



DEPARTMENT OF
ECOLOGY
State of Washington

Water Quality Program Policy 1-11, Chapter 1

*Response to Comments July 2020
Public Review of Bacteria Section
held April 1 - 30, 2020*

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**Water Quality Program
Policy 1-11, Chapter 1**

*Response to Comments July 2020
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Water Quality Program
Washington State Department of Ecology
Olympia, Washington

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Summary

The Department of Ecology held a public review of draft revisions to Water Quality Policy 1-11, Chapter 1: *Assessment of Water Quality for the Clean Water Act Sections 303(d) and 305(b) Integrated Report*, from April 1 – April 30, 2020. The revisions to Policy 1-11 are intended to update the bacteria assessment methodology for newly adopted water contract recreation criteria.

The following comments were received from eight commenters. The comments are organized by each commenter, in alphabetical order, followed by Ecology responses in *italics*.

Colville Reservation Confederated Tribes (Marchand)

1. The Environmental Trust Department (ETD) of the Confederated Tribes of the Colville Reservation is supportive of any actions Ecology undertakes which seek to identify and resolve impaired or degraded water quality throughout our traditional territories and supports the reserved rights of CTCR citizens to conduct ceremony, reside, hunt, fish, gather and without fear of contacting contaminated or polluted waters. ETD requests that Ecology continue to communicate updates and proposed changes to the Ecology Water Quality Assessment and appreciates the opportunity to comment. We will continue to work with Our State partners in good faith to protect the integrity of resources for our environment and communities.

Ecology response: We appreciate the Colville Tribe's support in protecting water quality. We will continue to work with tribes to communicate updates and receive early feedback on the Water Quality Assessment and related policies affecting the status of state waters that may affect tribal reserved rights.

IDEXX (Frymire)

1. Change references of "CFU" to "organisms" as stated within the following paragraphs: a. Page 34, paragraph 3, last sentence, currently written as: "When the detection limit is not available, a value of 2 CFU/100mL will be assigned" Suggest revising to: "When the detection limit is not available, a value of 2 organisms per 100mL will be assigned" b. Page 40, paragraph 1, last sentence, currently written as: "When the detection limit is not available, a value of 2 CFU/100mL will be assigned." Suggest revising to: "When the detection limit is not available, a value of 2 organisms per 100mL will be assigned."

Ecology response: We have modified “CFU” to “organisms” in the referenced paragraphs.

Interagency Team (Hagan)

1. (Pg. 34 - Paragraph 2): The term *Assessment Unit* (AU), while explained in Part 1 Section 1C, does not adequately describe how AU's differ from those developed for freshwater segments constructed under a bacterial TMDL for the protection of downstream shellfish harvesting. Further, it would be helpful to clarify how an AU is determined and delineated when waters “drain directly to” marine waters within a TMDL boundary. Context: Are freshwater bacterial TMDL segments and freshwater bacterial TMDL Assessment Units the same? The Clarks Creek Fecal Coliform TMDL is based on segments that were delineated around prominent outfalls and not tributary confluence-to-confluence points. It is unclear how far upstream is considered “drains directly to” marine waters within a TMDL boundary? How would this particular upstream type of freshwater bacterial AU be delineated? Would it start from the estuarine confluence and extend upstream to the first tributary or would Ecology calculate its length based upon the freshwater systems flow regime, its upstream bacterial loads and a statistically derived distance-based risk for creating a water quality impairment to marine shellfish harvesting areas? If it's the latter, how specifically would that determination be made? Recommendation: Please add further clarification to the term Assessment Unit in Part 1 Section 1C and include it in the definitions section, it appears that the current description fails to be comprehensive enough to explain how Assessment Units are delineated in all circumstances

Ecology response: For purposes of the Water Quality Assessment process, Ecology delineates waterbody segments by assessment units (AU). The AU is determined by the location of the water quality monitoring data that is collected and assessed. The AU provides a hydrologic location based on the 1:24,0000 scale National Hydrography Dataset (NHD). For fresh waters, the AU represents a confluence-to-confluence type of hydrologic system. For marine/estuary waters, the AUs are represented as gridded system of rectangular grids sized at 45 seconds latitude by 45 seconds longitude. Consequently, when monitoring data is located within an AU, it is assumed that the assessment results apply to the entire breadth of the AU. For Category 5 (303(d) list) determinations, the results can then be used as an initial basis for further study in order to determine the extent of the pollution over a broader geographic extent, such as a watershed. Thus, the hydrologic-based AU used for the Water Quality Assessment represents a narrower, hydrologic-based segment that is indicative of the water quality of that segment based on available water quality monitoring data.

The segments represented in a Total Maximum Daily Load (TMDL) Study are not necessarily the same as the AU represented in the Water Quality Assessment. Subsequent TMDLs or other water quality improvement studies done for Category 5 listings are much more comprehensive studies that identify actions needed to bring the water into compliance with the water quality standards. Segments described in TMDLs are broader

representations of where the pollution is occurring, and are typically based on much more than just the hydrologic location of the monitoring data. Both point and nonpoint pollution sources from human activities are identified within the TMDL in order to establish load and wasteload allocations that will be used to minimize or eliminate the amount of pollution going into the waterbody. While TMDLs can use or reference the hydrologic AUs as part of the TMDL study, TMDL segments are more comprehensive descriptions of the location and sources of pollution. Please refer to each individual TMDL or pollution control program for a full description of segments as they apply to that particular study.

2. (Pg. 34 – Paragraph 2): The term *critical period* is defined, however the term *critical condition* is not defined and often used in TMDLs in a manner that implies these terms are interchangeable. This creates confusion. Recommendation: Please clarify whether the determination of the critical period differ from the process for determining the critical condition. Please confirm the distinction and/or similarity between these terms and describe how the critical period relates to the assessment of freshwater bacterial impairments under a TMDL developed for the protection of downstream shellfish harvesting.

