (last accessed Aug. 30, 2017).

Ten years after drawing this conclusion and noting the ongoing exceedances of pH criteria, Ecology prepared to complete a TMDL for the Lower White River. *See* Ecology, *Quality Assurance Project Plan, Lower White River pH and Nutrients Study* (Oct. 2009)[30] (hereinafter "QAPP") at 4. In this QAPP, Ecology explained that changes in stream flow and "[r]ecent improvements in wastewater treatment [at Enumclaw and Buckley[31]] will likely result in reduced nutrient loads," *id.,* and thus "[a] monitoring study is now needed to provide additional information about the Lower White River and the effects of improved wastewater treatment," *id*. at 7. Finally initiated in 2012, the study would allow the agencies to "then use the model to determine the maximum level of nutrient inputs that will still allow the river to meet water quality criteria for pH." *Lower White QAPP, supra* n. 31 at 9. Ecology's website provides five progress reports on the project, the last of which states that the next step will be a draft final report for the TMDL study in December 2014. *See* Ecology, *Memorandum from Nuri Mathieu, Ecology, to Andrew Kolosseus, Ecology Re: White River pH TMDL, Quarterly Report #5: Nov. 2013 – Jan. 2014* (Jan. 29, 2014)[32] at 2. Seventeen years after the assimilative capacity study

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[30] *Available at* https://fortress.wa.gov/ecy/publications/documents/0903131.pdf(last accessed Aug. 30, 2017).

[31] "The new treatment system can remove phosphorus in addition to traditional secondary treatment. At this time, the WWTP employs biological phosphorus removal although there is currently no designated limit for phosphorus in the NPDES permit." Ecology, *Lower White River pH Total Maximum Daily Load Water Quality Study Design (Quality Assurance Project Plan)* (June 2012) (hereinafter "Lower White QAPP") *available at* https://fortress.wa.gov/ecy/publications/documents/1203104.pdf (last accessed Aug. 30, 2017) at 25. "The City of Buckley upgraded its WWTP which went online in February 2009. . . . The City added a phosphorus (biological and chemical) removal system as part of the upgrade and expansion." *Id.* at 26.

[32] *Available at* http://www.ecy.wa.gov/programs/wq/tmdl/WhiteRvr/LWRqtlyRpt5 Final.pdf (last accessed Aug. 30, 2017).

was completed, no draft TMDL has ever been made available.

The absence of this TMDL appears to be the reason that the reissuance of certain permits have stalled out. As Ecology wrote in the fact sheet for the currently-administratively extended permit for Enumclaw—a permit that expired on April 30, 2008:

> Additional TMDL studies have been conducted regarding pH and nutrient limitations in the White River and will result in new discharge standards for total phosphorus. These new and more stringent discharge standards cannot be met with the type of process currently utilized by the City of Enumclaw's wastewater treatment plant.
>
> As a result the City of Enumclaw submitted a facility plan in September 2001, outlining proposals for a new wastewater treatment plant to provide the necessary treatment to meet the more stringent discharge requirements for ammonia and nitrogen reduction, biological and chemical phosphorus reduction[.]

Ecology, *Fact Sheet for NPDES No. WA0020575 City of Enumclaw* (May 5, 2003).[33] Despite the upgrades at Enumclaw and Buckley wastewater facilities, Ecology has not issued them new permits since they expired in 2008. Perhaps this is due to the fact that Ecology has not completed a TMDL for the Lower White River as the city expected.

D. Despite Completion of Sophisticated Models, Data Analysis, and Data Collection, Ecology has Failed to Develop a TMDL for Nutrient Pollution in Puget Sound and Has No Plans to Do So

1. Ecology Has Been Studying the Degradation of Puget Sound Without Taking Regulatory Action for Almost 30 Years

Ecology and EPA have been studying and modeling dissolved oxygen in Puget Sound for many years—since the late 1980s—a period of thirty years. *See NWEA Petition, supra* n. 1 at 21 – 24; *see also supra* at 20–28. It has yet to turn any of these studies into the regulatory plans that

[33] *Available at* https://fortress.wa.gov/ecy/wqreports/public/WQPERMITS.document_pkg.download_document?p_document_id=13553 (last accessed Aug. 30, 2017).

are required by the Clean Water Act, plans that result in pollution reductions and water quality improvements. By 2001, Ecology had constructed a model from which it had concluded that "many sites in South Puget Sound would be sensitive to nutrient addition or eutrophication." Ecology, *Assessing Sensitivity to Eutrophication of the Southern Puget Sound Basin; Spatial and Seasonal Perspectives* (2001).[34] By the next year, 2002, Ecology was reporting that the "South Puget Sound is sensitive to nutrient addition, confirming the potential for serious water quality degradation due to increased nutrient loads. Both point and nonpoint sources contribute significantly." Ecology, *South Puget Sound Water Quality Study Phase 1* (Oct. 2002)[35] at vii. By 2014, Ecology had published its modeling results, explaining 2006 conditions and predicting future conditions in 2020, 2040, and 2070 of dissolved oxygen in Puget Sound. *See* Ecology, *Puget Sound and the Straits Dissolved Oxygen Assessment Impacts of Current and Future Human Nitrogen Sources and Climate Change through 2070* (March 2014).[36] This study concluded that:

> Human nitrogen contributions from the U.S. and Canada to the Salish Sea have the greatest impacts on DO in portions of South and Central Puget Sound. Marine point sources cause greater decreases in DO than watershed inflows now and into the future. *Both loads will increase as a result of future population growth and land use change*. Most of the Salish Sea reflects a relatively low impact from human sources of nitrogen. However, *future human nutrient contributions could worsen DO declines in regions of Puget Sound*.
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[34] *Available at* http://www.ecy.wa.gov/programs/eap/sps/psrc_2001_bos_poster.ppt (last accessed Aug. 30, 2017).

[35] *Available at* https://fortress.wa.gov/ecy/publications/publications/0203021.pdf (last accessed Aug. 30, 2017).

[36] *Available at* https://fortress.wa.gov/ecy/publications/documents/1403007.pdf (last accessed Aug. 30, 2017).

> Climate change will alter the timing of freshwater flow reaching the Salish Sea. This could worsen impacts in some regions but lessen others.

Id. at 7 (emphasis added). In light of these dire prospects, Ecology concluded merely that yet "[a]dditional analyses are needed to link sediment-water interactions and increase scientific certainty." *Id*.

Nonetheless Ecology recognized that the status quo could not stand, stating that "[f]uture [wastewater treatment plant] WWTP effluent concentrations . . . could shift to increased use of biological nutrient removal, which has decreased effluent nutrient concentrations relative to conventional treatment, either due to plant upgrades or changes in permit requirements." *Id*. at 49. However, instead of determining what permit limits would be required to protect water quality, the study asserted that future nutrient loading from wastewater treatment plants was uncertain.[37] Ultimately the study used the model solely to evaluate whether any future treatment improvements would be needed based on changes in other circumstances (e.g., wastewater concentrations, climate change, ocean conditions, population increases): "We evaluated the DO impacts associated with marine point source loads projected for 2020, 2040, and 2070 using plant-specific sewered populations where available or medium estimates of future population where not. *We assumed current treatment technology*." *Id*. at 49 – 50 (emphasis added).

The results of these future projections may be summarized as follows:

- Under current circulation patterns, and future human sources, average regional depletion of dissolved oxygen would increase beyond 0.1 mg/L in South Puget Sound, Central Puget Sound, Possession Sound, and Hood Canal by 2070. The average regional

[37] "To account for the uncertainty involved in estimating WWTP loads as far into the future as 2070, we adopt a range of future WWTP loads . . . based on different assumptions of population growth and changes in future treatment technology[.]" *Id*.

depletion would increase beyond 0.2 mg/L in portions of South Puget Sound. *Id.* at 92 – 93.

- Under current circulation patterns and future human sources, regional dissolved oxygen depletion would increase with increasing loads. The same regions that current human sources impact would exhibit the biggest depletions in the future. *Id.*

- Under future ocean conditions and future human sources, the projected decline in dissolved oxygen and increase in nitrogen would decrease regional dissolved oxygen depletion through the model domain. The greatest impacts would occur in the Strait of Juan de Fuca beginning in 2020 and would extend south through Admiralty Inlet. By 2070, regional oxygen depletion would be over 1.0 mg/L in the Strait of Juan de Fuca compared with current assumptions of natural conditions. Average regional dissolved oxygen could decline by over 0.6 mg/L in Central Puget Sound and Hood Canal. *Id*. at 95 – 96.

- Adding in future air temperature effects will exacerbate regional dissolved oxygen depletion throughout the entire model domain. Air temperature effects would have the biggest impacts on depletion in regions of shallow inlets. For example, the finger inlets of South Puget Sound and Sinclair and Dyes Inlets could worsen by over 0.1 mg/L. *Id*. at 95 – 96.

In other words, the study concluded that without the institution of nutrient controls, current depressions in Puget Sound dissolved oxygen would get worse. This study also reconfirmed the conclusions of earlier reports that wastewater is the single greatest anthropogenic source:

> **Current Human Sources Decrease Oxygen Below Natural Conditions**
>
> The combination of current marine point sources and watershed inflows from the U.S. and Canada cause the greatest impacts in South and Central Puget Sound. The largest U.S. population centers occur around Central Puget Sound and discharge treated wastewater to deep waters. Central Puget Sound sources contribute over 70% of the nitrogen load from Puget Sound marine point sources. The net circulation pattern is landward, which transports some proportion of water from these marine point sources through the Tacoma Narrows and into South Puget Sound.

Id. at 98 (internal references omitted). The South and Central Sound model found the same results. *Id*. at 99; *see also id.* at 100 – 101. But Ecology failed to recommend taking Clean

Water Act regulatory steps to addressing the pollution.

Finally, Ecology's report observed that just as "[t]he population served by centralized municipal WWTPs that discharge to marine waters is expected to double by 2070," use of nutrient-removal treatment technology "is capable of reducing typical effluent nitrogen concentrations to one-third of current concentrations." *Id.* at 105. Notwithstanding the fact that every form of prediction in at least two models demonstrated that increased nitrogen loading in combination with a variety of other circumstances will exacerbate current levels of depressed dissolved oxygen, the only reference in the entire document to TMDLs is in the glossary. *Id*. at 145.

