Appendix A: King County's Detailed Comments on the Draft Puget Sound Nutrient Reduction Plan

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11	If entirely successful, the largest predicted change in DO from the NRP will be an increase of approximately 1.0 mg/L, on average, from existing conditions. A change of this magnitude from nutrient reductions alone will be difficult to detect with confidence. Most of the change will be virtually impossible to distinguish from natural variability – only observable in modeled values. King County frequently observes daily variation in DO at some marine monitoring sites greater than 1.0 mg/L. Setting the expectation that field measurements can be used to evaluate the response and trigger adaptive management actions is misleading. Our ability to statistically distinguish an effect size of this magnitude resulting from implementation of the NRP from all other sources of variability (measurement error, natural variability, sampling error, etc.) is limited. The detectable effect size will be a function of our sampling design, measurement error, analysis interval, natural variability, etc.	Recommend a professional statistician perform a Sample Size Power Analysis on existing field observations to estimate the effect size that we can detect with a power level of 0.8 and an alpha value of 0.1 or 0.5.
11	Walker et al. (2022) predicts sea surface temp (SST) in Puget Sound will increase by 0.8-1.1 °C in the short term (2020-2050) and by 1.5-3.9°C in the long term (2070-2100), depending on the model and emissions scenario. Given the inverse relationship between temperature and solubility of oxygen in water, a 1.1°C increase in SST could reduce DO concentration by 2-3%; a 3.9°C increase in SST could reduce DO concentration by roughly 7-10%, regardless of the level of reduction in nutrient loading. Consequently, improvement in compliance and achievement of water quality standards	Explicitly state whether predicted outcomes assume stationarity in SST in 2050 or account for predicted increases of nearly 1.1°C by 2050 and 3.9°C by 2100. Consider and state implications for the degree of compliance with WQ standards that can be achieved by proposed load reductions in the face of predicted increases in SST by 2050 and 2100.

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	by 2050 could be overstated. See also King County comment on page 39.	
13	Reference Text: "Regulatory Framework – An ARP contains many of the same elements as a TMDL but provides more flexibility in how clean-up efforts are approached, with the goal of cleaning up water faster than a traditional TMDL. We discuss ARPs in more detail in the "Advance restoration plan approach" section."	King County agrees with Ecology that a flexible and pragmatic approach to addressing DO impairment in the Puget Sound is needed. We recommend that Ecology revise the NRP to explicitly describe how it will result in faster water quality improvements over a traditional TMDL. Ecology should also explain how the flexibility envisioned in the NRP is necessary for implementation and consistent with the Clean Water Act.
15	Reference Text: "Nitrogen in the Sound - Nonpoint sources include runoff from crop and animal agriculture operations, nutrients in stormwater from residential and commercial land, excess fertilizers used for residential purposes, residential onsite sewage systems, golf-courses, and municipal parks."	Golf courses and municipal parks are not necessarily nitrogen pollution sources, depending upon their management practices. In fact, a few golf courses and parks in Puget Sound uptake nitrogen from reclaimed water use. Recommend changing to state "excess fertilizers used for turf or garden uses."
16	Figure 2 - The boundaries shown in Figure 2 appear not to consider jurisdictional and WRIA boundaries.	Please clarify if jurisdictional or WRIA boundaries cause any issues with regulation and implementation? We recommend Ecology to include jurisdictional boundaries for clarity in future drafts.
17	Reference Text: "Nitrogen in the Sound - We also acknowledge that many of the practices used to reduce nitrogen loading to aquatic systems can have other positive environmental outcomes, such as limiting harmful algae bloom occurrences and reducing discharges of toxic pollutants."	Ecology should also acknowledge the environmental tradeoffs associated with nitrogen removal, as these removal technologies have the potential to significantly increase greenhouse gas emissions and energy consumption.
18	Reference Text: "Efforts to address dissolved oxygen problems - A primary goal of these studies was to identify a nutrient reduction distribution that meets water quality standards and is also equitable and reasonable between the WWTPs and watershed sources."	Ecology should describe the criteria that was used to develop "equitable" and "reasonable" in relation to Ecology's goal of dividing up nutrient reductions across different human sources. Also, explain how Ecology will measure if the reductions are meeting those distribution goals and if redistributing reductions between human

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		sources will be potential action in the adaptive management process.
18	Reference Text: "Efforts to address dissolved oxygen problems - A primary goal of these studies was to identify a nutrient reduction distribution that meets water quality standards and is also equitable and reasonable between the WWTPs and watershed sources."	King County believes there needs to be greater consideration of the economic and technical feasibility of point and nonpoint source implementation prior to setting basin-wide caps and finalizing the advanced restoration plan. Given the challenges of naturally low DO, climate change driven impacts to DO and challenges of implementing watershed reductions, additional discussion is necessary to develop equitable and reasonable actions.
19	Reference Text: "Salish Sea Model - Ecology was confident the model performance was adequate for evaluating the cumulative impacts of human caused nutrient loads on DO and for determining what nutrient reduction scenarios can achieve DO standards."	Ecology should incorporate a robust discussion, including the chronology of the Salish Sea Model and its enhancements over time to support this statement. Ecology should also articulate whether the model can accurately predict to the 0.2 mg/L human use allowance. Recent analysis from the University of Washington Puget Sound Institute indicates that the Salish Sea Model may struggle with the skill to measure the 0.2 mg/L human use allowance: "Although overall model performance improved modestly, errors in embayments remain several times higher than the 0.2 mg/L human use allowance. Additionally, the subtraction of two scenarios does not cancel uncertainty—especially since the reference condition cannot be validated. As a result, when compliance is determined by comparing existing and reference scenarios, the true level of uncertainty in the outcome is larger than the model statistics alone suggest and must be explicitly considered in regulatory applications. It seems unlikely that any model could

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		reduce uncertainty to the point that it is lower than the current human use allowance of 0.2 mg/L."[1] As the Salish Sea Model continues to be improved, the NRP should discuss how model improvements will be incorporated by Ecology and used to refine the Advanced Restoration Plan. For instance, there is an updated version of the model with finer spatial resolution (114,590 nodes and 208,452 triangular elements vs. 16,012 nodes and 25,019 triangular elements in the version used), as well as ongoing work towards eliminating bathymetric smoothing within the model. This could improve its performance in the hard to model marine nearshore and increase our ability to understand DO in cells that have been masked in previous model runs. A detailed description of the strengths and limitations of the SSM should be incorporated in the NRP, including a description of why it supports the ARP as an appropriate advanced restoration approach.
20	Reference Text: "Footnote 4 – Dominant loaders cumulatively constitute greater than 80% of the TIN load to Puget Sound, while moderate loaders and small loaders represent approximately 19% and less than 1%, respectively." This statement incorrectly suggests that WWTPs account for all TIN load to Puget Sound.	Please revise the statement to reflect that these are percentages of the total domestic marine point source TIN load to Puget Sound. "Dominant loaders cumulatively constitute greater than 80% of the <u>domestic</u> marine point source TIN load to Puget Sound, while moderate loaders and small loaders represent approximately 19% and less than 1%, respectively."
20	Reference Text: "Puget Sound Nutrient General Permit - The permit categorized WWTPs in three different size	Loading is one of many factors that influence the impact of a wastewater plant. For instance, the proposed loading

[1] Baker, J., Kanojia, M., Mazzilli, S. (2025) *Technical Memorandum Review of 2025 Salish Sea Model Updates and Application to Nutrient Management*. University of Washington Puget Sound Institute, pg. 3, PDF Attachment