Ecology response: For purposes of the Water Quality Assessment, the term “critical period” is defined as a specific season or time of day during which designated uses are more susceptible to impairment. Policy 1-11 does not use the term “critical condition” and therefore sees no need to define it within the policy. When considered in the Assessment, a critical period may be further defined through a TMDL study or may be assumed based on data and knowledge of waterbody characteristics. For a TMDL study, a specific set of data collected over a period of time may be used to identify the critical condition attributed to a particular season that is evident from the extent of the data collected. This could be used as part of the Water Quality Assessment as long as it represented the critical period as defined in Policy 1-11.

3. (Pg. 34 - Paragraph 4): It is unclear what is meant by “sufficient information”, in the sentence, “Where sufficient information is available, Ecology may also define a specified critical period or season in which the criteria must be met for water contact recreation. This time period may be defined through a TMDL study or a seasonal analysis that brackets specific months or seasons in which bacteria levels are more prone to exceed criteria.” Recommendation: Please clarify what information is used to determine the critical period, whether a season analysis is included and whether one can be developed and used for the water quality assessment outside of an EPA-approved TMDL.

Ecology response: Sufficient information to define a specified critical period or season would be described in the project’s quality assurance project plan (QAPP). A TMDL study, or other credible scientific study considered for use by Ecology would include a QAPP to ensure that data collected and analyzed are done so following credible data requirements. The extent of information required to determine the critical period is therefore site specific, and may or may not have a seasonal component, depending on the specific site

details.

4. (Pg. 35 - Paragraph 3): It is unclear when monitoring may be required for both fecal coliform and E. coli bacterial indicators to determine attainment of both recreation and shellfish harvesting uses. Further, it is not clear how regional TMDL leads will consistently apply their reevaluation of AUs that have a fecal coliform TMDL. Recommendation: Clarify when monitoring for both fecal coliform and E.coli is necessary to attain both recreation and shellfish harvest uses and describe how regional TMDL leads will consistently apply their reevaluation of AUs that have a fecal coliform TMDL.

Ecology response: We assume from the first sentence in your comment that you are referring to attainment of uses associated with a TMDL (Category 4A) waterbody or other pollution control program effort (Category 4B). Category 4A & 4B fresh waters that were approved to meet both freshwater recreational uses and downstream shellfish harvesting uses will continue to use fecal coliform to determine compliance with the TMDL. For Category 4As & 4Bs approved to meet only recreational uses in freshwaters, TMDL leads will consult with EPA to discuss the appropriate indicator needed to demonstrate that uses are being met. This will be done on a TMDL-by-TMDL basis.

Waterbodies that are in Category 4A & 4B, as approved by EPA, must demonstrate progress of the waterbody to meet the load allocations in the TMDL. The reason that fecal coliform can continue to be used to show improvement of recreational use-based 4A & 4B listed waters is because EPA approved the TMDL with the fecal coliform load allocations. This is a separate action than the water quality standards. However, if a stakeholder, municipality, tribe, or any other entity would like to demonstrate improvement or show that the waterbody is now meeting the recreational uses using E. coli data, they can submit this information to Ecology's EIM system. Because E. coli will be the only indicator available to determine attainment of the designated uses, these data may be used to support attainment of designated uses and therefore, success of the TMDL. In this case, an individual or organization can express to Ecology's TMDL lead that they want to rely on current E. coli data to propose a change of the 4A or 4B to a Category 1 in the next Water Quality Assessment. The TMDL lead will consult with EPA and water quality assessment staff to ensure that all data from the waterbody are demonstrating attainment and that EPA can approve a change from Category 4A or 4B. Ecology has discussed these scenarios with EPA who is supportive of this concept.

This process will be the same for those waterbody segments with fecal coliform load allocations set to meet downstream uses. However, in this case, additional datasets demonstrating that the downstream marine waters are persistently meeting the fecal coliform criteria for shellfish will be necessary to move from a Category 4A or 4B to Category 1. For more questions about the best process to take in these scenarios, please contact the Ecology regional TMDL staff who supports the TMDL you are interested in to determine the effectiveness of the TMDL cleanup implementation

Consistency amongst our regions is important. We strive to ensure TMDL leads are

trained and apply our policies consistently, while recognizing that there will be watershed and TMDL specific issues that will require TMDL leads to use their best professional judgment to resolve. To promote consistency we have quarterly coordination meetings for TMDL leads. These meetings provide a forum to exchange information and share experience between our regions, including continuing discussions about how E. coli data are applied to current fecal coliform TMDL waters.

5. (Pg. 35 - Paragraph 2): It is not clear how Ecology will continue to assess fecal coliform data after 2020 in freshwater where a fecal coliform TMDL was not specifically developed for the protection of downstream shellfish harvest. Recommendation: Clarify what methods will be used to assess fecal coliform data after 2020 where a fecal coliform TMDL was not specifically developed for protection of downstream shellfish harvest use.

Ecology response: After this upcoming Water Quality Assessment, fecal coliform will no longer be used to assess water contact recreation uses, unless fecal coliform data are necessary to determine compliance with load allocations under a Total Maximum Daily Load (modification of an existing category 4A). We have added clarifying language to Section 2A.2 header "Analysis of Fecal Coliform Data".

6. (Pg. 35 - Paragraph 3): The policy does not describe how, when consulted, regional TMDL leads will conduct a re-evaluation of AUs that have a fecal coliform TMDL to ensure consistency in practices statewide. Recommendation: Clarify how regional TMDL leads are expected to re-evaluate fecal coliform TMDLs to ensure it's conducted in a consistent manner statewide.

Ecology response: Consistency amongst our regions is important. We strive to ensure TMDL leads are trained and apply our policies consistently while recognizing that there will be watershed and TMDL specific issues that will require TMDL leads to use their best professional judgment to resolve. To promote consistency, we have quarterly coordination meetings for TMDL leads. These meetings provide a forum to exchange information and share experience between our regions.