2. Ecology Has No Plans to Develop a TMDL for Puget Sound

Ecology does not discuss its obligation to develop a TMDL for Puget Sound. On its website, Ecology acknowledges that "Puget Sound's health is degrading due to increasing levels of nutrients that are adversely affecting water quality in the nation's second largest marine estuary." Ecology, *Nutrient Reduction Project*, *supra* n. 2. Yet, instead of addressing this serious degradation by developing and then implementing a TMDL, Ecology's website mixes compelling facts with useless platitudes:

> More than a decade's worth of monitoring data and robust computer modeling indicate adverse changes in the Sound's water quality and ecosystem. Recent analyses using the Salish Sea model indicates that the total impact from local human nutrient sources are decreasing dissolved oxygen levels by more than what our water quality standards allow for human impacts. We are using state-of-the-art computer modeling tools and water quality data to inform a collaborative process with regional stakeholders to develop and evaluate meaningful options that will reduce nutrients from local human sources.
>
> * * *
>
> We must work together to protect and restore Puget Sound so that it will be more resilient to the negative effects of climate change and human pressures.

* * *

> There are over 4 million people currently living in the Puget Sound region, and the Washington Office of Financial Management estimates another 1.7 million people will move to the region by 2040. That additional number of people means there could be over a 40 percent increase of nutrients discharged to Puget Sound from humans over the next several decades.
>
> * * *
>
> We are conducting an extended scoping phase throughout 2017 and into 2018 to figure out how this project can fit with other Puget Sound restoration activities and build collaborative partnerships with stakeholders and partners in the region. The next project phase will focus on working with those partners and stakeholders to develop meaningful, holistic solutions for nutrient reduction and water quality improvement.

Id.

This public refusal to commit to the development of a Puget Sound TMDL is consistent with Ecology's responses to NWEA's permit comments on the need for nutrient controls, in which it has repeatedly asserted that:

> As improved modeling results becomes available, Ecology intends to develop a coordinated permitting strategy that will reduce nitrogen discharges to Puget Sound in a cost-effective manner[.]

Vashon Fact Sheet, supra n. 7 at 57.

While Ecology's reference to a "coordinated permitting strategy" echoes EPA's discussion of alternatives to TMDLs in its 2013 vision of the 303(d) list, it is not consistent with that federal guidance. *See* EPA, *A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program* (Dec. 2013).[38] In that guidance, EPA defines alternative approaches as:

> approaches, in addition to TMDLs, that incorporate adaptive management and are

[38] *Available at* https://www.epa.gov/sites/production/files/2015-07/documents/vision_303d_program_dec_2013.pdf (last accessed Aug. 29, 2017).

> tailored to specific circumstances *where such approaches are better suited* to implement priority watershed or water actions that achieve the water quality goals of each state, including identifying and reducing nonpoint sources of pollution[.]

Id. at 1 (emphasis added). EPA's emphasis is on whether a TMDL is "the most effective tool to promote and expedite attainment of State water quality standards" based on whether an alternative to a TMDL "*may be more immediately beneficial* or practicable *to achieving applicable water quality standards* under certain circumstances." *Id.* at 9 (emphasis added). In taking this presumably faster track to meeting standards, EPA repeatedly emphasizes that it is "a plan and/or a set of actions *pursued in near-term* (other than a TMDL) *that in their totality are designed to attain water quality standards*." EPA, *"Questions and Answers" on the Long-Term Vision for Assessment, Restoration, and Protection under the CWA 303(d) Program* (2013)[39] (hereinafter "Q&A") at 6 (emphasis added). EPA has made several key recommendations regarding such TMDL alternatives, including that:

> [S]tates should consider how long waters have been on the CWA 303(d) list before pursing alternative restoration approaches.
>
> * * *
>
> EPA and States will work together to determine which is the most effective tool to achieve WQS—be it TMDL development or pursuing an alternative restoration approach in the near- term—for waters that remain on the CWA 303(d) list.
>
> * * *
>
> [I]n determining whether an alternative restoration approach is appropriate, [the state should consider whether] . . . [t]here are unique local circumstances.
>
> * * *
>
> [and whether an] [i]nitial review of the pollutant or cause of impairment shows that particular point or non-point sources are responsible for the impairment with clear mechanisms to address all sources (both point and nonpoint), as appropriate (e.g., . . . *setting new limits when permit is re-issued, which alone or in combination with other actions, is expected to achieve WQS in the listed water*).

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[39] *Available at* https://www.epa.gov/sites/production/files/2015-07/documents/ acwa_qa.pdf (last accessed Aug. 29, 2017).

EPA, Memorandum from Benita Best-Wong, Director, Office of Wetlands, Oceans, and Watersheds to Water Division Directors, Regions 1 – 10, *Re: Information Concerning 2016 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions* (Aug. 13, 2015)[40] at 5 (emphasis added).

Here, nothing points to an alternative to a TMDL's being a preferred choice over a TMDL for Puget Sound. Ecology's long delays in taking any actions to this point on impairments it has known about for three decades, and its blanket refusal to incorporate water quality-based effluent limits for nitrogen in the NPDES permits it is reissuing, do not suggest that it has already adopted an alternative approach but merely that it is talking about one. Mere talking is the antithesis of EPA's view of a "TMDL alternative," which emphasizes "near-term" action. Neither has Ecology taken any steps to control nonpoint sources of nitrogen, such as requiring nitrogen controls for on-site septic systems or controlling agricultural runoff other than what has been termed by some as 'random acts of restoration.' Given that Ecology's own reports demonstrate that there is a significant mix of point and nonpoint sources of nitrogen contributing to the violations of water quality standards, there is no basis for it to conclude that instituting pollution controls without a TMDL will lead to attainment of water quality standards or that just instituting nitrogen controls on point sources alone or nonpoint sources alone will meet water quality standards. Ecology's rationale for not including effluent limits in permits is based on the complexity of determining those limits, yet there is nothing in a "TMDL alternative" that would suggest that Ecology can rely on something other than the complex

[40] *Available at* https://www.epa.gov/sites/production/files/2015-10/documents/2016-ir-memo-and-cover-memo-8_13_2015.pdf (last accessed Aug. 29, 2017).

models it has spent years constructing to determine limits sufficient to ensure discharges do not cause or contribute to violations of water quality standards.

In short, EPA urges states to use TMDL alternatives where a state can demonstrate that it is 'faster, better, cheaper.' Nothing about the vast Puget Sound with its numerous point sources and drainage basins argues for developing a pollution budget in the absence of a TMDL and, in fact, Ecology has not even made that argument. To date, Ecology has certainly not provided the rationale EPA urges states to spell out when they decide to pursue an alternative approach, including: "a description of the approach . . . [to] provide transparency to the public"; "analysis to support why the State believes that the implementation of the alternative restoration approach is expected to achieve [water quality standards]"; documentation of "the actions to address all sources—both point and nonpoint sources, as appropriate—necessary to achieve [water quality standards]"; and "a schedule of actions designed to meet [water quality standards] with clear milestones and dates, which includes interim milestones and target dates with clear deliverables." *Id*. at 6. As Ecology continues to muse about the notion of proceeding with a TMDL alternative, it also continues to avoid making nitrogen in Puget Sound a priority for TMDL development.

This, too, is contrary to EPA guidance, which has urged states to improve how they establish TMDL priorities. *See id.* at 7 ("The description of the alternative restoration approach and the waters to which it applies should be included during public review of the draft CWA 303(d) list or Integrated Report, so that the public has an opportunity to view the State's alternative restoration approaches and the assigned priority ranking for TMDL development for such waters."). EPA has urged states to stick with long-term priorities applicable from 2016

through 2022, rather than to waffle, and to take the opportunity to "integrate CWA 303(d) Program priorities with other water quality programs to achieve overall water quality goals. . . . [including] CWA 319 [nonpoint source], [and] National Pollutant Discharge Elimination System (NPDES)[.]" *Id*. at 2.

EPA has also noted that "prioritization is the lynchpin of the framework for managing the CWA 303(d) Program under the Vision and for meeting our national water program goals (like nutrient reduction)[.]" *Q&A, supra* n. 39 at 6. Yet Ecology's failure to identify Puget Sound nitrogen as a 303(d) program priority for TMDL development has had the opposite effect, one of undermining the state's NPDES program and ensuring that no progress whatsoever is made towards the national goal of nutrient reduction. Its reference to "figur[ing] out how this project can fit with other Puget Sound restoration activities," *Nutrient Reduction Project supra* n. 2, does not suggest that any of those activities are nitrogen controls, likely because they are not. Ecology has not explained how it can "develop meaningful, holistic solutions for nutrient reduction," *id*., in the absence of a TMDL. Nor has the agency explained why it has spent millions of dollars on developing a model if it has no intention of using it in a TMDL to develop wasteload allocations.

3. Ecology Has the Data and Analysis Upon Which to Develop a TMDL

As Ecology has recently reported, it now has completed the last remaining piece of its long-running attempt to perfect its Salish Sea model, namely the ability to predict the biogeochemical reactions between water variables related to degradation of organic matter reaching sediments on the ocean floor that drive the reactions that control sediment diagenesis

and benthic flux. Ecology, *Salish Sea Model, Sediment Diagenesis Module* (June 2017).[41] Ecology observes that it chose the Water Analysis Simulation Program (WASP) for its sediment diagenesis algorithm because "it has been widely applied in the development of Total Maximum Daily Loads (TMDLs)." *Id*. at 17; *see also id.* at 41. In addition, Ecology chose this algorithm to distinguish between the loading and sediment flux effects of individual nutrient sources because:

> they (1) have been found to provide an acceptable level of complexity with sufficient accuracy, (2) are well documented, (3) have been applied to a wide range of freshwater and marine water systems, and (4) are broadly vetted by the modeling community. These routines also represent a compromise between computational efficiency and depth-resolution, while providing acceptable accuracy."