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	categories (dominant, moderate, small), with permit requirements varying based on size category." Given Ecology's stated goals of distributing nutrient reduction responsibilities equitably and reasonably, what evidence does Ecology provide that categorizing and allocating responsibility to WWTPs by nitrogen loading alone is the best course of action to address DO impairment?	targets in Appendix E identify that some smaller plants near shallow embayments may have more of an impact to local DO and modeled more treatment requirements to impact DO in those areas.
21	Reference Text: "Puget Sound Nutrient General Permit - Permittees that maintain an annual TIN average of < 10 mg/L and do document an increase in load through their discharge monitoring reports (DMRs) do not have to submit this analysis." This statement is incorrect since it is missing the word "not."	Please correct the sentence to: Permittees that maintain an annual TIN average of < 10 mg/L and do **not** document an increase in load through their discharge monitoring reports (DMRs) do not have to submit this analysis.
22	Reference Text: "Puget Sound Nutrient General Permit - At the time of this plan, Ecology has begun the process to reissue the General Permit to offer voluntary coverage for facilities that want to continue under the General Permit to address nitrogen reduction requirements. We currently plan to propose minimal edits to the permit through a public process with opportunities to review and provide comments."	The minimal edits to the draft PSNGP and the draft Fact Sheet made the documents difficult to read and assess as there were several out-of-date references, inconsistencies between versions and typographical errors. King County provided detailed comments on the draft PSNGP and encourages Ecology to consider those comments along with our comments on the NRP for recommendations on how to improve the nutrient management framework. Additionally, we want to emphasize that there are some critical inconsistencies between the PSGNP and the NRP with regard to future nitrogen treatment requirements for utilities. The draft Puget Sound Nutrient Reduction Plan proposes wastewater nitrogen loading targets that are based on several treatment assumptions that differ from the NRE requirements. These changes include assuming winter treatment of 8 mg/L Dissolved Inorganic Nitrogen

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		(DIN), 8 mg/L CBOD, introducing a third, intermediary nitrogen removal season, and changing the regulated nitrogen species to Total Nitrogen (TN) versus TIN. In addition, the Nutrient Reduction Plan calculates the load reductions based on 2014 flows, making a 3 mg/L equivalent load reduction calculated on ten-year-old flows translate into even lower effluent concentration limits for future flows. The potential shift in treatment targets and upcoming WQBELs could easily result in NREs that do not answer the question of whether or not a utility can afford the necessary upgrades to meet the DO water quality requirements.
23	Reference Text: "Advance restoration plan approach - We have utilized the technical rigor of the Salish Sea Model to develop nitrogen targets and will rely on the same permitting and nonpoint implementation tools that are foundational in TMDLs."	As most of the average predicted change in DO will be virtually impossible to distinguish from natural variability and will be observable only in modeled values, it places great importance on the accuracy of the Salish Sea Model as the model will be used to determine water quality compliance. Recent analysis from the University of Washington Puget Sound Institute indicates the model may lack the skill and granularity needed for the regulatory precision[2]. It is imperative to discuss within the NRP the strengths and weaknesses of the model and how those factors work with the regulatory framework.
23	Reference Text: "Advance restoration plan approach - Identifies financial support necessary to reduce nutrient loading to Puget Sound"	The NRP doesn't identify the financial support necessary to support nutrient reduction in terms of funding needs, rather it documents existing funding. This statement indicates there is an aggregate cost estimate and greater certainty than what is currently in the plan.
26	Reference Text: "Designated uses of waterbodies - Before finalizing the targets in this plan, we confirmed and have documented the nitrogen targets meet the	Please reconcile this statement with Appendix H: "While the Salish Sea Model scenarios were aligned with the conceptual framework of the TMDL, the specific nitrogen

[2] Baker, J. et. al, (2025) *Technical Memorandum Review of 2025 Salish Sea Model Updates and Application to Nutrient Management*. pg. 3

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	requirements of the bubble allocation in the Budd Inlet TMDL (Figueroa-Kaminsky et al. 2025, Appendix O)."	load targets produced through the Salish Sea Model effort did not match the final WLAs established in the Budd Inlet TMDL. Ecology acknowledges that these inconsistencies between the TMDL and the draft Puget Sound Nutrient Reduction Plan NRP create uncertainty for permittees in Budd Inlet."
28	Reference Text: "Water quality criteria – Washinton's water quality standards contain numeric DO criteria for marine waters in Chapter 173-201A-210(1)(d) WAC for the protection of aquatic life uses. These criteria protect all indigenous fish and non-fish species, such as shellfish and marine mammals, from lethal and sublethal effects of low dissolved oxygen levels and are often referred to as the "biologically-based numeric criteria"."	The draft NRP outlines actions to meet the currently applicable water quality standards, including the numeric dissolved oxygen criteria. Those standards, however, are over half a century old and may have been developed without documented evidence regarding any specific dissolved oxygen needs of aquatic life native to Puget Sound. Attaining these standards will require many years and tens of billions of dollars to address and will ultimately be unachievable in many portions of the Sound because of natural conditions and other conditions outside of Washington's reasonable control. Washington's DO standards should be reviewed to ensure the criteria are biologically-based and have appropriate seasonal and temporal resolution to protect diverse aquatic communities specific to those habitats. Ecology should also correct their spelling of "Washinton's" to "Washington's".
28	Reference Text: "Table 3 – The table defines the DO criteria for each aquatic life uses category. All DO concentrations are measured as a 1-day minimum. Concentrations of DO should not fall below these criteria more than once every ten years on average [WAC 173-201A-210-1(d)(ii)]."	The DO criteria, expressed as 1-day minimums, were not developed using robust knowledge of natural DO variability in the Salish Sea and do not account for the fact that DO concentrations do not meet these criteria at many locations, depths, and times under natural conditions. Washington's DO standards should be reviewed to ensure the criteria have appropriate seasonal and temporal resolution to protect Puget Sound's native aquatic communities specific to those habitats.

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30	Reference Text: "Water quality criteria - In addition to the numeric biologically based criteria, Washinton's water quality standards have historically included natural conditions provisions. Natural conditions criteria have been a part of Washington's surface water quality standards since the first regulations were adopted in 1967.[6]"	Ecology should explain more clearly what effect EPA's disapproval of the Natural Conditions Criteria has on Ecology's ability to achieve the applicable WQS through nutrient load reductions on point and nonpoint sources. Ecology should also explain if any of the comments received on the proposed marine DO performance-based approach guidance document might change or impact any of the approach to determining natural conditions used for the NRP.
31	Reference Text: "Nitrogen loading targets - This plan sets total nitrogen (TN) loading targets for Puget Sound's marine point sources and watersheds at a level that attains DO standards across the Sound... Total nitrogen was selected as the parameter of interest for targets as it is inclusive of all nitrogen species. Basin-wide TN targets provide flexibility in the implementation tools available to achieve reductions."	Salish Sea Modeling has used DIN/TIN, and the PSNGP regulates TIN. If TN will be used for future regulations for wastewater treatment facilities, an organic nitrogen allowance is needed to account for organic nitrogen that cannot be removed or does not have biological impacts. The allowance may vary depending on facility-specific treatment technologies and would require additional wastewater sampling.
31	Reference Text: "Nitrogen loading targets - While we have not assigned targets for carbon, this section describes the assumptions in organic carbon reductions associated with meeting TN targets. Organic carbon assumptions are based on previous evaluations of nutrient removal technologies at WWTPs (Tetra Tech, 2011)."	Additional analysis is needed to determine the importance of organic carbon both in relation to Puget Sound DO, and in the SSM, as well as appropriate organic carbon assumptions for different treatment technologies. We question if a single study, completed 14 years ago, meets the standards for rigor to be used for SSM modeling assumptions or as is later, implied, to create future permit limits.
31	Reference Text: "Nitrogen loading targets - While we have not assigned targets for carbon, this section describes the assumptions in organic carbon reductions associated with meeting TN targets. Organic carbon assumptions are based on previous evaluations of nutrient removal technologies at WWTPs (Tetra Tech, 2011)."	Please clarify if this TOC assumption is being applied to watersheds as well? If so, please clarify if this been studied in watersheds?