7. (Pg. 37 - Paragraph 1): Given the following sentence, "In some cases, Ecology will retain an AU in Category 4A when the criteria are attained if further work is needed to achieve associated water quality goals. For example, an AU may be meeting criteria, but may not yet be meeting TMDL load allocations necessary to support downstream uses." Context: If load allocations (Water Quality Based Effluent Limitations) are not met and water quality standards are achieved, it may suggest that the level of impairment was based on less than credible data, load allocations were inaccurately derived, the reserve capacity was calculated inappropriately, or the measure of safety were set too conservatively. The promise of the TMDL process and the development of sound load allocations is that there is supposed to be a reliable linkage between satisfying the requirements of the LA and the commensurate attainment of the applicable water quality standards. The TMDL concept depends on the scientifically-derived relationship between the numerically expressed load allocations and

their promise as an arithmetically calculated pollution diet or quantifiable pathway back to meeting water quality standards in the receiving water. Recommendation: Please clarify further how Ecology differentiates the attainment of a bacterial LA versus the attainment of the applicable water quality standard.

Ecology response: The attainment of a bacteria load allocation versus the attainment of the applicable water quality standard is further described in Policy 1-11 under section: "Category 4A: Has a TMDL approved by EPA", sub-section "Assessment of Data within a TMDL Boundary." The details are summarized below.

A TMDL study is an in-depth analysis that addresses which waters are not meeting standards, which waters are contributing to downstream impairments, and what needs to be done for all waters within the TMDL boundary to bring them back to persistently attaining designated uses, natural conditions, or other objectives. The completion of a TMDL provides additional information on contributions of pollutants from AUs within the watershed and information on what is needed to bring a waterbody or watershed back into compliance with the standards.

If Ecology assesses new data for an AU within an approved TMDL boundary and the data indicate that the waterbody qualifies for Category 1 (meets tested criteria) in accordance with the specific parameter determinations described in this policy, Assessment staff will consult with the appropriate regional TMDL Ecology staff to share initial data assessment results. TMDL Ecology staff will determine if there are special circumstances in the TMDL study that need to be considered in the assessment of the new data or that would require the AU to remain in Category 4A in order to ensure that the TMDL is being adequately implemented. Ecology TMDL staff may decide to keep the AU in Category 4A when it is determined necessary to appropriately protect water quality and the support of designated uses (for example, to protect marine shellfish beds downstream of a stream reach in Category 4A). Other examples include:

- Load allocations within the monitored AU result in more stringent expectations than the numeric criteria and require the AU to remain in Category 4A to continue implementation of the load allocation.*
- The TMDL identifies a critical period that was not addressed as part of the original data assessment.*

8. Please refer to comment 2 regarding the general request for an enhanced explanation of the development and use of the critical period, especially when developed outside of a TMDL analysis. This request is made in light of the sentence, "Ecology will group data for each AU by individual water year (October 1 through September 30 of the following calendar year). Within each water year, data will be compared to the criteria in three consecutive-month periods (i.e., Jan./Feb/March, Feb/March/April, etc.), as well as separately for any applicable critical period."

Ecology response: For any AU with associated bacteria data, the geometric mean component and ten-percent exceedance components of the recreational use criteria will

be evaluated on the three consecutive-month period basis. Additionally, for any AU with a defined critical period, the geometric mean component and ten-percent exceedance components of the criteria will also be evaluated within the critical period if necessary to confirm compliance with a critical period less than 90 days. For purposes of the Water Quality Assessment, the term “critical period” is defined as a specific season or time of day during which designated uses are more susceptible to impairment. The critical period may be defined in a TMDL, pollution identification control program study, or other study which demonstrates a regular pattern in which designated uses are regularly not being met.

9. (Pg. 40 - Paragraph 2): It is not clear that the geometric mean analysis in three consecutive-month periods (i.e., Jan./Feb/March, Feb/March/April, etc.) is the same as that identified in WAC 173-201A for ambient data where when averaging bacteria data for comparison to the geometric criteria, it is preferable to average by season and this averaging period shall be “90 days or less” Additionally, the 2nd paragraph on page 40 uses the terms “three-consecutive-month periods” and three-month periods interchangeably – which may cause confusion. Recommendation: It is understood that the use of the “three-consecutive-month-period” for the geometric mean analysis is an interpretation of the “90 day or less” period used in WAC 173- 201A. Please describe this in the policy and perhaps provide an example so users are not confused by the use of different language. Also, ensure the term “three-consecutive-month period” is used consistently throughout the policy when referring to analysis of bacteria data.

Ecology response: We have modified the Assessment Information and Data Requirements section to reflect that the “three-consecutive-month-period” is an interpretation of the ninety day averaging period required in the standards. We have also modified Section 2A.2 of the policy to use the term “three-consecutive-month-period” consistently.

10. (Pg. 40 - Paragraph 4): It’s unclear why Ecology references compliance with load allocations under a TMDL when load allocations are not water quality standards subject to rulemaking. Recommendation: Remove all reference to determining compliance with load allocations.

Ecology response: The water quality condition of TMDL waters must meet both the numeric criteria and the assigned load allocation that has been approved by EPA. Achieving the pollutant reductions necessary to meet the load allocation in a TMDL is necessary to achieve water quality standards. In most cases the numeric criteria are equal to or more stringent than the approved load allocation. However in some circumstances load allocations are set to more stringent numeric targets in order to achieve downstream water quality standards and the full protection of downstream uses. This is required by the Surface Water Quality Standards WAC 173-201A-260 (3)(b) “Upstream actions must be conducted in manners that meet downstream water body criteria.”

11. What are Natural Background sources of bacterial pollution and how will Ecology account for surface runoff from undisturbed areas, natural rates of overland surface runoff, and groundwater influences when making this determination?

Ecology response: See Policy 1-11, section 1G. Other Assessment Considerations, sub-section "Natural Conditions" for details on how natural condition determinations are made. To summarize, a natural condition determination requires data and information to substantiate that human sources do not cause or contribute to the non-attainment of water quality standards. This involves examination of all available data from the site in question (including historic data when available), comparison to an appropriate reference site where applicable, and professional judgment based on experience in the field of freshwater and marine science. It also requires identification of a likely natural source or processes sufficient to produce the condition, and information to support that there are no human impacts or none in excess of the allowable limits. In general, Ecology assumes that water quality conditions in wilderness areas represent natural conditions due to minimal impacts from anthropogenic pollutant sources. If there is insufficient information to determine the level of human influence, then Ecology will assume that human influences have contributed to criteria exceedances and that the contribution is measurable over natural conditions.