Id. at 17. However, despite its accuracy and wide use for TMDL development, the Ecology report makes no recommendations that the agency develop a TMDL with this addition to its model.

Instead, the report makes five recommendations for yet further analysis and further data collection in order to (1) use the newly updated model in "future studies to reevaluate scenarios," (2) simulate "[a]dditional years . . . to explore relationships," (3) "acquir[e] and improv[e] methodologies for sediment flux observations will allow for better model evaluation," (4) make further changes using "dynamic spatially varying resuspension rates and net settling rates of particulate organic matter (POM) [to] allow better representation of spatial variations in high and low energy environments," and (5) after those changes, to confirm them "with measured

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[41] *Available at* https://fortress.wa.gov/ecy/publications/documents/1703010.pdf (last accessed Aug. 30, 2017).

sediment deposition rates[.]" *Id*. at 43. There is not even a mention in this report about how the results could be used to support the "coordinated permitting strategy" that Ecology purports to be developing, let alone how it could be used to develop a TMDL or when.

Ironically, it is this report that is supposed to set the stage for the Governor's Blue Ribbon Committee's "key early action" of "[i]mplement[ing] effective nutrient/organic carbon reduction programs in locations where these pollutants are causing or contributing to multiple water quality problems." *See infra* at 34. For example, references to nutrient reductions through NPDES permits are referred to as "[c]ontingent on the results of modeling under Action 7.2.1." Marine Resources Advisory Council ("MRAC"),[42] *Making progress on WA State Blue Ribbon Panel Recommendations for Ocean Acidification, Local land-based contributions* (Oct. 2015)[43] (hereinafter "Making Progress") at 6.

At the same time that Ecology completed its sediment diagenesis module, it also completed an analysis of "how regional freshwater/land-derived sources of nutrients generally impact acidification in the Salish Sea." Ecology, *Salish Sea Model, Ocean Acidification Module and the Response to Regional Anthropogenic Nutrient Sources* (June 2017)[44] at 7. This study concluded that:

> increased dissolved inorganic nitrogen (DIN), phytoplankton biomass, and non-algal organic carbon caused by regional anthropogenic nutrient sources can

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[42] The Marine Resources Advisory Council, within the Office of the Governor, was established by the 2013 Legislature in Engrossed Senate Bill 5603 Section 4.

[43] *Available at* http://www.ecy.wa.gov/water/marine/oa/20151013MRACprogress.pdf (last accessed Aug. 30, 2017).

[44] *Available at* https://fortress.wa.gov/ecy/publications/documents/1703009.pdf (last accessed Aug. 30, 2017).

> constitute significant contributors to acidification in the Salish Sea. *Predicted impacts due to regional anthropogenic nutrient sources include changes* in pH and [dissolved inorganic carbon] DIC in both bottom and surface waters that are *comparable in magnitude to published estimates of the changes caused by increasing global atmospheric pCO_2* [identified as a dominant contributor to ocean acidification].
>
> *The [aragonite saturation state, a form of calcium carbonite used by shell-building organisms] Ω_{arag} decreased, on average, due to regional anthropogenic nutrient sources*. The impact is predicted to be greatest at the bottom of the water column. *Regional anthropogenic nutrient sources account for up to about 43% of the total anthropogenic depletion of Ω_{arag} at the bottom*, and up to about 15% of the total anthropogenic depletion of Ω_{arag} at the surface. Regional anthropogenic nutrient loadings increased pH and Ω_{arag} in some areas, particularly in several South Puget Sound shallow inlets and bays.
>
> *The Ω_{arag} in certain regions appears to be more sensitive to anthropogenic nutrient loadings. Specifically, portions of the main basin, South Sound, Port Susan, Skagit Bay, and Whidbey Basin all present higher sensitivity of Ω_{arag} in response to anthropogenic nutrient loadings*. Hood Canal appears to be generally decoupled from the rest of the Salish Sea in terms of the magnitude of anthropogenic, land-derived nutrient influence. This is likely due in part to circulation and the lower level of development in the Hood Canal region.

Id. at 7 – 8 (emphasis added). Again, despite its conclusion that human contributions of nutrients are having a deleterious effect on ocean acidification effects in the study area, Ecology's report makes no mention of using the results to develop a TMDL, issue a permitting strategy, or revise NPDES permits that currently have no nutrient limits.

Ecology does state, however, that "[r]egional human contributions of nutrients and carbon originate within the Puget Sound and Salish Sea watersheds from point and nonpoint sources." *Id*. at 7. And it does discuss how "decision makers" should interact with the study results, strongly suggesting that Ecology recognizes that the results of the study will have to be used in regulatory decisions—some day by somebody—to control localized effects of ocean acidification:

> This computer modeling project was identified as a Key Early Action of the Washington State Blue Ribbon Panel on Ocean Acidification (Washington State Blue Ribbon Panel on Ocean Acidification, 2012). The panel was appointed by Governor Christine Gregoire to identify the causes and consequences of ocean acidification. A fundamental question was how much of the low pH is caused by nutrients reaching the Salish Sea from point source discharges, increased inputs of nitrogen and carbon from rivers, and atmospheric emissions of nitrogen and carbon, by increasing the production and respiration of organic matter. *Decision-makers must understand the relative contributions of these regional human sources* compared with the influences of global atmospheric partial pressure of carbon dioxide (pCO2) increases that have decreased the pH of the Pacific Ocean.

Id. at 10 (emphasis added). Yet, despite one of the charges of this study's being to "identify potential management actions," *id*. at 15, the recommendations stop well short of even suggesting any managing of nutrient pollution inputs to Puget Sound or the greater Salish Sea, *id*. at 68 – 69. Instead, the study's nine recommendations are limited to the following: (1) "[a]dditional modeling scenarios should be conducted"; (2) "[a]dditional model simulations should be performed"; (3) "[a]dditional model sensitivity and uncertainty analyses should be conducted"; (4) additional monitoring of carbonate, dissolved and particulate organic carbon, nearshore locations, and "a combination of high temporal resolution continuous data, in addition to a distributed network"; (5) review and improvement of reference conditions should be undertaken, including watershed-specific analyses for upstream sources of inorganic nitrogen and organic carbon; (6) "[e]xisting nutrient loading inventories need to be continually reviewed and improved"; (7) "[e]xplore changes to the Salish Sea Model"; (8) conduct more research to determine the "biological relevance of fractional changes to already low aragonite saturation levels and other carbonate system parameters, and the impact of the temporal resolution of such changes"; and finally (9) "[t]argets or criteria for acceptable change in carbonate system

variables should be established to allow the model to be used to evaluate alternative management scenarios of nutrient loading." *Id*.

The last of these, the single one of the recommendations that pertains to future management decisions, implies that in the absence of carbonate system criteria or targets, no such decisions can be made. Yet the report starts by acknowledging that not only does Washington not have aragonite saturation criteria, it had previously asked EPA to lead the development of acidification-related criteria in 2012—five years ago—and that "no consensus exists regarding what level of saturation state might protect biota." *Id*. at 14. Ecology must also know by now that EPA has no intention of developing such criteria, a fact that quickly became clear when NWEA recently requested EPA records under the Freedom of Information Act.[45] The clear message is that Ecology intends to take no management actions based on the report's findings that wastewater sources of nutrients to Puget Sound are exacerbating ocean acidification.

In addition to the nitrogen contributions from municipal sewage treatment systems and industrial sources discharging directly to Puget Sound that have been extensively studied by Ecology, the state has also evaluated the contribution of other sources sufficiently to establish a TMDL. It has had the data on relative contributions of tributary sources as compared to direct discharges for some time. *See, e.g., 2014 DO Scenarios, supra* n. 6; *Ecology, Puget Sound*

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[45] *See* EPA response to NWEA FOIA request no. EPA-HQ-2017-010577, in which EPA provided a 2013 letter responding to Ecology's request claiming that it was convening an interagency work group to identify water quality parameters related to ocean acidification. *See* Letter from Nancy Stoner, EPA, to Maia Bellon, Ecology (April 19, 2013). This was followed by EPA's admission that it never convened this group. *See* Letter from Joel Beauvais, EPA to Miyoko Sakashita, Center for Biological Diversity (Dec. 14, 2016).

Dissolved Oxygen Model: Nutrient Load Summary for 1999-2008 (Nov. 2011).[46] It has monitored stormwater contributions of nutrients. *See* Ecology, *Western Washington NPDES Phase I Stormwater Permit Final S8.D Data Characterization 2009-2013* (Feb. 2015) (hereinafter "Phase I Data Characterization") at 9.[47] The goal of this most recent study was to "gather data directly from stormwater discharges and establish a regional (western Washington) baseline of data representing municipal stormwater quality" and "to explore variability in stormwater concentrations across different land uses and seasons and to identify chemicals of interest in stormwater." *Id.* at 9. The findings on "municipal storm-event concentrations for 172 parameters across four land uses and wet and dry seasons in western Washington" are precisely the type of information needed for a TMDL given that Ecology has determined that "composite stormwater samples were found to be representative of storm length, storm volumes, and frequency of storm events in western Washington . . . . suitable for characterizing stormwater quality in western Washington." *Id*. at 10, 11.

In fact, the data demonstrated a relationship between toxic concentrations and mass loads of metals and nutrients:

> Higher contaminant concentrations and mass loads were measured for nutrients and metals during the dry season (May through September). This provides strong evidence for an influence of seasonality (or antecedent dry periods) on stormwater concentrations, particularly in late summer through early fall; it also supports the idea that there is a degree of "buildup" in the dry periods between storms. Metals, diesel hydrocarbons, and total nutrient loads were higher in the

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[46] *Available at* https://fortress.wa.gov/ecy/publications/documents/1103057.pdf at xvi-xvii (last accessed Oct. 18, 2016).

[47] *Available at* https://fortress.wa.gov/ecy/publications/publications/1503001.pdf (last accessed Oct. 18, 2016).

dry season and highest from commercial and industrial areas.