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31	Reference Text: "The nitrogen targets are derived from the loading scenario specified in Salish Sea Model scenario "Opt2_8" detailed in the Optimization Scenarios Phase 2 report." The Opt2_8 scenario assumes that treatment plants will be able to reasonably or feasibly meet the nitrogen effluent targets of the modeled scenario, in most cases, down to 3 mg/L TIN seasonally. Some of the treatment plants may find that meeting the effluent targets of the modeled scenario are not reasonable or feasible through an AKART analysis. If that is the case, a model scenario or scenarios could be conducted by Ecology to investigate the impact of the AKART treatment for one or more of these treatment plants. This could determine whether water quality is measurably impacted by the AKART treatment level(s).	Ecology should consider alternative modeling scenarios that measure the impact of higher nitrogen effluent targets for some treatment plants, given that the current proposed targets may not be achievable or are beyond what is considered AKART.
31	Reference Text: "Nitrogen loading targets - As with all the refined Phase 2 scenarios, nutrient load reductions were applied by reducing nitrogen and carbon concentrations relative to their 2014 concentrations. Flows were kept constant at 2014 levels." Because Ecology chose to use 2014 flows and loads in its SSM, the amount of load reduction required to meet the targets doesn't take into consideration the 10+ years of growth that have occurred since 2014 nor into the future. This could mean that the allowable/permitted effluent discharge concentration will continuously decrease to lower and lower levels that will be harder and harder (and more costly) to achieve as the flows increase but the load allocation remains the same.	Balancing nitrogen reductions while considering the past 11 years of growth, as well as future growth, is a key issue in the future work to translate Ecology's targets into WQBELs. Different assumptions and approaches could significantly impact treatment requirements, ratepayers, and the economies of communities around Puget Sound. This issue needs much more additional analysis and dialogue.

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31 & 32	Reference Text: "Nitrogen loading targets - …were set at average DIN concentrations of 8 mg/L in the cool season, 5 mg/L in the warm season, and 3 mg/L in the summer season. … …were set at assumed average DIN concentrations of 3 mg/L during the warm season (rather than just in the summer season)."	Ecology should explicitly state that these DIN concentrations are **effluent** concentrations. Additionally, we will note that these treatment assumptions are different than the treatment targets that were specified in the NRE, most significantly, assuming winter treatment of 8 mg/L DIN in the NRP where the PSNGP NRE had no winter treatment requirements. Ecology needs to clarify if utilities should alter their TIN treatment planning assumptions in the NRE to align with the NRP. The potential shift in treatment targets and upcoming WQBELs could easily result in NREs that do not answer the question of whether or not the necessary upgrades to meet the dissolved oxygen water quality requirements are financially reasonable or technically feasible. King County recommends that NREs be submitted based on the original PSNGP treatment planning targets currently listed in S4.E. and that Ecology issue any supplementary planning requirements after receiving and reviewing NRE results with the Nutrient Reduction Plan's proposed Technical Advisory Committee.
32	'Anthropogenic' TN and TOC imply that we can differentiate human inputs from 'natural' by the measured reduction of TN and TOC. Would it be more appropriate to just say TN and TOC reduction and omit the anthropogenic statement, or provide a definition of what 'all forms of anthropogenic' means for this NRP? It is understood that the intent of this NRP is to remedy human TN/TOC inputs, but many 'natural' sources of TN and TOC may be biased higher as an indirect result of historic riparian alteration (e.g., coniferous riparian conversion to deciduous riparian post-logging activities and due to past urbanization) that are not discussed in this NRP. Studies have shown an increase in nutrient	Studies have shown an increase in nutrient inputs to streams from riparian areas that have been altered from coniferous to deciduous by urbanization (Roberts et. al, 2008, Gao, et. al., 2022 as examples). Is the intent to consider this TN/TOC input as anthropogenic as well? Does SSM account for this?

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	inputs to streams from riparian areas that have been altered from coniferous to deciduous by urbanization (Roberts and Bilby, 2007[3], Gao, et. al., 2022[4] as examples). Is the intent to consider this TN/TOC input as anthropogenic as well? Does SSM account for this? These sources may (or may not) have an attenuating effect on the results of NPDES and non-point reduction efforts within each watershed and could skew the watershed reduction targets if they were not considered in the SSM.	
32	Reference Text: "Nitrogen loading targets - Domestic WWTPs not treating combined sewage and discharging greater than 2,000 lbs. TN/day[8]... [8] Definition of "Dominant Loaders" in the 2022 General Permit." The 2022 General Permit defines Dominant Loaders as WWTPs discharge more than 2,000 lbs/day of TIN, not TN.	Ecology should update the NRP to remove footnote 8 or change the sentence to "Domestic WWTPs not treating combined sewage and discharging greater than 2,000 lbs. TIN/day[8]..." if the 2,000 lbs. TIN/day was what was assumed for the model scenario.
32	Reference Text: "Nitrogen loading targets - Our modeling approach assumed that all facilities reducing DIN loads would also achieve an annual average carbonaceous biochemical oxygen (CBOD) concentration of 8 mg/L year-round (Tetra Tech, 2011), which is translated to a facility specific reduction in dissolved organic carbon (DOC) load in the model (McCarthy et al., 2018)."	The 8 mg/L CBOD assumption needs further analysis, especially if this were to be a treatment limit. The implication could range from significant to minor, depending on the facility and the averaging period for the CBOD permit limit, whether the limit is concentration- or load-based, and the selected technology for expansion.

[3] Roberts, L. Mindy., Bilby E. Robert., Booth, B. Derek., (2008). Hydraulic Dispersion and reach-averaged velocity as indicators of enhanced organic matter transport in small Puget Lowland streams across an urban gradient. PDF Attachment

[4] Gao, Jie., Huang, Yuyue., Zhi, Yue., Yao, Jingmei., Wang, Fang., Yang, Wei., Han, Le., Lin, Dummei., He, Qiang., Wei, Bing., Grieger, Khara., (2022). Assessing the impacts of urbanization on stream ecosystem functioning through investigating litter decomposition and nutrient uptake in a forest and a hyper-eutrophic urban stream. PDF Attachment.

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32	Reference Text: Table 4 How were these percent reductions determined/calculated by Ecology?	Ecology should add a description to the NRP that describes how the watershed percent reductions were set or calculated.
32	Our modeling for King County watersheds estimates that the largest proportion of stormwater TN loads is coming from residential land use, followed by commercial land use (see Table 2 below). As part of our modeling project, we looked at performance data for common BMPs for treating residential and commercial stormwater. Some of the best performers average about 50% TN reduction (like HPBSM bioretention and high-rate underground filter systems), but most others average less than 10% TN reduction, and some even export TN on average (like bioswales)[5] . This also doesn't account for water that may bypass these BMPs during very large storm events. Even if we treated 100% of the stormwater from these areas, we could not expect to achieve a 60% reduction.	Recommend considering feasibility and AKART as part of establishing the required watershed TN reductions.
32	Reference Text: Table 4 – *Defined as average daily anthropogenic TN load greater than 1,000 kg/day. Is this a TN load into or out of the watershed basins?	Ecology should explicitly state if the basin TN load of greater than 1,000 kg/day is an influent or effluent TN load.
33	Reference Text: "Marine point source targets - The results met the bubble allocation and resulted in the same level of noncompliance as the Opt2_8 scenario (See Salish Sea Model Optimization Phase 2 Report Appendix O)."	Please define what is meant by "level of noncompliance".
33	Reference Text: "Marine point source targets - In the Opt2_8 scenario, aggregating the bottom-two-layers (comprising approximately 33% of the water column	Ecology should provide some explicit criteria or examples that would allow an assessment of whether or not the appropriate aggregations were made.