12. How would the Natural Background sources for bacterial pollution differ from calculating the Natural Load for bacterial pollution under a TMDL analysis?

Ecology response: Natural sources are calculated and accounted for in the TMDL analysis when developing load allocations. In the TMDL equation, the load allocation is the sum of nonpoint sources and background. See Policy 1-11, section 1G. Other Assessment Considerations, sub-section "Natural Conditions" for details on how natural condition determinations are made for the Water Quality Assessment.

Island County Department of Natural Resources (Colston)

1. Half of Whidbey Island is in extraordinary Contact which makes a large part of the island will have a new standard applied to it including a change in measurement using E. coli. Will WAECy and EPA be willing to analyze Pollution Control Plans based on only the new standards of E. coli starting after Dec. 2020?

Ecology response: It is correct that the freshwaters that flow to the west side of Whidbey Island were formerly designated as extraordinary primary contact. With the recreational use revisions to the water quality standards, all waters on the Island are now primary contact recreation. Therefore, until January 1, 2021, the geometric mean criteria for bacteria are 100 col/100mL for fecal coliform and E. coli. If there are no Total Maximum Daily Loads (TMDLs) approved for bacteria in the watershed based on fecal coliform, then starting in 2021, E. coli will be used to assess compliance with the water quality standards. However, pollution identification and correction programs may still choose to use fecal coliform to identify pollution 'hotspots'. These sampling activities help identify where pollution is coming into a stream, but will not be used to determine instream waterbody compliance with recreational use standards. Neither the water quality standards revision nor the Water Quality Assessment require Pollution Control Programs to use E. coli, but if

the organization collecting the data want the information to be used for 303(d) listing purposes or to demonstrate that a water has improved and should now be removed from the 303(d) list, then instream E. coli data will need to be submitted to Ecology's EIM system.

Also, we want to note that if one of the objectives of collecting freshwater bacteria data is to protect downstream shellfish harvesting uses around the shore of the island, then fecal coliform data may be the better indicator for protecting the downstream uses. See the response to the NW Indian Fisheries Commission question number two below.

2. The running 3 month analysis is problematic in our demographic. Many of our streams on the Island go through dry cycles in the summer months with flushes registering higher hits after dry periods. We do not have the same large river and annual stream systems as many of the surrounding counties have.

Ecology response: The running three-consecutive-month assessment period is a reflection of the new recreational use water quality standards, which state the averaging period for bacteria shall be no longer than ninety days ([WAC173-201 section 200\(2\)\(b\)\(i\)\(B\)](#)). These criteria are based on risk to swimmers and are independent of river flow conditions.

Jackman, Kevin

1. Suggestions for minor grammatical edits that could improve the document's final touches.
 - PDF page 24/Document page 11, Data Usable Section, first sentence: "it is does"
 - Document page 14, Quality Assurance "Level's", no apostrophe
 - Document page 17, 2nd paragraph, middle sentence, "The exception..." This sentence is confusing and needs rewriting.
 - Document page 23, Category 4B, 1st sentence, "Ecology will be place"
 - Document page 26, last paragraph, "However, pollution..." Does "pollution" need to be changed to "impairment" in this instance?
 - Document page 27, Category 5, first sentence, "Ecology will placed"
 - Document page 28, 3rd paragraph, 1st sentence, "human activities do not cause by"

Ecology response: We appreciate the scrutiny of the document. Edits have been made based on your suggested corrections.

Northwest Indian Fisheries Commission (Parker)

1. For this policy revision, Ecology produced a helpful document with answers to frequently asked questions. Dept. of Ecology, FAQs - Bacteria Methodology Update in the Water Quality Program Policy (WQP Policy 1-11) (April 2020). This document helps explain the overall consequences of the department's proposed policy revision, including:

- “[T]hese changes will not impact current or future shellfish harvesting use impairment determinations.”
- “Since fecal coliform remains the bacteria indicator for determining shellfish use impairment in marine waters, any new fecal coliform data will be assessed in accordance with the shellfish harvesting use.”
- “Category 4A & 4B fresh waters that were approved by EPA to meet both freshwater recreational uses and downstream shellfish harvesting uses may continue to use fecal coliform to determine compliance with the TMDL.”

Because these concise statements are missing from the proposed policy revision itself, these same three statements should be added to the final policy document, in addition to an explanation regarding how the revised policy achieves these important outcomes.

Ecology response: For the first bullet, the overall intent of the policy changes is not to impact any current or future use impairment determinations, including shellfish harvesting. Therefore we do not feel this statement is necessary to reiterate in the document. We appreciate the clarification suggested in the second bullet and have modified the “Analysis of Fecal Coliform Data” section to incorporate the bullet-point. We believe the third bullet request is adequately addressed in the “Analysis of Fecal Coliform Data” section where it states we will use fecal coliform if it is needed for a TMDL.

2. Consistent with these intended policy outcomes, tribes expect no loss of shellfish harvest opportunities as a result of this policy revision. To help avert future closures of shellfish beds, Ecology should continue its fecal coliform monitoring and assessment of freshwaters upstream of marine waters with a designated use for shellfish. Ecology should not wait for Washington Department of Health (WDOH) shellfish bed closures, impaired waters listings under Clean Water Act Sec. 303(d), or Total Maximum Daily Load (TMDL) or TMDL alternative approval before commencing fecal coliform assessment. Ecology’s assessment program should be proactive and prevent impaired waters classifications and shellfish bed closures by continuing its assessment and remediation for fecal coliform in freshwaters upstream of marine waters designated for shellfish use.