Id. at 14. However, the data also demonstrated that the patterns of land use that contribute to total nutrients differed from those producing the highest levels of dissolved nutrients:

> Like many of the metals and organic contaminants, total nutrients were found in higher concentrations and loads from areas of commercial and industrial land use. Total phosphorus concentrations in stormwater discharges were found to be double the receiving water concentrations under storm flows as reported in the PS Toxics Study for combined land uses.
>
> Dissolved nutrient concentrations (nitrite+nitrate and orthophosphorus) were higher in stormwater from residential areas. Dissolved nutrients were lower in stormwater discharges than in receiving waters under storm events sampled in the PS Toxics Study (Figure ES-2). This suggests the major sources of dissolved nutrients are probably not in piped stormwater systems represented in this data set. This suggests that nonpoint sources for dissolved nutrients may be important delivery mechanisms for dissolved nutrients. Possible sources are shoreline sheet flow drainage, non-urbanized land runoff (such as agriculture and open space), other surface water bodies (such as wetlands), and groundwater.

Id. at 15.

Despite this study's having confirmed those of previous decades, Ecology's recommendations for future action contain no regulatory action to control pollutants in stormwater discharges, including nutrients. Instead, with a single unremarkable and obvious exception regarding reducing toxic loads in first flush events,[48] the recommendations recommend only further collection of data and further analysis. There is no reference to the development of TMDLs in the report with the exception of the glossary and no discussion of improving NPDES

[48] The single exception to this study's recommending no control actions is that "[s]tormwater management programs can sweep and conduct other housekeeping best management practices (BMPs) in industrial and commercial areas during the dry season to reduce high stormwater loads of metals, diesel hydrocarbons, and total nutrients during the first-season storms." Such BMPs are required in any case.

permits to control the pollutants studied.

Finally, Ecology asserts that it already has sufficient data on nitrogen sources when it continues to issue individual NPDES permits to sewage treatment facilities that contain virtually the same requirements for nutrient monitoring as in earlier iterations of those permits. For example, Ecology has concluded that monitoring requirements are sufficient to support a TMDL in recently-issued NPDES permits:

> Ecology has proposed to continue quarterly monitoring of nutrients (nitrogen species) in the proposed permit. It will use this data in the future if Ecology develops TMDLs for dissolved oxygen and establishes WLAs for nutrients.

Ecology, *Vashon Fact Sheet, supra* n. 7 at 27; *see also id.* at 59 ("The nutrients monitoring frequency required by the permit is consistent with Ecology guidance for facilities of Vashon's size. Ecology considers quarterly monitoring for nutrients to be sufficient because nutrients affect water quality on a seasonal or annual cycle."); *Mount Vernon Fact Sheet, supra* n. 7 (same); *Bainbridge Fact Sheet, supra* n. 7 (same); *Central Kitsap Fact Sheet, supra* n. 7 ("Ecology has included some additional monitoring of nutrients in the proposed permit to establish a baseline for this discharger. It will use this data in the future as it develops TMDLs for dissolved oxygen and establishes WLAs for nutrients.").

The history of Ecology's continuing studies of the deteriorating water quality in Puget Sound with no concurrent regulatory action, namely permit limits driven by the completion of a TMDL for Puget Sound, indicates that Ecology believes that it must have perfect science before it takes action. This is poor public policy, to say nothing of being inconsistent with Congressional intent. To the contrary, the Clean Water Act, which requires TMDLs to be developed, also requires that TMDLs include "a margin of safety which takes into account any

lack of knowledge concerning the relationship of effluent limitations and water quality." U.S.C. § 1313(d)(1)(C); *see also City of Arcadia v. State Water Resources Control Board*, 135 Cal. App. 4th 1392 (4th Dist. 2006) ("Smith [of EPA] explained the 'TMDL process specifically contemplates making decisions under uncertainty,' and '[i]t does so by providing that a margin of safety has to be incorporated in every TMDL to account for the uncertainty in the analysis.' Smith said states are required 'to move forward to make TMDL decisions based on available information and data, not to wait again and again and again for better information to come forward.'"); *Alaska Ctr. for the Env't v. Reilly,* 762 F. Supp. 1422, 1428 (W.D. Wash.1991) aff'd, *Alaska Ctr. for the Env't v. Browner*, 20 F.3d 981 (9th Cir. 1994) at n. 8 ("In addressing concern about what happens if the State or EPA does not have enough data to establish a scientifically precise TMDL, [EPA's] Wilson notes that the statute builds in a margin of safety requirement to be used to account for any lack of knowledge. In other words, Congress says ignorance is no excuse for inaction. Just add a margin of safety to compensate for the lack of knowledge and keep moving. No other program has such a strong statutory endorsement for action in the face of an incomplete database."); *Idaho Sportsman's Coal. v.Browner*, 951 F. Supp. 962, 967 (W.D. Wash. 1996) (citing *Alaska Center* in support of the proposition that "[a]lthough these tight deadlines might mean that initially established TMDLs would be based on less than ideal data, that fact was considered and addressed by Congress, as demonstrated by the statutory direction to use 'a margin of safety which takes into account any lack of knowledge.'").

4. Ecology's Failure to Develop a TMDL Creates Uncertainty for Municipal and Other Wastewater Treatment Entities

Facilities planning for sewage collection and treatment systems operate on a 20-year

planning period cycle in order to ensure land purchases, assessment of alternatives, consideration of environmental costs and benefits, engineering, energy efficiency, anticipation of growth, financing, assessment of innovative technologies, and cost-effective treatment. *See, e.g.*, EPA, *Guidance for Facilities Planning* (Jan. 1974)[49] at 21. Ecology's ongoing failure to develop a TMDL for nitrogen in Puget Sound puts all of the sewage treatment entities that discharge directly or indirectly to the Sound on shaky ground, attempting to guess at future regulatory requirements. This will always be the case in a world of changing data, updated water quality standards, and climate change, but Ecology's goal should be to minimize, not maximize, uncertainty. Particularly with the region's rapid growth, wastewater treatment facilities will require upgrading for flow, raising questions about the need to upgrade those same facilities to achieve nutrient removal and controls on other pollutants. This includes consideration of putting areas currently using on-site septic systems onto sewers. *See, e.g.*, Kitsap County Public Works Waste Water Division, *Central Kitsap County Wastewater Facility Plan* (March 2011)[50] at 8-5 – 8-6 ("Because Ecology is imposing increasingly restrictive limits on [total nitrogen] TN concentrations for discharges into Puget Sound, it will also be very restrictive in permitting installation of new septic tanks, where the effluent discharged into a drain field would eventually flow into Puget Sound.")

Even those facilities that know or suspect that they will be required to install nutrient

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[49] *Available at* https://nepis.epa.gov/Exe/ZyPDF.cgi/93000WMP.PDF?Dockey=93000WMP.PDF (last accessed Aug. 30, 2017).

[50] *Available at* https://spf.kitsapgov.com/pw/Documents/Facility_Plan.pdf (last accessed Aug. 30, 2017).

removal systems in the future have no way of knowing what target to aim for. *Compare id.* at 1-3 (Kitsap County's expressed desire to reduce nutrients in effluent discharged to Puget Sound) *with id.* at 4-28 ("the CKWWTP may also be subject to effluent total inorganic nitrogen limits. As part of the ongoing South Puget Sound Dissolved Oxygen Study, Ecology is evaluating nitrogen contributions from WWTPs discharging into the south and central Puget Sound. The results so far show that CKWWTP is considered a second-tier discharger (in terms of daily nitrogen loads). Depending on whether reduction in nitrogen loads from the first-tier dischargers is adequate to improve the water quality, nitrogen limits might be imposed on the CKWWTP."). Ecology has acknowledged that, at least in the context of study and modeling of ocean acidification, decision makers are waiting for information:

> Modeling acidification will be challenging given that knowledge of the processes governing acidification and the datasets that describe the system are incomplete. Plans are underway to improve monitoring, but results will not be available until 2015 or later. However, we anticipate that regional leaders will want to know soon whether or not and where regional sources should be controlled to mitigate any impact. This modeling effort will help inform decision makers where investments will have the greatest benefit and also the degree of uncertainty in the answer.

Ecology, *Approach for Simulating Acidification and the Carbon Cycle in the Salish Sea to Distinguish Regional Source Impacts* (Jan. 2014)[51] at 41. Even so, Ecology stops well short of committing to the development of a TMDL to ensure the appropriate management actions are taken or that local governments are informed as to future requirements: "Results could be used to prioritize management actions to control nutrient releases and air emissions. . . . identifying

[51] *Available at* https://fortress.wa.gov/ecy/publications/documents/1403002.pdf (last accessed Aug. 30, 2017).

where and how much regional sources add to acidification is a first step in effective regional source management." *Id*. at 9.

Even so, TMDLs have been on the table as a means to address ocean acidification for some time. *See* MRAC, *Meeting Summary* (July 8, 2014)[52] at 9 ("Implement Total Maximum Daily Loads (TMDLs) to reduce pollutants contributing to ocean acidification."); *see also* MRAC, *Meeting Summary* (Oct. 13, 2015)[53] at 4, 5 (four priority actions are "nutrient and carbon pollution control programs" and "TMDL implementation."). That same month, the "highlighted accomplishments" of the MRAC process states that nutrient reductions through NPDES permits are "[c]ontingent on the results of modeling under Action 7.2.1." *Making Progress*, *supra* n. 43 at 6. The only reference to TMDLs is a note that Ecology is working on the Deschutes TMDL and that the "South Sound dissolved oxygen effort is also underway." *Id*. at 3.

These are rare references to using the regulatory programs of the Clean Water Act to address known local contributions to ocean acidification. Despite meeting regularly for over three years—since November 2013—the Washington MRAC has yet to recommend any specific actions that should be taken. Yet at a so-called "refresh" meeting in March 2017, presenters reiterated that "[n]otable inputs include nitrogen and organic carbon from point, nonpoint, and natural sources." Revisiting the Blue Ribbon Panel: Recommendations on Ocean Acidification,

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[52] *Available at* http://www.ecy.wa.gov/water/marine/oa/20140708MRACmeetingSummary.pdf (last accessed Aug. 30, 2017).

[53] *Available at* http://www.ecy.wa.gov/water/marine/oa/20151013MRACsummary.pdf (last accessed Aug. 30, 2017).