[5] Wright, Olivia., Lenth, John. (2024). Technical Memorandum WQBE Phase 3 Water Quality Performance Parameter Data Compilation. PDF Attachment

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	depth) of these shallow waterbodies based on an assumption of similarity in habitat and biochemical conditions, results in zero noncompliance throughout the Sound."	
33	Reference Text: "Marine point source targets - The marine point source targets represent basin-wide annual loading targets for NPDES permitted domestic WWTPs and industrial facilities located in Washington and discharging to Puget Sound (Figure 6). We have divided the basin-wide target loads by state issued NPDES permits for domestic WWTPs (State WWTP), state issued NPDES permits for industrial facilities (State Industrial), and EPA issued NPDES permits for domestic WWTPs and industrial facilities (Federal) (Table 5), as the tools and programs responsible for implementing these targets in permits vary. However, the targets apply at the basin wide level to allow flexibility to adjust the distribution of loads between facilities and across permit types within each basin."	Ecology should more clearly explain what factors it is considering in allocating the available nutrient load among marine point sources. Ecology should explain any economic, technical, or environmental justice considerations that it may rely on in developing specific loading allocations for individual marine point sources. Ecology should also explain how its envisioned allocation of the nutrient load to individual WWTPs is equitable when considering the above factors.
36	Reference Text: Table 5 – Main Basin The reported Total Annual Target for the Main basin (6,300,000 lbs TN/year) is less than the sum of the three permitted sources (6,803,146 lbs TN/year). Based on Appendix E.1, the State WWTP (lbs. TN/year) for the Main basin should be 6,119,298 lbs./year.	Ecology should ensure the values reported in Table 5 and Appendix E are correct, especially since these could be the basis for WQBELs.
36 & 37	Reference Text: "Marine point source targets - The TN loads in Table 5 are the basis for calculating WQBELs in future reissuances NPDES permits for domestic WWTPs. … As these permits are up for renewal in the future, the targets in this plan will serve as the foundation for calculating TN WQBELs.	In this section, Ecology notes that the load targets will be used for calculating WQBELs. However, on page 34, the load targets "may use when calculating WQBELs." Please clarify the intent of the load targets.

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	...These loads serve as the basis for calculating TN WQBELs in future NPDES re-issuances. ...pg 41, The marine point source nitrogen targets (Table 5) will be translated into WQBELs in the future... ...pg 57 The next reissuance of the marine point source permits will be crucial, as Ecology and EPA will establish WQBELs consistent with the TN targets in this plan for WWTPs and industrial facilities discharging to Puget Sound that will achieve water quality standards."	
36	Reference Text: "Marine point source targets - As of 2025, nine state-permitted facilities were actively discharging to Puget Sound."	Ecology should correct this sentence to clarify that these nine facilities are **industrial** facilities.
37	Watershed Targets paragraph.	Please add some description of this stated "flexibility." Is it based on data? underserved or financially disparate communities? Or add a statement that this will be addressed in the upcoming individual watershed studies to clarify for the reader.
39	Reference Text: "Non-local and regional sources -These external sources include Canadian wastewater treatment plants and rivers, atmospheric deposition, the open ocean boundary, and changes in nutrient loading and dynamics resulting from climate change. While their nutrient contributions and simulated effects on DO are components of the Salish Sea model (See McCarthy et al., 2018), we have not allocated a portion of the 0.2 mg/L DO human use allowance to these sources, and they were not assigned nutrient targets." This statement implies that atmospheric deposition and climate change dynamics are part of the SSM, but based on the statement on page 19 that states, "Sources of nitrogen to the Salish Sea within the model include rivers that drain watersheds, marine point sources, benthic	Ecology should clarify what inputs/dynamics are a part of the SSM, how potential impacts from climate change such as greater coastal upwelling will be measured and how those measurements will be incorporated into the SSM. Additionally, Ecology should clarify if the nutrient reduction targets were set at levels to remove enough nitrogen to meet DO standards without considering targets for "external sources" and whether considerations are being made for potential changes to the external sources from climate change.

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	sediment fluxes, and oceanic nitrogen." Atmospheric deposition and climate change are not in the model. Plus, Ecology's SSM website says that future work will look at the effects of climate change. Also, if these nutrient contributions are not allocated N, does that mean the targets for the marine point sources and watersheds are making up the difference if Opt2_8 is meeting DO standards, or will targets be lowered (more stringent) if the other sources are allocated part of the total target load? One potential impact of climate change is more coastal upwelling leading to more nitrogen input to the Puget Sound from the open ocean boundary. Since nutrients from the ocean boundary account for close to 90% of nitrogen loading to the Puget Sound, even a small change in loading from the ocean may have a large impact on nitrogen in the Puget Sound. It is unclear whether or how Ecology intends to measure and account for this potential change in the largest nitrogen input source to the Puget Sound in the SSM model.	
39	Climate-related effects in Puget Sound (warming, higher salinity, less stratification,) have a negative impact on DO by decreasing the oxygen saturation potential (e.g., a parcel of water's ability to hold DO). Changes in these parameters have accounted for approximately 25% of DO decreases seen in 2024, which can be well above the 0.2 mg/L threshold. It is unclear if the SSM run is accounting for the effects of temperature and salinity on DO, but running for a single model year does not account for future changes in temperature (see King County comment on page 11). Failing to account for the effect of warming conditions	Include a DO percent saturation provision to account for changes in DO concentration resulting from temperature and salinity. For example, if DO decreased by 0.2 mg/L or more, identify if that decrease corresponds with a X% decrease in percent saturation. If the change in percent saturation is not below the threshold, then the decrease in DO concentration was likely due to increases in T and S and not from nutrient inputs.

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	on DO puts an unrealistic emphasis on nutrients as the sole influencer of DO.	
41	Reference Text: "Marine point sources - No new WWTP or industrial discharge into Puget Sound will be permitted unless it can be demonstrated targets in Table 5 will be met." In practice, not allowing new WWTPs to discharge to the Puget Sound may limit how a utility might plan for nutrient removal upgrades or address non-point nutrient loading. Some WWTPs may have constraints (e.g., limited footprint) that limit the ability to install nutrient removal upgrades while maintaining the capacity of the WWTP. In that case, one option a utility may plan for is to split some of the influent flow from the existing constrained WWTP to a new WWTP so the requisite nutrient removal upgrades can be made while maintaining the capacity of the existing constrained WWTP. If building a new WWTP to take some of the influent wastewater is not an option, it limits the options for a utility to upgrade infrastructure to comply with the PSNRP. Another scenario would be the construction of a centralized wastewater or industrial treatment plant to address non-point nitrogen sources failing septic systems or as animal waste.	Ecology should add flexibility as to not preclude new nutrient treatment facilities if those represent the best option for reducing nitrogen loading and to build flexibility to move allocation from the watershed target to the marine point sources, where appropriate.
41	Reference Text: "Marine point sources - Due to the potential large difference between the current nitrogen effluent levels discharged from marine point sources and the effluent levels required to meet the nitrogen targets in this plan, we acknowledge that permittees may need to make large investments in treatment plant infrastructure to add nutrient reduction technologies necessary to meet their WQBEL. Construction of such	King County agrees that it will take time for point sources discharging to the Puget Sound to make necessary upgrades to meet nitrogen loading targets described by the NRP, and based on our preliminary planning and project delivery experience, implementation is likely going to take 30-40 years. This plan proposes a 19-year implementation timeline to meet final WQBELs for all 58 point source dischargers covered by the PSNRP. Setting