Ecology response: We appreciate the tribe’s concerns about fresh waters that empty into marine waters where shellfish uses occur, and the need to proactively protect shellfish uses from bacterial pollutants. We reiterate that the Policy 1-11 bacteria updates would not limit the ability for an entity to conduct fecal coliform monitoring in freshwaters flowing to marine waters protected for shellfish harvesting. Fecal coliform standards to protect for shellfish harvesting are still in place in Washington’s standards, and upstream sources of fecal coliform that contribute to potential impairment of the downstream shellfish use is considered a violation of the standards. We understand that many people and organizations are accustomed to the fecal coliform based standards. However, fecal coliform is no longer recognized as a good indicator of the likelihood of human illness associated with freshwater recreation. E. coli is a more reliable human health indicator

and can be used in conjunction with other bacteria data and programs to protect human health and shellfish harvest. We do believe that fecal coliform and E. coli indicators can both support proactive approaches to protect shellfish resources. For example, the state Department of Health will continue their routine monitoring program to assess shellfish growing areas and identify fecal coliform trends. Shellfish growing area data and freshwater E. coli data can be used in combination to identify areas with declining water quality and evaluate potential sources.

There are many programs in place to protect and restore shellfish growing areas such as Shellfish Protection Districts and local pollution identification and correction (PIC) programs. These programs use a variety of approaches to identify and eliminate bacteria pollution sources such as water quality monitoring, field evaluations of agricultural areas, and on-site septic system inspections. We support these approaches and believe E. coli data can be used to proactively identify areas with declining water quality (bacteria) and support efforts to identify and correct pollution source to protect and restore shellfish growing areas.

3. Another appropriate tool is a water quality standard to protect Washington's shellfish uses. Ecology, consistent with its policies, should not reduce its fecal coliform monitoring or assessment activities in freshwater if there is a possibility that "these changes [might] impact current or future shellfish harvesting use impairment determinations."

Ecology response: Comment noted. Monitoring that could impact shellfish harvesting will continue to use fecal coliform as the best indicator of whether the shellfish harvesting use is being protected.

4. Moreover, tribes expect that Ecology will be aggressive in implementing policies and actions to advance a net gain in shellfish habitat and harvest through water quality improvements pursuant to its authorities, thereby helping to restore treaty rights that have been diminished over recent decades because of water pollution and habitat loss. Thus, Ecology should maintain any existing fecal coliform monitoring and assessments in freshwaters upstream of marine waters designated for shellfish use.

Ecology response: Comment noted. The adoption of the new recreational contact use criteria, and subsequent changes to Policy 1-11 for assessment of the recreational contact use are not intended to affect monitoring associated with protection of the shellfish harvesting use criteria. Washington water quality standards contain a provision that allows for restrictions on bacterial levels in freshwaters that influence shellfish beds. If it is determined that upstream freshwaters are contributing to the decertification of downstream shellfish beds, more stringent criteria may be applied.

5. In addition, Ecology should undertake these fecal coliform assessments for freshwater and marine water, both, biennially consistent with 33 U.S.C. § 1315 in order to protect waters designated for shellfish use.

Ecology response: Ecology complies with the federal regulation at 33 U.S.C. § 1315 through the Water Quality Assessment process that results in submitting to EPA an Integrated Report to meet sections 303(d) and 305(b) of the Clean Water Act. To conduct the Assessment, we gather all readily available data and studies that provide information to assess waterbodies in accordance with Policy 1-11 guidance. We do not have the resources to independently conduct assessments on all waters of the state. However, through cooperative work with tribes and other governments and interested stakeholder groups, we can utilize information collected through local protection programs to make listing decisions for waters with shellfish harvest use to be part of the Integrated Report that is submitted to EPA.

6. In summary, Ecology should continue to utilize all existing monitoring and assessment tools for fecal coliform in both marine waters, and upstream freshwater with a potential to deliver fecal loads to waters designated for shellfish use.

Ecology response: Comment noted. We will continue to utilize all existing data and assessment tools that are made available to us from the call-for-data that is conducted with each Assessment, and through work with our partners who have programs in place for protection of water quality to protect shellfish harvesting use.

7. To help implement Ecology's proposed policy revisions, the department should expand its FAQs document into a "how-to guide" for implementing these policy revisions. Doing so can help support the all available tools approach by helping to align fecal coliform monitoring and methods among PIC programs, tribes, local jurisdictions, EPA, NPS programs, TMDL programs, WDOH and Ecology. Among state and federal agencies, consistent approaches to creating and protecting riparian buffers can help protect marine and freshwater instream resources. NWIFC is available to support tribes and Ecology with implementation of policies that protect and expand shellfish resources, designated use areas, and harvest opportunities in furtherance of the tribes' treaty rights.

Ecology response: Ecology provided a rule implementation plan which is required for rulemaking that provides much of the information necessary to implement the new recreational use criteria rule. We appreciate the suggestion to develop a "how to guide" and will work to have a publically available FAQ in the future to implement fecal coliform criteria for the protection of shellfish harvesting uses. We also appreciate the support offered by NWIFC to carry out policies to protect and expand shellfish resources, designated use areas, and harvest opportunities.

Pierce County Surface Water Management (Hagan)

1. Comment (Pg. 34 – Paragraph 1: The language states "Sampling that solely targets known periods of elevated bacteria levels is not representative of the general condition of an AU, as it may result in an artificially inflated proportion of samples that exceed the criteria.

Therefore, Ecology will remove monitoring data from the evaluation when the intention of the monitoring is to target high bacteria levels” but it is not clear how Ecology will make this determination. Context: Careful selection of representative data is important if two 90th percentile exceedances can result in listing a stream reach. It’s possible, even likely, that targeted samples could be included in a bacterial monitoring program as a source identification component, which increases the risk of erroneous listing decisions based on skewed data. Recommendation: Please clarify how Ecology will determine whether the intention of monitoring data collection is to target high bacteria samples. It is common for routine monitoring and targeted investigative sampling to be done under the same program (i.e. PIC), and it is unclear how the Assessment will differentiate between these purposes when looking at the data.