Blue Ribbon Panel "Refresh" Meeting (March 17, 2017)[54] (hereinafter "Refresh Meeting") at 69. Of the nine items that represent "progress since 2012," none pertain to the NPDES program, other than the cryptic "[a]dded reducing stress on sewage systems," *id.* at 75, or TMDLs, other than the similarly cryptic "progression of local sources attribution model," *id.* at 71. No new actions were recommended. *Id*. at 73. Despite the title of the Blue Ribbon Committee's 2012 report—"From Knowledge to Action"—there has been no action, including either the action of requiring permit limitations or the action that starts with the development of a TMDL. This continued inaction leaves all regulated entities in a position of not knowing what to plan for. One inevitable result of this inaction will be future delays in actual pollutant reductions that are necessary to restore Puget Sound water quality.

E. Developing Nutrient TMDLs is a High Priority for the Nation's Waters

The U.S. EPA has made addressing excess nutrient pollution a high priority under section 303(d) of the CWA. Since 2013, EPA has told states that identifying nutrient-impaired waters on their 303(d) lists of impaired waters was a priority. *See* Memorandum from Denise Keehner, EPA, to Water Division Directors Regions 1 – 10, *Re: Information Concerning 2014 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions* (Sept. 3, 2013).[55] In this guidance, nutrients were the only pollutants on which EPA focused, stating:

> Addressing nutrient pollution in our nation's waters is one of EPA's top priorities. Over the past decade EPA has called upon the States and others to increase their

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[54] *Available at* http://www.ecy.wa.gov/water/marine/oa/20170317MRAC-presentations.pdf (last accessed Aug. 30, 2017).

[55] *Available at* https://19january2017snapshot.epa.gov/sites/production/files/2015-10/documents/final_2014_memo_document.pdf (last accessed Aug. 30, 2017).

> efforts to address nutrient pollution. In a March 2011 memorandum to the States, tribes and territories, EPA reiterated the need for action by stating, *"States, EPA, and stakeholders, working in partnership, must make greater progress in accelerating the reduction of nitrogen and phosphorus loadings to our nation's waters*."

Id. at 6 (emphasis in original). Citing federal regulations, the agency EPA pointed out that:

> Applicable water quality standards include designated uses and the criteria that must be met to support the uses as well as antidegradation requirements. Furthermore, if a designated use is not supported and the segment currently fails to meet an applicable water quality standard or is "threatened," it must be included on the State's Section 303(d) list even if the specific pollutant causing the water quality standard exceedance is not known at the time.

Id. at 7 (footnote omitted). In light of this, the memorandum went on to list numerous methods of identifying nutrient-impaired waters including: visual assessments of excessive algal growth, macrophyte proliferation, adverse impacts on native vegetation (e.g., eelgrass), presence or duration of harmful algal blooms, unsightly green slimes or water column color, and/or objectionable odors; documentation of fish kills, beach closures or outbreaks of waterborne illness among swimmers, including from blooms of toxic blue-green algae, public photographs or testimonials of abundant algal mats that impede recreation or create unsightly aesthetics in the waterbody; numeric water quality targets or thresholds for nitrogen and/or phosphorus that are used as quantitative "translations" of states' narrative criteria; multiple lines of evidence, including information on the causal variables (e.g., total nitrogen or total phosphorus) and response indicators (e.g., chlorophyll-a, dissolved oxygen, pH, macroinvertebrates, periphyton); and data on macrophyte cover, chlorophyll-a, algae assemblages, including diatoms, are used to gauge the biological condition of the water. *Id*. at 6 – 12.

For the states' 2016 lists, EPA reiterated its emphasis on nutrients as "one of EPA's top

priorities," stating that listing impaired waters is "an important step in a State's process to prioritize and accelerate nutrient reduction efforts." Memorandum from Benita Best-Wong, EPA, to Water Division Directors, Regions 1 – 10, *Re: Information Concerning 2016 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions* (Aug. 13, 2015)[56] at 10.

EPA has encouraged states to develop TMDLs and wasteload allocations to address excess nutrients since at least 1990. *See* EPA, *Technical Guidance Manual for Performing Waste Load Allocations, Book III Estuaries, Part 1Estuaries and Waste Load Allocation Models* (March 1990)[57]; EPA, *Technical Guidance Manual for Developing Total Maximum Daily Loads Book II: Streams and Rivers, Part 1: Biochemical Oxygen Demand/Dissolved Oxygen and Nutrients/Eutrophication* (Sept. 1995).[58] As EPA pointed out at the end of that decade, TMDLs play a key role in addressing nutrient-related water quality impairments where,

> [s]ome point sources need more controls, and many nonpoint source impacts (from agriculture, forestry, development activities, urban runoff, and so forth) cause or contribute to impairments in water quality. To address the combined, cumulative impacts of both point and nonpoint sources, EPA has adopted a watershed approach, of which TMDLs are a part.

EPA, *Protocol for Developing Nutrient TMDLs, First Edition* (Nov. 1999)[59] at Forward. Like

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[56] *Available at* https://www.epa.gov/sites/production/files/2015-10/documents/2016-ir-memo-and-cover-memo-8_13_2015.pdf (last accessed Aug. 30, 2017).

[57] *Available at* https://nepis.epa.gov/Exe/ZyPDF.cgi/P1002EE3.PDF?Dockey=P1002EE3.PDF (last accessed Aug. 30, 2017).

[58] *Available at* https://nepis.epa.gov/Exe/ZyPDF.cgi/200055WG.PDF?Dockey=200055WG.PDF (last accessed Aug. 30, 2017).

[59] *Available at* https://nepis.epa.gov/Exe/ZyPDF.cgi/20004PB2.PDF?Dockey=20004PB2.PDF (last accessed Aug. 30, 2017).

the later 303(d) listing guidance memos, this EPA document too, explained how the legal definition of a water quality standard applies to nutrients. *Id*. at 4-1 – 4-13.

Most recently, EPA has renewed its exhortation to states to "address the substantial and growing threat of nutrient pollution[.]" Memorandum from Joel Beauvais, EPA, to State Environmental Commissioners, State Water Directors, Re: *Renewed Call to Action to Reduce Nutrient Pollution and Support for Incremental Actions to Protect Water Quality and Public Health* (Sept. 22, 2016). EPA urged states to keep the focus on both point and nonpoint sources; asked states to prioritize watersheds for nutrient load reductions; requested that they provide for accountability and public reporting in nutrient load reduction program; and urged the use of the "important tool" of NPDES permits to "limit nutrient discharges into priority waters." *Id*. at 3, 4. A TMDL for nitrogen in Puget Sound would support all of these goals and more.

F. Controlling Nitrogen Discharges Through a Puget Sound TMDL is Also Key to Implementing Washington State's Ocean Acidification Strategy

Ocean acidification is a world-wide water quality problem to which Washington State is particularly vulnerable. *See* Washington State Blue Ribbon Panel on Ocean Acidification, *Ocean Acidification: From Knowledge to Action, Washington State's Strategic Response* (Nov. 2012)[60] (hereinafter "Blue Ribbon Report") at xiv. In particular, Washington is threatened by ocean acidification's chemical corrosion of shellfish and other calcifying species. *Id*. at xiii. Since publication of the Blue Ribbon Report, scientists have concluded that the biological effects of ocean acidification on commercial species include coho salmon, Dungeness crab, and

[60] *Available at* https://fortress.wa.gov/ecy/publications/documents/1201015.pdf (last accessed Aug. 30, 2017).

Olympia oysters. *See Refresh Meeting, supra* n. 53 at 11. Atmospheric concentrations of carbon dioxide and ocean upwelling are the primary sources. *Blue Ribbon Report* at 12. However, Washington is also affected by regional factors including polluted runoff of nutrients and organic carbon, air emissions, and discharges. *Id*. at 9, 12 – 13. Thus, the Blue Ribbon report called for "[r]educing inputs of nutrients and organic carbon from local sources [that] will decrease acidity in Washington's marine waters that are impacted by these local sources and thereby decrease the effects of ocean acidification on local marine species." *Id*. at 43.

For this reason, the Blue Ribbon panel concluded that:

> Developing pollutant budgets and models that can accurately determine current contributions and reliably predict future contributions are important tools for increasing our understanding of the role that local land-based inputs play in acidifying local waters (see Action 7.2.1). *The Panel urges that these tools be developed quickly* and that government and nongovernmental entities invest in the research and monitoring that will provide needed answers.

Id. at 44 (emphasis added). A "pollution budget" is a TMDL. *See, e.g.*, EPA, *Implementing Clean Water Act Section 303(d): Impaired Waters and Total Maximum Daily Loads (TMDLs)*,[61] ("A TMDL is a pollution budget and includes a calculation of the maximum amount of a pollutant that can occur in a waterbody and allocates the necessary reductions to one or more pollutant sources."). The Washington panel also urged speedy action:

> We should not put nutrient control efforts on hold while this scientific work is done, however. On the contrary, the Panel recommends that existing nutrient and organic carbon reduction programs be enhanced and strengthened; these pollutants are already lowering dissolved oxygen levels and causing a variety of significant ecosystem impacts in some areas. Additionally, local sources of nutrients and organic carbon often contain dangerous bacteria, pathogens, toxic metals, and other harmful pollutants. Finally, the decomposition of organic

[61] *Available at* https://19january2017snapshot.epa.gov/tmdl_.html (last accessed Aug. 15, 2017).

> material and nutrient-stimulated algae can eventually release carbon dioxide into the water, thereby lowering pH and causing acidification.
>
> Given the impacts of ocean acidification and the multiple benefits of nutrient and carbon source reduction, the Panel recommends enhanced actions to control and reduce local sources. Acidification presents an additional reason to accelerate and strengthen these existing programs.

Blue Ribbon Report at 44 – 45. The report urged both point and nonpoint source controls on nitrogen; only a TMDL can establish a "pollution budget" that accomplishes that task. Notwithstanding the urgency, Ecology has taken no steps to develop a TMDL for nutrients in Puget Sound.