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	infrastructure can take many years, and in some cases, decades to complete."	aside the enormous challenges of financing these upgrades, the size and number of projects needed to upgrade all regulated treatment plants exceeds this timeline, given the typical timeline for design and construction and potential limitations in engineering, design, and contractor availability. Further, King County, like other Puget Sound utilities, has extensive capital investments that need to happen before nutrient-related upgrades can occur to meet regulatory obligations and capacity needs and to replace aging infrastructure.
41	Reference Text: "Marine point sources - For those WWTPs covered under the 2022 General Permit, nutrient reduction evaluations and AKART analyses we will receive will include essential information Ecology can use in establishing any compliance schedules and interim loading limits in the next and future phases of the General Permit."	In general, King County supports the concept of phased implementation and using the NRE AKART analyses to inform the process. However, there is considerable complexity in translating the NRE AKART analyses into interim loading limits. AKART should be established on a facility-by-facility basis, considering the unique technological and economic circumstances of each facility. AKART and any interim limits should not be implemented at a facility until appropriate water quality-based limits have been determined for the facility. Facilities should not be in the position of implementing costly AKART controls that may prove to be insufficient or incompatible with future water quality-based limits.
42	Nutrient Credit Trading	King County supports water quality trading and offset approaches as tools that could accelerate nutrient reduction. We support the concept of bubbling loading across our regional plants and trading amongst other dischargers. For these tools to be viable, further technical analysis is needed to explore concepts that would support a robust trading market such as inter-basin transfers and nutrient reductions between non-point and point source

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		dischargers. This would include additional scientific and modeling assessments as well as legal and economic analysis.
44	Reference Text: "Marine point sources - In evaluating the appropriateness of reclaimed water as a nutrient reduction strategy, communities must carefully consider future growth and whether viable uses of the water are available, along with the degree of treatment needed to produce reclaimed water suitable for the use."	King County produces reclaimed water at two of our three regional Puget Sound wastewater plants. We agree that reclaimed water is complementary to nutrient management and can support multiple water management objectives. However, there are many factors that challenge its use a tool for nutrient regulatory compliance, such as market development, short irrigation season, funding for distribution infrastructure, and treatment regulatory uncertainties. We advocate for additional discussion within the region on the role of reclaimed water in nutrient reduction.
45	Reference Text: "Marine point sources - The six tribal facilities and one state-owned facility can rear young salmon in pens from four to six months, while National Ocean and Atmospheric Administration's (NOAA) facility can be operational year-round. The EPA general permit for tribal and federal net pen facilities require all facilities to monitor for DO and conduct benthic sediment surveys. These facilities operate at a small scale and not in a continuous, annual manner."	The statement saying "these facilities operate at a small scale and not in a continuous, annual manner" conflicts with the text stating that the NOAA facility can be operational year-round. Ecology should correct the inconsistency.
46	Has Ecology considered a trading program in watersheds as described for marine point WWTPs?	We believe trading may be useful for achieving larger total reductions and allow some flexibility for smaller jurisdictions to participate.
47	Reference Text: "Watersheds - For watersheds with NPDES permitted point sources, such as municipal WWTPs or industrial facilities, TMDLs may be needed to set wasteload allocations consistent with the TN targets, that will allow the TN targets to be met at the mouth of each watershed."	More information is needed on how Ecology plans to differentiate which jurisdictions are meeting (or are not meeting) reduction criteria when the point of compliance for each contributor appears to be the mouth of the watershed? Even with WLAs for each jurisdiction, many monitoring locations could be needed to demonstrate that jurisdictions are meeting WLA targets.

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	and page 48: "We recognize the challenge of developing nutrient clean-up plans for Puget Sound's watersheds given our existing resource constraints."	King County agrees that the development of water clean-up plans is an immense undertaking. We question whether the proposed implementation schedule is realistic for this work.
48-49	Reference Text: "Watersheds - Note, all future nutrient permit limits will be consistent with the TN targets in this plan and permitted point source work can begin prior to the finalization of watershed water clean-up plans."	Language elsewhere indicates targets could change based on new monitoring and updated watershed modeling. Please clarify if the targets may be updated based on new science and modeling.
49	Municipal Stormwater Permits	Is Ecology planning to expand the SAM status and Trends program to accommodate the statements made in this section? Currently, the SAM efforts focus on small Puget Lowland streams and collect samples once each summer to monitor changes over time within these streams. It would seem that a single annual sample in the summer for TN at SAM sites may not be robust enough data to quantify nutrient reduction trends. Please elaborate on how this data will benefit in a meaningful way or explain how Ecology plans to expand the SAM status and trends program, which is currently bound to its existing QAPP, which only specifies one data point per year per stream.
49	Reference Text: "Watershed - In the meantime, continued implementation of these permits and their required Stormwater Management Programs, will include planning, monitoring, best management practice (BMP) implementation, and mitigating discharges of anthropogenic sources of nutrient pollution."	There is no specific language or requirements related to nutrients in our current Municipal Stormwater NPDES permit. Please clarify if this proposed future changes or reword to reflect the current permit language.
53	Reference Text: Ecology's Puget Sound Nutrient Reduction Grants Program	King County appreciates grant funding to assist with the implementation of nutrient reduction. Additional dedicated funding for nutrient implementation would benefit Puget Sound communities by lowering the financial burden on our ratepayers and accelerating

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		nutrient reduction. Having dedicated funding has been critical to the success in other region's efforts to reduce nutrients, like Long Island Sound and Chesapeake Bay. There needs to be a significant and on-going increase in the amount of state grant funding to be truly impactful for utilities. While we appreciate the $10 million in grant funding, we note that the cost to implement nutrient upgrades will be tens of billions of dollars across Puget Sound communities.
55	Reference Text: Nonpoint and other activities: • United States Department of Agriculture's (USDA) Water and Waste Disposal Guaranteed Land Program • …	Ecology should move this list of links to the various funding programs to page 54 (i.e., combine this list with the list on page 54) because these links don't have to do with "EPA's WIFIA Funding in Action" and should not be part of the list of projects funded by WIFIA.
56	Reference Text: Nonpoint and other activities: • FSA's CLEAR 30 Program[36] The link and cited web address do not work for this resource.	Ecology should update the link and web address or remove this reference.
57	Figure 10 does not have a year identified for the middle text on the right side of the graphic.	As there is no scale on the year timeline, please update with target for the marine and watershed point source permit reissuance, watershed clean-up plans, and watershed prioritization strategies.
58	Reference Text: "Schedule and Milestones - Assuming all permits are renewed before their five-year expiration date, our goal is for all marine point source permits to be updated with WQBELs by 2031."	This seems unrealistic given the challenging work to determine how to translate the proposed load target to WQBELs and issue permitting by 2031.
58	Reference Text: "Schedule and Milestones - In a future reissuance of the General Permit, we intend to provide a framework for a nutrient credit trading program to incentivize early adoption of nutrient control technologies, while offering a temporary pathway to	King County supports water quality trading and offset approaches as tools that could accelerate nutrient reduction. We support the concept of bubbling loading across our regional plants and trading amongst other dischargers. For these tools to be viable, further technical