Ecology response: Ecology recognizes that it is important to not include data that are targeted for the time in which the waterbody demonstrates the worst bacteria conditions. The inclusion of this data acts to skew the sample values higher. This biases the geometric mean and the number of exceedances of the 10% criteria. There are several way Ecology evaluates the suitability of bacteria datasets to ensure that temporally biased data are not included. First, we evaluate the purpose/descriptions/QAPPs of studies to determine whether the sampling design is intended to only capture well-known elevated bacteria levels. Studies with a purpose to identify point or non-point pollution problems would generally be included in the Water Quality Assessment. Studies with a design and purpose to collect bacteria data only during previously documented time-periods when bacteria levels are known to be significantly elevated would not be used in the assessment. We can also compare the temporal distribution of bacteria datasets to the sampling design in the project QAPP and will consult with parties when large discrepancies are found. Ecology also utilizes result qualifiers and result comment fields of bacteria data submissions to determine the conditions the data were collected under. Regional TMDL leads will also take a roll in reviewing Water Quality Assessment results and can provide insight into whether datasets used in the assessment directly conflict with any previously documented bacteria trends in the waterbody under review.

The comment states that routine monitoring and targeted investigative sampling may also skew the WQ Assessment results. Ecology does not remove data that are part of a regular monitoring activity. If the location is a hotspot for increased bacteria levels the waterbody is not in compliance and should be listed on the 303(d) list. As long as the data collection is not timed to capture high bacteria levels, data collected in the stream to determine the condition of the stream at that time is representative of compliance with the standards regardless of it being a ‘hotspot’ or pollution identification area. Temporal bias must be avoided when applying the criteria, but because all waterbodies must meet criteria, spatial bias to find areas of noncompliance may be used in the water quality assessment.

2. (Pg. 34 - Paragraph 2): The term *Assessment Unit* (AU), while explained in Part 1 Section 1C, does not adequately describe how AU’s differ from those developed for freshwater segments constructed under a bacterial TMDL for the protection of downstream shellfish harvesting. Further, it would be helpful to clarify how an AU is determined and delineated when waters

“drain directly to” marine waters within a TMDL boundary. Context: Are freshwater bacterial TMDL segments and freshwater bacterial TMDL Assessment Units the same? The Clarks Creek Fecal Coliform TMDL is based on segments that were delineated around prominent outfalls and not tributary confluence-to-confluence points. It is unclear how far upstream is considered “drains directly to” marine waters within a TMDL boundary? How would this particular upstream type of freshwater bacterial AU be delineated? Would it start from the estuarine confluence and extend upstream to the first tributary or would Ecology calculate its length based upon the freshwater systems flow regime, its upstream bacterial loads and a statistically derived distance-based risk for creating a water quality impairment to marine shellfish harvesting areas? If it’s the latter, how specifically would that determination be made? Recommendation: Please add further clarification to the term Assessment Unit in Part 1 Section 1C and include it in the definitions section, it appears that the current description fails to be comprehensive enough to explain how Assessment Units are delineated in all circumstances

Ecology response: See response to the Interagency Team, comment #1.

3. (Pg. 34 – Paragraph 2): The term *critical period* is defined, however the term *critical condition* is not defined and often used in TMDLs in a manner that implies these terms are interchangeable. This creates confusion. Recommendation: Please clarify whether the determination of the critical period differ from the process for determining the critical condition. Please confirm the distinction and/or similarity between these terms and describe how the critical period relates to the assessment of freshwater bacterial impairments under a TMDL developed for the protection of downstream shellfish harvesting.

Ecology response: See response to the Interagency Team, comment #2.

4. (Pg. 34 - Paragraph 4): It is unclear what is meant by “sufficient information”, in the sentence, “Where sufficient information is available, Ecology may also define a specified critical period or season in which the criteria must be met for water contact recreation. This time period may be defined through a TMDL study or a seasonal analysis that brackets specific months or seasons in which bacteria levels are more prone to exceed criteria.” Recommendation: Please clarify what information is used to determine the critical period, whether a season analysis is included and whether one can be developed and used for the water quality assessment outside of an EPA-approved TMDL.

Ecology response: See response to the Interagency Team, comment #3.

5. (Pg. 35 - Paragraph 3): It is unclear when monitoring may be required for both fecal coliform and E. coli bacterial indicators to determine attainment of both recreation and shellfish harvesting uses. Further, it is not clear how regional TMDL leads will consistently apply their reevaluation of AUs that have a fecal coliform TMDL. Recommendation: Clarify when monitoring for both fecal coliform and E.coli is necessary to attain both recreation and

shellfish harvest uses and describe how regional TMDL leads will consistently apply their re-evaluation of AUs that have a fecal coliform TMDL.

Ecology response: See response to the Interagency Team, comment #4.

6. (Pg. 35 - Paragraph 2): It is not clear how Ecology will continue to assess fecal coliform data after 2020 in freshwater where a fecal coliform TMDL was not specifically developed for the protection of downstream shellfish harvest. Recommendation: Clarify what methods will be used to assess fecal coliform data after 2020 where a fecal coliform TMDL was not specifically developed for protection of downstream shellfish harvest use.

Ecology response: See response to the Interagency Team, comment #5.

7. (Pg. 35 - Paragraph 3): The policy does not describe how, when consulted, regional TMDL leads will conduct a re-evaluation of AUs that have a fecal coliform TMDL to ensure consistency in practices statewide. Recommendation: Clarify how regional TMDL leads are expected to re-evaluate fecal coliform TMDLs to ensure it's conducted in a consistent manner statewide.

Ecology response: See response to the Interagency Team, comment #6.

8. (Pg. 37 - Paragraph 1): Given the following sentence, "In some cases, Ecology will retain an AU in Category 4A when the criteria are attained if further work is needed to achieve associated water quality goals. For example, an AU may be meeting criteria, but may not yet be meeting TMDL load allocations necessary to support downstream uses." Context: If load allocations (Water Quality Based Effluent Limitations) are not met and water quality standards are achieved, it may suggest that the level of impairment was based on less than credible data, load allocations were inaccurately derived, the reserve capacity was calculated inappropriately, or the measure of safety were set too conservatively. The promise of the TMDL process and the development of sound load allocations is that there is supposed to be a reliable linkage between satisfying the requirements of the LA and the commensurate attainment of the applicable water quality standards. The TMDL concept depends on the scientifically-derived relationship between the numerically expressed load allocations and their promise as an arithmetically calculated pollution diet or quantifiable pathway back to meeting water quality standards in the receiving water. Recommendation: Please clarify further how Ecology differentiates the attainment of a bacterial LA versus the attainment of the applicable water quality standard.