III. EFFECTS OF THE REQUESTED RULE

The new rule would affect the following people or groups: (1) people who recreate on or near Puget Sound and whose business interests depend upon recreational uses; (2) people who rely upon good water quality and habitat in Puget Sound for commercial purposes; (3) people who depend on Puget Sound for cultural and spiritual purposes; and (4) people who pay for sewage treatment. Broadly speaking, according to Ecology,

> Washingtonians need clean water for:
> - Fishing and shellfishing
> - Salmon and wildlife habitat
> - Drinking water
> - Agriculture and livestock
> - Commerce and navigation
> - Boating, kayaking, canoeing,swimming, sightseeing

Ecology, *Water Quality Combined Funding Program 2013-2015 Biennium Outcomes Report* (2017)[62] at 1. These needs translate into a "water-dependent economy" that provides 160,000

[62] *Available at* http://www.ecy.wa.gov/programs/wq/funding/Acc/WQCFP1315BienniumOutcomes.pdf (last accessed Sept. 14, 2017).

jobs and $49 billion dollars for the agriculture and food industry; 146,000 jobs and $30 billion for the maritime industry; and 199,000 jobs and $21.6 billion for the outdoor recreation industry. *Id*.

A. A TMDL Would Affect People Who Recreate On or Near Puget Sound

People who recreate on or near Puget Sound and who are affected by excess algal growth, hazardous algae blooms, increases in jellyfish populations, low levels of salmonid populations, the threatened and/or endangered status of populations of various species, concerns about contamination in shellfish and fish, closed shellfish beds, declines in nearshore aquatic species such as starfish and marine birds that people like to observe, declines in orca whale populations, and other deteriorations in water quality and species would be affected by the development of a TMDL. Upon implementation of the TMDL, these people would experience improvements in water quality and the species that depend upon high quality waters. They would find the number of days in which they could engage in a wide variety of recreational activities would increase, as would the populations and diversity of species available for wildlife watching, photography, and harvesting. People would find recreation more enjoyable without the increasing algal blooms and jellyfish populations that dominate Puget Sound in summer months. Recreational users of Puget Sound, even casual observers who commute on Washington's ferry system, would benefit from reductions in nutrient pollution.

In addition, there are significant economic benefits associated with recreational fishing and shellfishing. *See* Washington Department of Fish and Wildlife, *Economic Analysis of the Non-Treaty Commercial and Recreational Fisheries in Washington State* (Dec. 2008)

(hereinafter "WDFW Economic Analysis").[63] For example, recreational shellfish catches in Salish Sea waters in 2006 totaled 1,219,551 pounds of Dungeness crab, 105,921 pounds of shrimp, 345,668 pounds of non-razor clams, and 652,094 pounds of oysters. *Id.*, *March 2012 Errata*. The study concluded that recreational fishing in Washington waters generates more than three quarters of the fishing-related jobs in 2006, or 12,850 jobs, and combined with commercial fishing generated $540 million in personal income in 2006. *WDFW Economic Analysis* at Executive Summary. The harvest value of Washington fisheries was calculated to be $65.1 million and aquaculture in Washington waters at $81.1 million. (Some of these economic benefits accrue to the Washington coast on the Pacific Ocean and some to freshwater lakes and rivers.) Other studies have concluded that:

> licensing for recreational shellfish harvesting generates $3 million annually in state revenue and recreational oyster and clam harvesters contribute more than $27 million annually to coastal economies. Overall, Washington's seafood industry generates over 42,000 jobs in Washington and contributes at least $1.7 billion to gross state product through profits and employment at neighborhood seafood restaurants, distributors, and retailers.

Blue Ribbon Report at 17 (references omitted).

B. A TMDL Would Positively Affect People Who Rely for Commercial Purposes on Puget Sound

In addition to those enterprises that benefit from recreational fishing and shellfishing, an array of commercial interests, and the people whom they employ, depend upon water and habitat

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[63] *Available at* http://wdfw.wa.gov/publications/00464/wdfw00464.pdf (last accessed Aug. 30, 2017). A critique was prepared by Hans Radtke, Ph.D., a natural resource economist. *See* Seattle Marine Business Coalition, *Washington State Commercial Fishing Industry Total Economic Contribution* (Jan. 2011), *available at* http://www.philipspublishing.com/smbc/attachments/SMBC%20Washington%20Total%20Commercial%20Fisheries%204.pdf. It pointed out the omission of tribal catches and aquaculture.

quality of Puget Sound. Washington State is the largest producer of bivalve shellfish in the United States, generating $184 million in economic benefits. *See* Jay Inslee, Governor, *Washington Shellfish Initiative* (Jan. 2016).[64] Counting the indirect employment, the estimated total annual economic impact of shellfish aquaculture in Washington is $270 million. *Blue Ribbon Report* at 17. The shellfish industry is threatened by poor water quality, including ocean acidification. *Id*. at xiii- xv. The whalewatching industry is similarly dependent upon protection and restoration of water quality in the Sound. The 37-member businesses of the Pacific Whale Watch Association (PWWA) take about 400,000 passengers every year from 21 different ports in Washington and British Columbia. PWWA operators participated in the first-ever transboundary economic study of the whale watch industry in the Pacific Northwest, which showed that in 2014 the businesses generated an estimated $144 million in economic impact in the region, with a growth rate of 8.3% annually. Yet these economic benefits are threatened. As EPA observes, "despite recent births in the second half of 2015 and beginning 2016, there has been a net loss of four Southern Resident Killer Whales (SRKWs) since 2011. This trend along with the continued decline of Chinook salmon, and the noted appearance of emaciation among members of the local pods, are reasons we are downgrading the previous status of SRKWs from a neutral trend to a declining trend." EPA, *Salish Sea, Southern Resident Killer Whales*.[65]

Commercial fishing is also dependent upon water quality. According to EPA, the indicator metric of marine species at risk was set at "declining" because "[b]etween 2008 and

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[64] *Available at* http://www.governor.wa.gov/sites/default/files/shellfishoverview.pdf (last accessed Aug. 30, 2017).

[65] *Available at* available at https://www.epa.gov/salish-sea/southern-resident-killer-whales.

2011, 23 new species were identified as threatened or of concern, representing the greatest increase since the list was first established in 2002." EPA, *Marine Species at Risk.*[66] The result is that "[a]s of January 2011, 113 marine species and sub-species were formally listed as being at risk or vulnerable to extinction, including: 56 birds, 37 fish, 15 mammals, 3 invertebrates, 2 reptiles." *Id.*

In addition to these species, state and federal agencies are finding more indicators that the forage fish populations, upon which commercially-important predators such as salmon rely, are depressed. *See, e.g.*, Puget Sound Nearshore Partnership, *Technical Report 2007-03, Marine Forage Fishes in Puget Sound* (2007)[67] at vi ("The status of Puget Sound forage fishes, especially herring stocks, is of general public interest in the region because of the large population of recreational anglers and wildlife watchers. Their societal importance is based largely on their apparent importance to provide forage for creatures higher in the marine food web (Figure 1) that are of either consumptive (e.g., salmon) or non-consumptive (e.g., herons) importance to society."). Forage fish, such as pacific herring, northern anchovy, surf smelt, the Pacific sand land, and longfin smelt have not been well monitored. *Id*. at 12. However, there are indications that water quality degradation is responsible for lowered populations. *Id*. at 17 – 19. *See also*, Chrisopher Krembs, *et al.*, *South Puget Sound – 2011 and 2012 in review: Aerial and*

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[66] *Available at* https://www.epa.gov/salish-sea/marine-species-risk (last accessed Aug. 30, 2017).

[67] *Available at* http://www.pugetsoundnearshore.org/technical_papers/marine_fish.pdf (last accessed Aug. 30, 2017).

water column observations from Ecology's long-term monitoring program (2012)[68] ("Concentrated, frequent, vast algal bloom and jellyfish patches at the surface and low oxygen water at depth [in South Puget Sound] have been persistent features for years."). A recent study of 40 years of jellyfish and forage fish abundance in Puget Sound found trends in abundance of all forage species in four subbasins of the Sound. *See* Correigh Greene, *et al.*, *Forty years of change in forage fish and jellyfish abundance across greater Puget Sound, Washington (USA): anthropogenic and climate associations*, 525 Mar Ecol Prog Ser 153 (2015)[69] (The historically dominant forage fishes (Pacific herring and surf smelt) have declined in two subbasins (Central and South Puget Sound) by up to two orders of magnitude while jellyfish-dominated catches increased three- to-nine-fold in those subbasins, with these results positively tracking human population density); *see also NWEA Petition, supra* n. 1 at 32-34.

C. A TMDL Would Positively Affect Tribal People Who Depend Upon Puget Sound for Cultural and Economic Benefits

There are 20 tribal governments of western Washington that depend upon Puget Sound for their treaty-reserved and constitutionally protected rights to harvest, consume, and manage natural resources including salmon and shellfish in their usual and accustomed grounds and stations.[70] These treaties, signed in 1855 to 1856, secure the fishing rights that the tribes have

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[68] *Available at* https://fortress.wa.gov/ecy/publications/documents/1203052.pdf (last accessed Aug. 30, 2017).

[69] *Available at* https://www.nwfsc.noaa.gov/news/events/program_reviews/2016/documents/B6_Greene_et_al.pdf (last accessed Aug. 30, 2017).

[70] The 20 tribes are as follows: Lummi, Nooksack, Swinomish, Upper Skagit, Sauk-Suiattle, Stillaguamish, Tulalip, Muckleshoot, Puyallup, Nisqually, Squaxin Island, Skokomish, Suquamish, Port Gamble S'Klallam, Jamestown S'Klallam, Lower Elwha Klallam, Makah, Quileute, Quinault, and Hoh. *See* https://nwifc.org/ (last accessed Sept. 15, 2017).

exercised since time immemorial as well as ceding most of the land that is now western Washington.[71] The tribes have "viewed a guarantee of permanent fishing rights as an absolute predicate to entering into a treaty."[72] The fishing rights they secured by treaty have been consistently and expansively enforced by the federal courts.[73]

These treaty rights are damaged when Ecology authorizes discharges of excess nutrients to surface waters that lead to closure of shellfish beds and interference with treaty-protected rights to gather food for commercial, ceremonial, and subsistence purposes. Local ocean acidification caused by excess nutrients also threaten the underlying legal rights of the tribes that depend upon shellfish populations and shellfish propagation. Excess nutrients leading to depressed dissolved oxygen and upsets in pH levels affect the health and survival of salmon. As pH levels change, other pollutants often become more bioavailable, increasing the toxicity of metals, for example. Excessive algae created by anthropogenic contributions of nutrients foul nets used by tribal members to harvest salmon and contribute to even great water quality problems.