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	permit compliance for those facilities that are unable to meet their permit limits in the short-term. Any trading program established may not be permanent but rather a temporary measure to incentivize early adoption and allow time for dischargers to upgrade."	analysis is needed to explore concepts that would support a robust trading market such as inter-basin transfers and nutrient reductions between non-point and point source dischargers. This would include additional scientific and modeling assessments as well as legal and economic analysis. However, we would like to note that the WQBELs may be so low to limit the viability of trading.
58	Reference Text: "Schedule and Milestones - With each reissuance of the marine point source permits, we will be evaluating progress towards achieving TN targets identified in this plan and adjusting permit requirements as needed to achieve both compliance with the permitted WQBELs and targets in this plan by 2050."	King County agrees that it will take time for point sources discharging to the Puget Sound to make necessary upgrades to meet nitrogen loading targets described by the NRP. Unfortunately, we believe the proposed 19-year implementation timeline to meet final WQBELs for all 58 point source dischargers covered by the PSNRP is unlikely to be achievable. We recommend establishing an implementation horizon after the NREs are submitted and Ecology has a better picture of what is viable for utilities across Puget Sound.
58	Reference Text: "Schedule and Milestones - We intend to finish all necessary water clean-up plans in Puget Sound's watersheds by 2048 and have all necessary implementation measures in place to achieve our watershed targets by 2050."	It seems infeasible to complete multiple watershed clean-up plans by 2048 and implement them within 2 years.
58	Reference Text: "Schedule and Milestones - Tackling the more complex water clean-up plans sooner will allow more time for their development and implementation."	Ecology should describe how they plan to tackle the more complex clean-up plan sooner (i.e., how will they identify plans that are more complex, especially if all of the plans aren't scheduled to be complete until 2048).
58	Reference Text: "Schedule and Milestones - Our nonpoint program is already active in many of Puget Sound's watersheds and is supporting implementation of Clean Water Guidance BMPs that are shown to achieve water quality standards."	Ecology should describe how they are currently tracking implementation of nonpoint BMPs and how they are accounting for their reduction in nitrogen compared to the overall watershed targets.
60	Not compatible with commitment from page 11: "We will utilize existing systems to track where	Revise Exec Summary to reflect that only modeling (not field collected nutrient and DO data) will be used to

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	implementation is occurring, then evaluate field collected nutrient and DO data from existing monitoring programs to evaluate the response."	evaluate the effectiveness of nutrient reductions on DO in 2040 and 2053. Also, leave the door open to a newer, better, or suite of models to come along over the next 15-25 years.
60	Reference Text: Table 9 -Measurable milestones along with the relevant TN targets and due date for each milestone. King County anticipates that Ecology will continue to solicit funding for the Puget Sound Nutrient Reduction Grants Program, though this isn't mentioned in Table 9 expect for soliciting funds in 2025 for FY2027.	Ecology should add to Table 9 the additional years for which they will solicit funding requests for the Puget Sound Nutrient Reduction Grants Program.
60	Reference Text: Table 9- Measurable milestones along with the relevant TN targets and due date for each milestone. If watershed clean-up plans to address 60% of the target anthropogenic TN load reductions aren't beginning development until 2040, how does Ecology expect clean-up plans to address the remaining 40% of the target anthropogenic TN load reductions to be developed and implemented within 10 years? This also doesn't account for the need to implement clean-up plans to address the 60% within this 10-year period.	Ecology should revise the timeframes for the measurable milestones to be more realistic with what can actually be implemented, given limited resources.
61	Reference Text: "Schedule and Milestones -[41]Assumes we receive funding in FY25 legislative cycle." Based on page 54, the legislature approved funding for FY 2025-2027.	Ecology should remove this footnote as it is no longer applicable.
62	Reference Text: Table 10 -Ecology nonpoint staff conduct watershed evaluations in four Puget Sound watersheds and report progress in annual reports	Ecology should address how they plan to evaluate and meet N reduction targets for the other 44% of watersheds before 2050 or adjust the proposed timeline to be more realistic.

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	If conducting four watershed evaluations annually, starting in 2026 and ending in 2048, that will include a total of 92 watershed evaluations. However, based on Appendix F, there are ~163 watersheds with nutrient reduction targets. Therefore, Ecology will have only evaluated ~56% of watersheds by the end of this plan.	
63	Reference Text: "Effectiveness Monitoring - Monitoring alongside implementation ensures limited resources are used efficiently and enables timely adjustments to achieve meaningful improvements in water quality."	Given natural variability of DO and the impact of temperature on DO, field monitoring will be difficult to use to measure the impact of human actions on DO. See King County's comments on page 11 and 39 for some recommended actions relating to monitoring and management action assessment.
63	Please clarify in the Effectiveness Monitoring section who will be conducting this work. Ecology? Jurisdiction? A combination of the two?	Clarification requested
63	Reference Text: "Effectiveness Monitoring - Implementation tracking - including both point source implementation via permit reporting requirements and nonpoint source BMP implementation and restoration efforts."	Is this reporting requirement associated with the implementation timeline on page 57? The current Municipal Stormwater permit does not include this language, specifically relating to nutrient reduction. If it is intended for the next permit cycle, please specify the intent in the text.
66	Watershed Nitrogen Loads – freshwater monitoring programs	Please clarify if you are proposing to use surrogate flow data from other stations within the watershed to infer nitrogen loads based on the data collected at existing monitoring sites. This could be problematic if land use is different, as these stations are not all located near-mouth within the watersheds.
66	Watershed Nitrogen Load – freshwater monitoring	Please provide more explanation on how data from these stations correlate for the entire watershed and are representative of the entire area. Do these continuous stations only collect nitrate data? How is Ecology using nitrate as a surrogate for TN and TOC? Please provide explanation of method or provide a citation for the reader.

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66	Watershed Nitrogen Load – freshwater monitoring	Is Ecology comparing the continuous data to nearby stream data or the ambient sampling efforts? Text for both continuous and ambient is used interchangeably and is somewhat confusing to the reader. The same occurs below Table 11. Can you separate these two topics in the discussion for clarity?
66	Fig. 11 illustrates that King and Pierce Counties operate robust water quality monitoring programs, but other counties have not yet made similar investments.	Highlight King and Pierce County programs so they continue to be prioritized for funding and encourage other counties to make similar investments.
68	Reference Text: Table 11- Ecology continuous nitrogen monitoring stations and the proportion of the basin-wide TN watershed inflow targets the stations represent. … For direct evaluation of the watershed inflow loads in this plan, we recommend the following: Are the watershed TN targets influent targets, as it seems like these targets are watershed outflow targets?	Ecology should clarify whether the watershed TN targets refer to inflow or outflow. If outflow, correct the language used on page 68 and elsewhere in the NRP.
68	Regarding the discussion below Table 11.	Is the goal to extrapolate TN from this variable surrogate data? If so, please clarify. Can future monitoring efforts focus on (or include) TN or nitrate at the ambient stations, as is being monitored at the continuous stations, to harmonize the efforts and make the data relatable?
68	King County uses an advanced suite of models known as the Water Quality Benefits Evaluation (WQBE) toolkit that effectively and (more) accurately estimates nitrogen loads to streams.	Add WQBE as an example of a locally-produced and operated tool that could be used/duplicated by other agencies for this purpose, in addition to or instead of SPARROW.
70	Figure 11 - This statement implies that improvements in DO, resulting from nutrient reductions, will be detectable from measurements at the subset of stations in Figure 11. But this is not likely to be the case, even if the PSNRP is fully successful, because the effect size is small relative to natural and sampling variability.	Acknowledge that the combined impact of nutrient reductions on DO in Puget Sound will not be detectable from environmental monitoring data (direct observations). It will only be 'detectable' in the SSM runs.

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70	Reference Text: "Puget Sound dissolved oxygen - However, some of the smaller bays in the Main and South Sound basins demonstrating noncompliance with the dissolved oxygen standard within the Salish Sea Model are not currently being monitoring (noted by black circles in Figure 12). Collecting long-term ambient dissolved oxygen data in these areas would allow us to track whether dissolved oxygen is improving in these critical areas."	Ecology should outline its plan for collecting DO data in these areas. Additionally, Ecology should conduct an analysis of existing DO data to assess how many years of monitoring post completion of the nitrogen reduction implementation efforts (based on current monitoring programs) would be required to see a statistically significant change in DO levels at every location/depth.
71	Reference Text: "Adaptive Management - Natural systems are complex and dynamic. There is always a degree in uncertainty of predicting how an ecosystem will respond to changes. Therefore, adaptive management, or strategic "trial and error", is a crucial tool for ensuring success of any environmental restoration efforts. ... It can also require multiple iterations of adjustments to achieve desired outcomes." While the idea of "trial and error" is great in theory, the practice of "trial" will be a huge investment in resources. Therefore, the room for "error" should be minimal to none, and there should be strong science to support what is outlined in the NRP. If WTTPs are constantly applying adaptive management, the risk for stranded assets or needing to replace assets before they have reached their useful life is high.	Ecology should define and describe the amount of uncertainty associated with the SSM. Ecology should also mention in the Adaptive Management section the added cost that is associated with "multiple iterations of adjustments," which adds more strain to the already expensive approaches needed to meet the nitrogen loading targets.
71	Reference Text: "Adaptive Management - We will use adaptive management when water quality monitoring shows that TN targets are not being met or implementation activities are not achieving the anticipated result. If water quality standards are	Ecology should discuss how equity factors into adaptative management and actions.