Ecology response: See response to the Interagency Team, comment #7.

9. Please refer to comment 2 regarding the general request for an enhanced explanation of the development and use of the critical period, especially when developed outside of a TMDL analysis. This request is made in light of the sentence, "Ecology will group data for each AU by individual water year (October 1 through September 30 of the following calendar year).

Within each water year, data will be compared to the criteria in three consecutive-month periods (i.e., Jan./Feb/March, Feb/March/April, etc.), as well as separately for any applicable critical period.”

Ecology response: See response to the Interagency Team, comment #8.

10. (Pg. 40 - Paragraph 4): It’s unclear why Ecology references compliance with load allocations under a TMDL when load allocations are not water quality standards subject to rulemaking. Recommendation: Remove all reference to determining compliance with load allocations.

Ecology response: See response to the Interagency Team, comment #10.

11. What are Natural Background sources of bacterial pollution and how will Ecology account for surface runoff from undisturbed areas, natural rates of overland surface runoff, and groundwater influences when making this determination?

Ecology response: See response to the Interagency Team, comment #11.

12. How would the Natural Background sources for bacterial pollution differ from calculating the Natural Load for bacterial pollution under a TMDL analysis?

Ecology response: See response to the Interagency Team, comment #12.

Skokomish Tribe (Pavel)

1. Under the Clean Water Act and pursuant to EPA's changes in water quality monitoring for bacteria relevant to contact recreation, Ecology is replacing fecal coliform criteria with e-coli/enterococci criteria for both freshwater and marine waters, respectively, after 12/31/2020. Replacing fecal coliform with e-coli for freshwater will now create a disparity between bacteriological monitoring and assessment paradigms as they relate to designated water uses, and may inadvertently lead to a degradation of upstream water quality that could contribute to closure of downstream marine shellfish beds by the DOH. Although Ecology states that standards in marine waters will remain to protect the shellfish harvesting industry, our concerns focus on freshwater rivers and streams that empty into marine waters where shellfish uses occur.

Ecology response: We appreciate the tribe’s concerns about fresh waters that empty into marine waters where shellfish uses occur, and the need to protect shellfish uses from bacterial pollutants. We reiterate that the Policy 1-11 bacteria updates would not limit the ability for an entity to conduct fecal coliform monitoring in freshwaters flowing to marine waters protected for shellfish harvesting. Fecal coliform standards to protect for shellfish harvesting are still in place in Washington’s standards, and upstream sources of fecal

coliform that contribute to potential impairment of the downstream shellfish use is considered a violation of the standards.

Further, we want to emphasize that Policy 1-11 and the Water Quality Assessment process does not dictate how other programs use fecal coliform data for identifying sources that are contributing to shellfish harvest uses and shellfish growing areas. For example, the Pollution Identification Control Program, or PIC, has been successfully used by Department of Health (DOH), counties, and tribes to proactively identify upstream sources of fecal coliform that flow from fresh waters to marine waters. As the Shellfish Strategic Initiative Lead, DOH passes funds through the federal National Estuary Program (NEP) for bacteria pollution identification and correction (PIC) program work across Puget Sound counties to improve water quality to recover safe, year-round shellfish harvest. PIC work primarily addresses nonpoint sources of bacteria pollution.

The State Water Pollution Control Act also gives us the authority to take action to address any discharge. That is a separate authority from the water quality standards and allows us to act when there is a known source of pollution. It allows us to act to prevent nonpoint pollution before it is at levels that violate the standards.

Policy 1-11 also does not dictate where grant funds can be used for water quality protection programs designed to protect a designated use. As an example, PIC programs should determine the best criteria to guide pollution identification and source tracking work as well as prioritize sites for action. For many programs, fecal coliform may continue to be the best indicator to use when trying to identify sources.

Further, Ecology encourages local programs to sequence source tracking and pollution identification work based on where sampling indicates there are the biggest sources of pollution, instead of focusing on a specific "actionable threshold" number. This is outside of the Assessment listing policy, since it is focused on the problem at hand, whereas the Assessment is typically at a broader level, using whatever credible data we can to determine impairment.

2. By the time fecal pollution in river or stream causes a downgrade in a DOH shellfish bed classification or may "cause, or significantly contribute to, the decertification or conditional certification of commercial or recreational shellfish harvest areas" it is too late for mitigation. In order to be pre-emptive and timely in responding to this issue, the Tribe takes the position that Washington's Water Quality Assessment Integrated Report" address freshwater rivers and streams that may directly affect shellfish harvesting be completed every two years as per CWA SEC. 305 [33 U.S.C. 1315] Water Quality Inventory; paragraph (b)(I). The Tribe takes the position that assessments of these rivers and streams that are done at intervals greater than two years, will not be timely given these policy changes. If assessments are done reliably every two years, as per law, there will be more time to take pre-emptive mitigation actions to prevent downgrades in DOH classifications, and at the very least, ECY will be able to prevent conditional certifications or decertification of shellfish beds. In order for this to effectively

happen, ECY assessments must utilize all available water quality monitoring data sources, including EPA Water Quality Data (WQX), Ecology's Environmental Information Management (EIM) database, and the DOH database. Vigilant, timely, and informed assessments will allow the state, local agencies, tribes, and other shellfish harvesting stake-holders time needed to determine what mechanisms and tools can be used in order to take corrective action. The simplest and most direct tool is to monitor for both fecal coliform and e-coli.