Tribal fisheries are also major contributors to Washington's economy. Because tribal

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[71] *See, e.g.*, Treaty of Medicine Creek, 10 Stat. 1132-37, December 26, 1854, proclaimed April 10, 1855; Treaty of Point Elliott, 12 Stat. 927-32, January 22, 1855; proclaimed April 11, 1859; Treaty of Point No Point, 12 Stat. 933-37, January 26, 1855, proclaimed April 29, 1859; Treaty of Makah, 12 Stat. 939-43, January 31, 1855, proclaimed April 18, 1859; Treaty of Yakama, 12 Stat. 951-56; June 9, 1855; proclaimed April 18, 1859; Treaty of Olympia, 12 Stat. 971-74, July 1, 1855 and January 25, 1856; proclaimed April 11, 1859.

[72] *United States v. Washington*, 873 F. Supp. 1422,1437 (W.D. Wash. 1994), *rev'd in part on other grounds*, 135 F.3d 618, *as amended* 157 F.3d 630 (9th Cir. 1998).

[73] *See, e.g., Missouri v. Holland*, 252 U.S. 416, 434 (1920); *U.S. v. Washington* 384 F. Supp. 312 (1974).

commercial fisheries' activities are tracked in the commercial fish ticket system, the data show that tribal fisheries include: ocean non-salmon and salmon treaty allocations, inland shellfish, river salmon and steelhead, and others. In addition, there are tribal harvests for ceremonial and subsistence fisheries, on which no economic price can be placed. As Washington has stated,

> Ocean acidification also has important cultural implications. To Washington's tribal communities, ocean acidification is a natural resource issue and a significant challenge to their continued identity and cultural survival. With salmon at just a fraction of their former abundance, tribal fishers are depending more on shellfish to support their families; almost all of the commercial wild clam fisheries in Puget Sound are tribal. The tribes also harvest wild shellfish for ceremonial and subsistence purposes.

Blue Ribbon Report at 18.

The continued nutrient pollution of Puget Sound and its tributaries will adversely affect tribal rights and the activities of tribal members. Harvest rates of salmon and steelhead have already been severely reduced over many decades in order to compensate for the precipitous decline in salmon abundance experienced in Washington waters and the related listed of salmonids as threatened and endangered under the Endangered Species Act. For example, people of the Stillaguamish Tribe of Indians have had to purchase fish from outside their river system in order to conduct the traditional first salmon ceremony that welcomes and honors the salmon that are the foundation of their culture. Ecology's failure to develop a nitrogen TMDL for Puget Sound is contributing to the poor water quality that is seriously undermining treaty-reserved rights to harvest, consume, and manage natural resources including salmon and shellfish.

D. A TMDL Would Affect Ratepayers of Sewage Collection and Treatment Systems that Discharge Nutrient Pollution to Puget Sound

Generally speaking, ratepayers of sewage collection and treatment systems that discharge to Puget Sound would be adversely affected by the adoption of a rule that would eventually result in nutrient effluent limitations in NPDES permits for such systems. The installment of additional treatment comes at a cost. For some ratepayers, however, a Puget Sound TMDL and wasteload allocations to sewage treatment facilities would ensure that the sewage treatment for which they pay was not unfairly expected to shoulder the burden of nitrogen reduction. In locations where Ecology's failure to establish nitrogen effluent limits on *some* discharges results in inputs of nitrogen affecting the waters where *other* facilities discharge, a TMDL would ensure that sources were only paying to clean up their own contribution. For example, the ratepayers of the LOTT system are among these ratepayers who stand to benefit from a Puget Sound TMDL, as discussed by the Thurston County Commissioners, *supra* at 23. The LOTT ratepayers already pay for nitrogen removal, yet two things are true: (1) more nitrogen must be removed from Budd Inlet into which LOTT discharges; and (2) Ecology cannot rely on reductions from nutrient sources outside Budd Inlet if no pollution controls on those sources are in place. *See* 40 C.F.R. § 122.44(d)(1)(ii). A TMDL for Puget Sound would result in ratepayers of non-LOTT sewage treatment facilities see their rates rise to reflect the need to remove nitrogen to preserve the water quality and habitat of Puget Sound. Ratepayers of dischargers where nitrogen from other sources is an input to the local area of discharge, such as LOTT, would see lower rate increases.

IV. MEANING OF "RULE"

Washington law defines "rule" to include, *inter alia*:

> any agency order, directive, or regulation of general applicability . . . (c) which establishes, alters, or revokes any qualification or requirement relating to the enjoyment of benefits or privileges conferred by law; (d) which establishes, alters, or revokes any qualifications or standards for the issuance, suspension, or revocation of licenses to pursue any commercial activity, trade, or profession;

RCW 34.05.010(16). A TMDL, in the absence of any other document and whether adopted formally into rule or as directive of general applicability, establishes and alters the effluent limits in any future reissuance of existing NPDES permits that authorize the discharge of pollutants to Washington waters once the TMDL has been approved by EPA. *See, e.g.*, 40 C.F.R. § 122.44(d)(1)(vii)(B) ("When developing water quality-based effluent limits under this paragraph the permitting authority shall ensure that: . . . [e]ffluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7."); *see also* 40 C.F.R. § 130.2(h), (i) (definitions of "wasteload allocation" and "Total maximum daily load"). A TMDL constitutes a directive to Department of Ecology permit writers because a TMDL includes wasteload allocations that establish the standards for the issuance of an NPDES permit to a discharger. See *Am. Farm Bureau Fed'n v. U.S. E.P.A.*, 792 F.3d 281, 291 (3d Cir. 2015), *cert. denied*, 136 S. Ct. 1246 (2016) ("TMDLs are not self-executing, but they serve as the cornerstones for pollution- reduction plans that do create enforceable rights and obligations.").

In addition, this petition seeks to have Ecology adopt into formal rules the wasteload allocations to specific NPDES-permitted sources set out in the TMDL.

Conclusion

This petition demonstrates that Ecology has failed to include the required water quality-

based effluent limits in NPDES permits that authorize discharges to Puget Sound because, in part, Ecology has failed to complete a TMDL for nitrogen in Puget Sound. Ecology has, however, spent millions of dollars obtaining and analyzing data; building, using, and perfecting models to predict outcomes; and has obtained sufficient data on the nitrogen inputs of specific sources. It has done nearly everything but take the regulatory step required by section 303(d) of the Clean Water Act: turn the data and analyses into a TMDL that will lead to required regulatory controls on pollution sources.

Ecology has acknowledged that (1) nitrogen is the primary cause of low levels of dissolved oxygen and other water quality and designated use impairments in Puget Sound waters, including human sources; (2) there are multiple human sources of nitrogen, including both point and nonpoint sources; and (3) discharges of nitrogen from sewage treatment plants cannot be evaluated and controlled solely at the point of discharge. All of these facts point to the need for a nitrogen TMDL for Puget Sound; there is no substitute for that legally-mandated solution. As Ecology has said, in its simple statements to the public:

> The study found that low oxygen concentrations naturally occur through much of South and Central Puget Sound. However, *human contributions from marine point sources and within watershed inflows decrease oxygen* as much as 0.2 to 0.4 mg/L below natural conditions in portions of Totten, Eld, Budd, Carr, and Case Inlets, and East Passage in Central Puget Sound.
>
> * * *
>
> **Fish need oxygen**: In areas with low levels of dissolved oxygen, fish and other marine life become stressed and die or are forced to flee their habitat. *There are many areas in Puget Sound with very low levels of dissolved oxygen*.
>
> *Nitrogen is the main pollutant that causes low dissolved oxygen levels*:
>
> Discharges from wastewater treatment plants, septic systems and other sources add nitrogen to Puget Sound. Excess nitrogen causes excess algae growth. As the algae dies and decays, they rob the water of dissolved oxygen. Once released

> into Puget Sound, nitrogen moves around. *Nitrogen discharged at one spot may cause low dissolved oxygen levels many miles away*.[74]

But what Ecology says must happen next completely ignores the Clean Water Act as well as the agency's obligations to the public to follow the law and move from knowledge to action. Instead of identifying specific next steps—namely the development of a TMDL and NPDES permit limits on nutrients—Ecology makes clear that it merely intends to continue to study the problem:

> **We need to study the effects of nitrogen discharges**: The purpose of this study is to determine how nitrogen from a variety of sources affects dissolved oxygen levels in South Puget Sound. This ongoing study is a critical first step in determining what might need to be done to improve water quality. The results of the study may show that human-related sources of nitrogen need to be reduced to keep South Puget Sound healthy. If reductions are needed, the study will also help determine where reductions might need to occur.

Id. (bold original).

Ecology has already passed the point of determining that "human-related sources of nitrogen need to be reduced." Based on its findings—now made long ago—the only logical next step is the development of a TMDL to control nitrogen discharges entering Puget Sound in order to protect and improve water quality for aquatic life and human uses. We therefore hereby petition the Washington Department of Ecology to:

(1) immediately begin the development of a Puget Sound TMDL for nitrogen, the establishment and EPA approval of which will result in a directive that will establish and alter the standards for the issuance of future NPDES permits to dischargers to Puget Sound and its tributaries; and

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[74] Ecology, *Saving Puget Sound, South Puget Sound Dissolved Oxygen Study*, *available at* http://www.ecy.wa.gov/puget_sound/dissolved_oxygen_study.html (last accessed Aug. 25, 2017) (emphasis added, bold original).

(2) in addition, engage in formal rulemaking to place the resulting wasteload allocations from such a Puget Sound TMDL into a formal rule.