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	achieved across all of Puget Sound but the targets are not fully met, the goal of this plan will be considered satisfied."	
71	Reference Text: "Adaptive Management - Step 3b. If the goals and objectives are not achieved, then BMPs and the implementation activities will be modified or new actions identified. The new or modified activities are then applied as in Step 1."	Ecology should also add "publicizing" to Step 3b, so that other entities can learn what isn't working and avoid implementing those actions.
72	Adaptive Management framework – step 3b	In step 3 of the adaptive management section, please include recalibration of the SSM when new data has been collected to check for model drift and to verify the targets created from the previous iteration compare with the actual field data collected.
72	It would be helpful to identify the specific comparisons that will be made to determine whether the plan is on target or off target, and include a timeline for those comparisons. A robust adaptive management plan would include a structured decision-making process and quantifiable, time-bound outcome-based targets for triggering adaptive management decisions.	Outline the highest-priority comparative analyses that would be performed post-2050 using "all readily available" data. Doing so will help ensure collaborators continue to invest in the environmental monitoring required to support those comparisons.
General Comment	This PSNRP does not account for growth or changes since 2014.	Ecology should describe in the PSNRP how it plans to accommodate for population growth and other changes since 2014, which will in turn lead to more nutrients flowing into WWTPs.
Appendix A – page 30	The draft outline for the Nutrient Reduction Plan stated that the following would be included in the NRP, but little detail, if any, is contained in the draft NRP: 5.1.1. Model assumptions used to develop marine and watershed source allocations 5.2. Methods used to determine when dissolved oxygen water quality criteria objectives are met	King County requests that Ecology add discussions for these topics to the NRP.

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	5.3. Baseline assumptions (Reference Condition) used for determining nutrient load capacity and allocations 5.4. Comparison with other coastal nutrient management approaches for modeling 6.5. Margin of safety and allocation for growth 8.1.3. The role of groundwater and local nitrate vulnerability 13. Environmental Justice Requirements and Considerations	
Appendix C.1 and C.2		It would be helpful if Ecology added another column to these tables to show which one of the eight basins the specific waterbody impairment is in.
Appendix E	Appendix E identifies marine point source model inputs under four reduction frameworks in lbs. of total nitrogen (TN) per month. While the reduction frameworks for 8/5/3, 8/3 and 3 are identified as representing effluent concentrations in mg DIN/L, the appendix does not identify the concentration of mg TN/L for each point source and what, if any, organic nitrogen allowances are made for each marine point source input. An additional series of tables with the effective concentrations of mg TN/L for each marine point source load as input into the model would make clear the organic nitrogen allowance. Additionally, given the importance of these load targets into the future, a step-wise description of what data was used for organic nitrogen allowances and how those allowances were calculated for all the facilities is necessary to understand the process used by the modelers. An additional organic nitrogen load allocation or concentration limit could result in the need for treatment above and beyond those required to meet the limits outlined in the NRE and result in treatment	Ecology should include an additional series of tables with effective concentrations in mg TN/L for each marine point source load in Appendix E that describe what, if any, organic nitrogen loads are assumed in the SSM. Ecology should include a description of all the data used to calculate the organic nitrogen loads for each marine point source used in the model and a stepwise description of the calculation methodology used to arrive at these load values. Ecology should indicate whether these loads are a place holder, or whether the intention is to use these load values or concentrations limits in the WLAs.

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	requirements that are unreasonable for a given treatment plant.	
Appendix F	Reference Text: "The following tables represent the Salish Sea Model watershed load inputs used in the selected scenario, Opt2_8. that collectively represent the watershed inflow targets in this plan. All loads are presented in lbs."	Ecology should clarify whether the watershed TN targets refer to inflow or outflow. If outflow, correct the language used in Appendix F. Delete the sentence that says "all loads are presented in lbs" as this isn't specific, and there is a sentence following that states that all loads are in lbs. of TN.
Appendix F	Reference Text: "Table 4 below describes the watershed specific nutrient reduction framework and their respective loads that represent the basis for the watershed targets in this plan."	Ecology should edit this text as there is no Table 4 in Appendix F.
Appendix G.2	Reference Text: "All monitoring stations plotted in Figure 13 of the Puget Sound Nutrient Reduction Plan."	Ecology should correct the figure reference in this sentence to Figure 12.
Appendix G.2	Reference Text: "University of Washington ORCA buoy network (UW-ORCA)[7] Northwest Indian College (NWIC)[8]"	Ecology should ensure that the correct links and web addresses are listed for these two sources since the same web address is listed for both sources.
Appendix H (page 1 and 9)	Reference Text: Pg. 1: "Ecology plans to convene the Committee in 2026 and will provide more information about its development outside of this document." Pg. 9: "Assuming comments received are supportive of continued discussion, Ecology plans to proceed with the formation of a Technical Advisory Committee by determining a topical framework and schedule for the Committee's work."	King County supports the proposed use of Technical Advisory Committee (TAC) and will be actively participating. As stated in our comment letter, we believe there is need for collaboration and regional discussion on a variety of issues to refine the NRP. Topic areas for the TAC, or other committees, include considering WQBELs in context of the Salish Sea Model (SSM), limits of technology, reasonableness of implementation schedules, financial burden on the region and individual communities, and expanded review of ecological outcomes to drive WQBELs.
Appendix H (page 5)	Reference Text: "Ecology is interested in feedback as to preferred options or alternative approaches to translating modeling results into WQBELs."	The most significant challenge with translating the proposed load target based on 2014 flows to effluent limits is how population growth factors into the effluent limits. These approaches and strategies require analysis

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		and discussions as many of the options and strategies considered in Appendix H drive concentrations to below Ecology's definition of Limit of Technology for TIN or present equity concerns for facilities that grew at different rates or implemented nutrient controls more quickly. This will require robust analysis and discussion among all entities.
Appendix H (page 4)	Reference Text: Option 1	One potential impact of assigning the load allocation in this manner is it does not account for differences in the loading from year-to-year or from growth in the system (since 2014 or into the future). King County estimates that without a factor for growth, the summer limits would be below Ecology's 3 mg/L limit of technology as early as 2030.
Appendix H (page 4)	Reference Text: Option 1	Option 1 generally appears to be the most fair relative to all parties unless Option 2 were to use current **influent** nitrogen loads (this would account for growth at a treatment plant without penalizing those treatment plants that made early nitrogen removal upgrades).
Appendix H (page 4)	Reference Text: Option 2– it is unclear how "current" is defined or whether reallocations would occur.	Ecology should clarify how "current" is defined, e.g., is it some point between 2014 and when load limits are set? Will reallocations occur?
Appendix H (page 4)	Reference Text Option 2	One potential impact of this option is that will advantage or disadvantage dischargers that grew faster or slower than others. It would also penalize facilities that have proactively implemented some nitrogen removal or increased reclaimed water (although basing allocations on **influent** flows or loads could alleviate that concern).
Appendix H (page 5)	Reference Text: Option 3	This option advantages and disadvantages dischargers based on how close they were to their rated capacities in 2014. Therefore, it could benefit facilities that are at a comparatively lower percent of rated flow capacity. It is unclear how WLA would be assigned on a seasonal basis.