Ecology response: We appreciate the tribe's positions on the importance of being preemptive and timely in addressing fresh waters that may directly affect shellfish harvesting and the desire to conduct the water quality assessment every two years in order to get ahead of pollution problems. We acknowledge that timely reporting to EPA has proven to be difficult over the past several years, starting in 2002 when EPA recommended that states conduct an "integrated Report" for sections 303(d) and 305(b). The difficulty has mainly been with the amount of water quality data that is collected in Washington and limited staff resources to manually assess all of the data. Over the past several years, Ecology has worked hard on an Ecology IT-developed IT tool to automate the data assessment process to efficiently assemble credible water quality data and assess the data in accordance with Policy 1-11 methodologies. We are hopeful that this automated process will enable us to meet the two year reporting that is described in the Clean Water Act for sections 303(d) and 305(b), improve the quality of our assessment determinations, and dedicate more staff resources to alternative methods of assessing designated use impairments in Washington State.

3. Ecology must continue fecal coliform monitoring and assessments of freshwaters that have the potential to deliver fecal coliform loads to adjacent marine waters designated for shellfish uses. Pursuant to this the Tribe asks that language in policy 1-11 be revised so that it will require monitoring for both fecal coliform and e-coli to take place applicable to the subset of rivers and streams that affect shellfish beds.

Ecology response: Policy 1-11 is intended to describe how water quality data and information that is "readily available" is assessed to determine compliance with the water quality standards in order to fulfill requirements in sections 303(d) and 305(b) of the Clean Water Act. Assessing data to meet sections 303(d) and 305(b) is a retrospective process using data that has already been collected, rather than a prospective process. Therefore, Policy 1-11 cannot prospectively require that entities collect certain kinds of data. This is more appropriately accomplished through other water quality protection and remediation programs that are specifically designed to identify and remediate pollution sources.

While Policy 1-11 cannot dictate what data must be collected, Ecology can consider fecal coliform data collected in fresh waters that are part of a focused study to protect downstream marine water shellfish uses. For example, as noted earlier under #1 of your comments, fecal coliform data collected in fresh water streams as part of a PIC Program study that is designed for the protection of shellfish use marine waters can be submitted to Ecology for consideration of Category 5 listings. We would review the study and supporting data in accordance with Policy 1-11 under Part 1D, section "Information

Submittals Based on Narrative Standards”, and if appropriate, could place those fresh waters in Category 5 as contributing to the downstream impairment of marine water shellfish uses. Another example of a Category 5 fecal coliform listing for freshwater based on the narrative standards is a nonpoint pollution control study designed to identify waterbodies polluted by nonpoint sources, especially where downstream waters are designated for the shellfish harvesting use. This policy update in no way limits the ability of current pollution identification programs to continue to address pollution sources that contribute to decertification of shellfish harvesting areas.

Where bacteria TMDLs exist, TMDL projects that address the protection of both recreational uses and shellfish harvesting uses will continue to use fecal coliform as the indicator for future monitoring TMDL implementation and effectiveness monitoring will continue with the fecal coliform indicator. Fecal coliform-based TMDLs with pollutant load allocations based on shellfish harvesting uses will continue to monitor for fecal coliform. Fecal coliform-based TMDLs that have pollutant reduction targets set to meet both contact recreation and shellfish harvesting uses typically set targets in the lower portion of watersheds that flow directly to marine waters, and dictate that they must maintain the fecal coliform indicator to ensure protection of downstream shellfish harvesting use. Dual parameter monitoring of bacterial indicators representing recreational criteria and those of shellfish harvesting criteria may be needed to determine attainment of recreational and shellfish harvesting uses. This will be determined on a TMDL project-specific basis, by Ecology TMDL Leads working with EPA and stakeholders within the specific study area.

4. Additionally, Ecology should commence the process to establish water quality standards under CWA 303(c) for freshwaters with the potential to deliver fecal coliform loads to adjacent marine waters designated for shellfish uses.

Ecology response: Current rule language at WAC 173-201A-200(2)(b)(iii)] allows Ecology to establish more stringent pollution controls in freshwater to protect downstream shellfish uses. This section states: “(iii) As determined necessary by the department, more stringent bacteria criteria may be established for rivers and streams that cause, or significantly contribute to, the decertification or conditional certification of commercial or recreational shellfish harvest areas, even when the preassigned bacteria criteria for the river or stream are being met.” Ecology does establish these criteria within load allocations of a TMDL when developed to ensure protection for downstream uses. However, Ecology does not have the resources to develop loading analyses in every river that flows to the Puget Sound. This is what would be necessary to set site-specific and sometimes seasonal-specific criteria to all rivers that have the potential to impact downstream shellfish uses. Although E. coli are not the specific indicator for protecting downstream uses, compliance with the E. coli criteria in many streams also acts to help protect downstream uses, just as the former fecal coliform criteria did. If there is information demonstrating that compliance with upstream bacteria criteria will not also protect downstream shellfish uses in specific rivers, Ecology can perform a TMDL to protect those waters.

The application of more stringent bacteria limits need not be a rulemaking. Several TMDLs

to protect downstream shellfish uses have set upstream freshwater load allocations that are more stringent than the recreational use fecal coliform criteria that were in existence before the new E. coli recreation criteria were put in place. We anticipate that future TMDLs will also set fecal coliform limits in fresh waters to protect downstream marine water shellfish uses, even in the absence of established numeric fecal coliform limits for fresh waters.

5. Pollutants in Streams and rivers in the Skokomish LJ&A within Hood Canal come primarily from non-point sources. New TMDLs, while including point source waste load allocations (WLA), would be required to establish nonpoint sources load allocations (LA) for these pollutants. Pollution Identification and Correction (PIC) funds and projects could be helpful in maintaining these standards. The Skokomish Tribe expects that Ecology will implement policies to advance a net gain in shellfish habitat and harvest in Hood Canal through water quality improvements pursuant to its authorities, thereby helping to restore treaty rights that have been diminished over recent decades because of water pollution and habitat loss. The Tribe looks forward to continuing to work with ECY on this issue.

Ecology response: We appreciate your support and partnerships in protecting water quality for shellfish habitat.