Respectfully submitted,

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Northwest Environmental Advocates
P.O. Box 12187
Portland, OR 97212

Dated this day, the 10th of October, 2017.

Enclosed:

Attachment A. Northwest Environmental Advocates, Before the United States Environmental Protection Agency, *Petition for Corrective Action or Withdrawal of Authorization from the State of Washington to Issue National Pollutant Discharge Elimination System Permits* (Feb. 13, 2017)

Exhibits

1. Ecology, *South Puget Sound Dissolved Oxygen Study Water Quality Model Calibration and Scenarios* (March 2014)

2. Ecology, *Fact Sheet for NPDES Permit WA0022527, Vashon Wastewater Treatment Plant, Effective Date: March 1, 2017*

3. Ecology, *Fact Sheet for NPDES Permit WA0024074, City of Mount Vernon Wastewater Treatment Plant, Effective Date: March 1, 2017*

4. Ecology, *Fact Sheet for NPDES Permit WA0020907, Bainbridge Island Wastewater Treatment Plant, Effective Date: August 1, 2017*

5. Ecology, *Fact Sheet for NPDES Permit WA0030520, Central Kitsap Wastewater Treatment Plant, Effective Date: August 1, 2017*

6. State-EPA Nutrient Innovations Task Group, *An Urgent Call to Action: Report of the State-EPA Nutrient Innovations Task Group* (Aug. 2009)

7. Ecology, *Water Quality Program Permit Writer's Manual* (revised Jan. 2015)

8. Ecology, *Water Quality Improvement Projects, Deschutes River Basin Area*

9. U.S. EPA, *Budd Inlet Urban Bay Action Program: 1991 Action Plan* (July 1991)

10. Letter from Jeff Dickison, Squaxin Island Tribe, to Melany Vorass, Ecology (June 22, 1990)

11. Memorandum from Mindy Roberts, et al., Ecology, to Files, *Re: Final Reconnaissance Study Plan for Deschutes River/Capitol Lake/Budd Inlet Total Maximum Daily Loads* (July 31, 2003)

12. Ecology, *Deschutes River, Capitol Lake, and Budd Inlet Temperature, Fecal Coliform Bacteria, Dissolved Oxygen, pH, and Fine Sediment Total Maximum Daily Load Technical Report, Water Quality Study Findings* (June 2012)

13. Ecology, *Deschutes River, Capitol Lake, and Budd Inlet Total Maximum Daily Load Study Supplemental Modeling Scenarios* (Sept. 2015)

14. Ecology, *Deschutes River, Percival Creek, and Budd Inlet Tributaries: Temperature, Fecal Coliform, Bacteria, Dissolved Oxygen, pH, and Fine Sediment Total Maximum Daily Load* (Dec. 2015)

15. Letter from Karen Valensuela, Chair, Thurston County Board of County Commissioners, et al. to Lydia C. Wagner, Ecology, *Re: Deschutes River/Budd Inlet TMDL Completion Schedule* (Jan. 17, 2014)

16. Letter from Rich Doenges, Ecology, to Thurston County Commissioners, *Re: Deschutes River/Budd Inlet TMDL Completion Schedule* (Feb. 19, 2014)

17. Ecology, *Deschutes River, Capitol Lake, and Budd Inlet TMDL Advisory Group Meeting* (June 26, 2014)

18. Ecology, *Deschutes River, Capitol Lake, and Budd Inlet TMDL Advisory Group Meeting* (Oct. 30, 2014)

19. *See, e.g.*, Email from Andrew Kolosseus, Ecology, to Chrisopher Zell, EPA, Re: *Deschutes TMDL* (Oct. 27, 2016)

20. Letter from Heather R. Bartlett, Ecology, to Michael Lidgard, EPA (July 17, 2017)

21. Ecology, *Review Draft Assimilative Capacity Study for Nutrient Loading in the Lower*

White River (Dec. 1999)

22. *Memorandum of Agreement Among the Muckleshoot Indian Tribe, the Washington State Department of Ecology, and the U.S. Environmental Protection Agency Relating to the Development of a TMDL for the Lower White River* (Oct. 6, 2001)

23. Ecology, *Total Maximum Daily Load Fact Sheet [for 23 waterbody segments in the Puyallup River basin]* (Sept. 9, 1994)

24. Ecology, *Environmental Assessment Program Quarterly Report Re: White River pH TMDL, Quarterly Report #5: Nov. 2013 – Jan. 2014* (Jan. 29, 2014)

25. Ecology, *Quality Assurance Project Plan, Lower White River pH and Nutrients Study* (Oct. 2009)

26. Ecology, *Lower White River pH Total Maximum Daily Load Water Quality Study Design (Quality Assurance Project Plan)* (June 2012)

27. Ecology, *Fact Sheet for NPDES No. WA0020575 City of Enumclaw* (May 5, 2003)

28. Ecology, *Assessing Sensitivity to Eutrophication of the Southern Puget Sound Basin; Spatial and Seasonal Perspectives* (2001)

29. Ecology, *South Puget Sound Water Quality Study Phase 1* (Oct. 2002)

30. Ecology, *Puget Sound and the Straits Dissolved Oxygen Assessment Impacts of Current and Future Human Nitrogen Sources and Climate Change through 2070* (March 2014)

31. Ecology, *Saving Puget Sound, Sound Science, Puget Sound Nutrient Source Reduction Project*

32. Ecology, *Salish Sea Model, Sediment Diagenesis Module* (June 2017)

33. Marine Resources Advisory Council, *Making progress on WA State Blue Ribbon Panel Recommendations for Ocean Acidification, Local land-based contributions* (Oct. 2015)

34. Ecology, *Salish Sea Model, Ocean Acidification Module and the Response to Regional Anthropogenic Nutrient Sources* (June 2017)

35. Ecology, *Western Washington NPDES Phase I Stormwater Permit Final S8.D Data Characterization 2009-2013* (Feb. 2015)

36. EPA, *Guidance for Facilities Planning* (Jan. 1974)

37. Kitsap County Public Works Waste Water Division, *Central Kitsap County Wastewater Facility Plan* (March 2011)

38. Ecology, *Approach for Simulating Acidification and the Carbon Cycle in the Salish Sea to Distinguish Regional Source Impacts*

39. MRAC, *Meeting Summary* (July 8, 2014)

40. MRAC, *Meeting Summary* (Oct. 13, 2015)

41. Revisiting the Blue Ribbon Panel: Recommendations on Ocean Acidification, *Blue Ribbon Panel "Refresh" Meeting* (March 17, 2017)

42. Memorandum from Denise Keehner, EPA, to Water Division Directors Regions 1 – 10, *Re: Information Concerning 2014 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions* (Sept. 3, 2013)

43. Memorandum from Benita Best-Wong, EPA, to Water Division Directors, Regions 1 – 10, *Re: Information Concerning 2016 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions* (Aug. 13, 2015)

44. EPA, *Technical Guidance Manual for Performing Waste Load Allocations, Book III Estuaries, Part 1Estuaries and Waste Load Allocation Models* (March 1990)

45. EPA, *Technical Guidance Manual for Developing Total Maximum Daily Loads Book II: Streams and Rivers, Part 1: Biochemical Oxygen Demand/Dissolved Oxygen and Nutrients/Eutrophication* (Sept. 1995)

46. EPA, *Protocol for Developing Nutrient TMDLs, First Edition* (Nov. 1999)

47. Washington State Blue Ribbon Panel on Ocean Acidification, *Ocean Acidification: From Knowledge to Action, Washington State's Strategic Response* (Nov. 2012)

48. EPA, *Implementing Clean Water Act Section 303(d): Impaired Waters and Total Maximum Daily Loads (TMDLs*)

49. Seattle Marine Business Coalition, *Washington State Commercial Fishing Industry Total Economic Contribution* (Jan. 2011)

50. Washington Department of Fish and Wildlife, *Economic Analysis of the Non-Treaty Commercial and Recreational Fisheries in Washington State* (Dec. 2008)

51. Jay Inslee, Governor, *Washington Shellfish Initiative* (Jan. 2016)

52. EPA, *Salish Sea, Southern Resident Killer Whales*

53. EPA, *Marine Species at Risk*

54. Puget Sound Nearshore Partnership, *Technical Report 2007-03, Marine Forage Fishes in Puget Sound* (2007)

55. Chrisopher Krembs, *et al.*, *South Puget Sound – 2011 and 2012 in review: Aerial and water column observations from Ecology's long-term monitoring program* (2012)

56. Correigh Greene, *et al.*, *Forty years of change in forage fish and jellyfish abundance across greater Puget Sound, Washington (USA): anthropogenic and climate associations*, 525 Mar Ecol Prog Ser 153 (2015)

57. Ecology, *Saving Puget Sound, South Puget Sound Dissolved Oxygen Study*

58. EPA, *Restoring the Long Island Sound While Saving Money Lessons in Innovation and Collaboration* (Dec. 2009)

59. Long Island Sound Study, *Sound Update* (Spring 2017)

60. EPA, *National Pollutant Discharge Elimination System (NPDES) Permit Writers' Manual* (Sept. 2010)

61. EPA, *A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program* (Dec. 2013)

62. EPA, *"Questions and Answers" on the Long-Term Vision for Assessment, Restoration, and Protection under the CWA 303(d) Program* (2013)

63. Ecology, *Puget Sound Dissolved Oxygen Model: Nutrient Load Summary for 1999-2008* (Nov. 2011)

64. Memorandum from Joel Beauvais, EPA, to State Environmental Commissioners, State Water Directors, Re: *Renewed Call to Action to Reduce Nutrient Pollution and Support for Incremental Actions to Protect Water Quality and Public Health* (Sept. 22, 2016)

65. Letter from Randall F. Smith, EPA, to Megan White, Ecology, Re*: EPA Comments on Proposed Section 3.3.11 "TMDL's and WLA's and 303(d) - Interim Permitting" of Department of Ecology's Permit Writer's Manual* (June 25, 2002)

66. Ecology, *Water Quality Combined Funding Program 2013-2015 Biennium Outcomes Report* (2017)