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		The impacts are likely the greatest on small- and medium-size facilities. This approach is silent on future reallocation of loads based on expansion that could re-rate treatment facilities. The advantage or disadvantage to a particular discharger would be hard to predict in nature since it depends where that treatment plant is in their capacity expansion cycle.
Appendix H (page 5)	Reference Text: "Ecology would like input from interested parties on the development of WQBELs for CBOD5."	The 8 mg/L CBOD treatment limit could range from significant to minor, depending on the facility and the averaging period for the CBOD permit limit, with an average annual limit being easier to comply with than a monthly limit. It would also be more impactful if it was load based versus concentration based and more impactful depending upon the selected technology. There needs to be further analysis on the actual impact of CBOD on dissolved oxygen. Ecology has not independently shown the impact of CBOD in the SSM.
Appendix H (page 5)	Reference Text: "Looking forward, Ecology believes TN is the best parameter to use for Puget Sound Nutrient Reduction Plan-related permit limits and monitoring."	Given that the SSM measures in DIN/TIN, the draft NRP would need key revisions to explain the process and assumptions used to translate the model results to TN. If TN will be used for future regulations for wastewater treatment facilities, an organic nitrogen allowance is needed to account for organic nitrogen that cannot be removed or does not have biological impacts. The allowance may vary depending on facility-specific treatment technologies and would require additional wastewater sampling or using conservative values from the literature to ensure that limits are not set below the limit of technology.
Appendix H (page 6)	Reference Text: "Ecology believes the best approach is to use mass-based loading limits unless a permittee specifically requests concentration-based limits.	Since concentration was used to determine loading in SSM to minimize days of impairments, we advocate that limits should be concentration based. True concentration-based limits are typically technology-based and do not change

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	Ecology seeks feedback on the appropriate flow statistic to use as a limit if a permittee requests a concentration-based effluent limit in lieu of a loading."	with changing flows. A concentration-only limit provides more flexibility in achieving limits as it does not change with increasing flows or loads to a facility. However, Ecology's suggested methods for determining concentration-based limits appear not to be true concentration-based limits but load-based limits. These limits will likely decrease between 2014 and the year the limit is set as flows have grown due to population growth, resulting in lower effluent concentration requirements. The two approaches of using a mass-based loading limit and TN instead of TIN (if no organic nitrogen allowance is afforded) would have compounding impacts on treatment requirements for a discharger. This could potentially result in a treatment plant being required to produce an effluent with a negative TIN concentration, which is not feasible.
Appendix H (page 6)	Reference Text: "Ecology would like feedback on the preferred averaging period selected for final WQBELs."	A seasonal averaging period would be preferred only if it would allow for a higher or no-load limit during the winter period for a discharger such that a lower level of treatment and less required tank volume would be required for the winter period.
Appendix H (page 7)	Reference Text: Compliance Schedules	Compliance schedules should consider financial burden and availability of design and contractor resources.
Appendix H (page 7)	Reference Text: Phased implementation Limits	In general, we support the concept of phased implementation and using the NRE AKART analyses to inform the process. Phased implementation should be on a facility-by-facility basis to take into account specific site constraints, unique implementation timelines of upgrading existing treatment configurations to different nitrogen removal technologies, and relative impact to desired biological outcomes.

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		Phases should build on, not change, targets between phases. There are limited funds for the phased implementation timeline, which compounds affordability considerations. In addition, utilities have other financial commitments that must be met from a regulatory and capacity standpoint.
Appendix H page 8	Reference Text: Interim Limits	Ecology should clarify on how NREs would be used to inform interim limits and use of an interim technology-based treatment standard. How would an AKART approach be used to set interim limits with varying AKART options for each different discharger? Ecology should not implement AKART and any interim limits at a facility until appropriate water quality-based limits have been determined for the facility. Facilities should not be required to implement costly AKART controls that may prove to be insufficient or incompatible with future water quality-based limits.

Minor Formatting/Grammatical Errors		
9	Reference Text: Glossary, Acronyms, and Abbreviations - Target(s), TN Target(s), Nitrogen Target(s): The maximum amount of total nitrogen loading (lbs. TN/yr) to Puget Sound needed to meet dissolved oxygen water quality standards Puget Sound.	Missing the word "in" or "of" between "standards" and "Puget Sound."
10	Reference Text: Glossary, Acronyms, and Abbreviations - WWTP: Wastewater treatment plan	"Plan" should be corrected to "plant."
11	Reference Text: Executive Summary - Establishing total nitrogen effluent limits as WQBELs for wastewater	"Wastewater treatment plans" should be corrected to "wastewater treatment plants."

	treatment plans and industrial facilities discharging to Puget Sound by 2031	
41	Reference Text: "Marine Point Sources - No new WWTP or industrial discharge into Puget Sound will be permitted unless it can be demonstrated targets in Table 5 will be met. "	Please correct the grammatical error in this sentence to: "No new WWTP or industrial discharge into Puget Sound will be permitted unless it can be demonstrated that targets in Table 5 will be met."
43	Reference Text: "Marine Point Sources - determining baselines (nitrogen WQBEL and therefore threshold which a facility can sell credits)"	Please correct the grammar in this bullet to something like: "determining baselines (nitrogen WQBEL and therefore can sell credits).
45	Reference Text: "Marine Point Sources - In total, eight non-commercial s net pen facilities are currently operating."	Please correct the sentence to: In total, eight non-commercial net pen facilities are currently operating.
45	Reference Text: "Marine Point Sources - The nutrients from these non-commercial, small-scale and seasonal operations are de minimus and the permits will provide continued assurance."	Correct spelling of "de minimus" to "de minimis."
46	Reference Text: "Watersheds - The following section describes these three primary elements that will be the foundation for developing our prioritization strategies and achieving the watershed targets."	It isn't clear what "these three primary elements" are.
47	Reference Text: "Watersheds - Work to address nutrients may have already started in some of these watershed and Ecology encourages… "	Correct "watershed" to "watersheds."
50	Reference Text: "Watersheds - This statute also makes it unlawful for any person to contribute pollution to waters of the state and authorizes Ecology to issue enforcement orders to address sites that not only pollute state waters, as well as any site that has substantial potential to pollute state waters. "	Correct the grammar in this sentence to something like: This statute also makes it unlawful for any person to contribute pollution to waters of the state and authorizes Ecology to issue enforcement orders to address sites that pollute state waters, as well as any site that has substantial potential to pollute state waters.
52	Reference Text: "Watersheds - The recently released USGS SPARROW mapping tool may be useful tool for nonpoint prioritization efforts. "	Correct the grammar in this sentence to something like: The recently released USGS SPARROW mapping tool may be **a** useful tool for nonpoint prioritization efforts.
55	Reference Text: "Nonpoint and other activities - Multiple improvement projects at their three regional wastewater treatment plants"	It is unclear who "their" is. Please correct to: Multiple improvement projects at King County's three regional wastewater treatment plants.

61	Reference Text: "Schedule and Milestones - [42] Assume we have discharger interest and broader partner support in a water quality trading program."	Correct "assume" to "assumes."
65	Reference Text: "Implementation tracking - We should prioritize monitoring implementation of projects that are consistent with our Clean Water Guidance and that will have direct impacts on nitrogen loads and as a result, and downstream dissolved oxygen levels in Puget Sound."	Correct grammar to: We should prioritize monitoring implementation of projects that are consistent with our Clean Water Guidance and that will have direct impacts on nitrogen loads, and as a result, on downstream dissolved oxygen levels in Puget Sound.
Appendix A	Pages 39 and 40 are duplicative.	Remove page 40 of Appendix A.