Response to Public Comments

2018 Water Quality Assessment

Washington State Department of Ecology
Olympia, Washington

August 2022, Publication 22-10-019

Publication Information

This document is available on the Department of Ecology's website at:
https://apps.ecology.wa.gov/publications/summarypages/2210019.html

Contact Information

Water Quality Program

P.O. Box 47600
Olympia, WA 98504-7600
Phone: 360-407-6600
Website[1]: Washington State Department of Ecology

ADA Accessibility

The Department of Ecology is committed to providing people with disabilities access to information and services by meeting or exceeding the requirements of the Americans with Disabilities Act (ADA), Section 504 and 508 of the Rehabilitation Act, and Washington State Policy #188.

To request an ADA accommodation, contact Ecology by phone at 360-407-6600 or email at 303d@ecy.wa.gov. For Washington Relay Service or TTY call 711 or 877-833-6341. Visit Ecology's website for more information.

[1] www.ecology.wa.gov/contact

Table of Contents

Abbreviations and Acronyms

°C	Degrees Centigrade
303(d)	Clean Water Act Section 303(d)
305(b)	Clean Water Act Section 305(b)
ATSDR	Agency of Toxic Substances and Disease Registry
AU	Assessment unit
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSF	Cancer Slope Factor
CWA	Clean Water Act
DOH	Department of Health
DWEC	Drinking Water Exposure Concentration
DWECc	Drinking Water Exposure Concentration for carcinogenic
DWECn	Drinking Water Exposure Concentration for non-carcinogenic effects
Ecology	Washington Department of Ecology
EIM	Environmental Information Management Database
EPA	U.S. Environmental Protection Agency
HAB	Harmful Algae Bloom
mg/L	Milligrams per Liter
MRL	Maximum Risk Level
MTCA	Model Toxics Control Act
NPDES	National Pollutant Discharge Elimination System
NTR	National Toxics Rule
PBDEs	Polybrominated diphenyl ether
PCBs	Polychlorinated biphenyl
ppb	Parts per Billion
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
RfD	Reference Dose
SRRTTF	Spokane River Regional Toxics Task Force
SSM	Salish Sea Model

TCP	Toxics Cleanup Program
TEC	Tissue Exposure Concentration
TECc	Tissue Exposure Concentration for carcinogenic effects
TECn	Tissue Exposure Concentration for non-carcinogenic effects
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
WAC	Washington Administrative Code
WQA	Water Quality Assessment

Background

This response to comments document addresses all comments received on the 2018 draft Water Quality Assessment (WQA), which satisfies Washington State's requirements under Clean Water Action Sections 303(d) and 305(b). The Department of Ecology held a public comment period for the draft 2018 WQA from April 8 to June 4, 2021.

Two types of comments were submitted in the process:

1. General Comments – Comments on the WQA not related to a specific water quality determinations were either submitted online within the Draft Water Quality Assessment Search Tool or directly to Ecology via letter or email.
2. Specific Comments – Comments on specific water quality determinations were submitted through an online comment from within the Draft Water Quality Assessment Search Tool or directly to Ecology via letter or email.

The following two sections of this document provide all comments received and Ecology's detailed responses, organized by comment type. Ecology received comments from 34 distinct entities representing various organizations, governing units, tribes[2], and the public (Table 1). Many commenters provided both general and specific comments. This document was posted on our website and provided in our candidate list submittal package to EPA on August 31, 2021. The document was revised to include additional response information following EPA approval on August 26, 2022.

Table 1. Summary of all organizations, tribes, and individuals that provided comment on the draft 2018 WQA.

Commenter	Person of Contact	Abbreviation
Avista	Monica Ott	Avista
Columbia River Economic Development Council	Jennifer Baker	CREDC
Discovery Clean Water Alliance	Ron Onslow Ann McEnerny-Ogle	DCWA
EPA Region 10	Jill Fullagar	EPA
Ginger Wireman	*Self*	Wireman
Gwen Fuller-Vernier	*Self*	Fuller-Vernier
Inland Empire Paper Company	Douglas Krapas	IEPC
Interagency Team	Elsa Pond	IAT

[2] A tribal preview comment period was held February 16 to March 16, 2021. Comments during the tribal preview period are not captured in this document. Any comments from tribes received during the public review period are included in this document.

Commenter	Person of Contact	Abbreviation
Kalispel Tribe Natural Resources	Kenneth Merrill	Kalispell
Kent, City of	Meara Heubach	Kent
King County Dept. of Natural Resources & Parks	Christie True	King
Klickitat County	Whitney Reynier	Klickitat
Kris Holm	*Self*	Holm
Lincoln Loehr	*Self*	Loehr
Lummi Tribe Natural Resources Dept.	Hanna Winter	Lummi
National Council for Air & Stream Improvement, Inc.	Giffe Johnson	NCASI
NAVFAC Environmental	Chris Jorgensen	NAVFAC
Northwest Environmental Advocates	Nina Bell	NWEA
Northwest Indian Fisheries Commission	Justin Parker	NWIFC
Northwest Pulp & Paper Association	Christian McCAbe	NWPPA
Pierce County	Scott Groce	Pierce
Port of Vancouver	Julianna Marler	POV
Seattle City Light	Jeff Fisher	SCL
Seattle, City of	David Beedle	Seattle-Beedle
Seattle, City of	Melissa Ivancevich	Seattle-Ivancevich
Seattle, City of	Michael Cawrse	Seattle-Cawrse
Snohomish County	Steve Britsch	Snohomish
Spokane River Keeper	Jerry White	SRK
Tacoma, City of	Dan Thompson	Tacoma-Thompson
Tacoma, City of	Michael P. Slevin III	Tacoma-Slevin
WA State Dept. of Ecology	Heather Khan	Ecology-Khan
WA State Dept. of Ecology	Jessica Huybregts	Ecology-Huybregts
WA State Dept. of Ecology	Rachel McCrea	Ecology-McCrea
Washington State Legislature	Districts 17, 18, 49th	WSL

General Comments

Inland Empire Paper Company

IEPC [1]

IEP is particularly concerned about the questionable approach taken by the Department of Health in the development of the fish consumption advisory using EPA PCB screening levels for substantive regulatory purposes and arbitrary values for PBDEs, considering that there is no accepted toxicity reference data or standards for PBDEs. Why is Ecology relying on the Department of Health's scientifically debatable analysis and what is Ecology's response to the concerns raised in the NCASI comment letter?

Response

NCASI's main concern was that Ecology had based the draft PBDE fish tissue listings solely on the document: Health Consultation: Potential Cumulative Health Effects Associated with Eating Spokane River Fish – Spokane, Spokane County, Washington (Pub. No. DOH 334-275).[3] This document was prepared by the Department of Health (DOH) in 2011 and addressed the cumulative effects of PBDEs and PCBs on fish consumption. DOH has stated that meal restrictions based solely on PBDEs would occur even without the potential cumulative impacts from PCBs. In fact, PBDEs were first added to the fish consumption advisories for the Spokane River in 2009 based on a separate 2007 health consultation report that assessed PBDEs both independently and cumulatively with PCBs (Pub. No. DOH 334-147[4]). See Appendix A for a table from the 2007 report for meal restrictions based on PBDEs, PCBs and the combined cumulative effects.

In response to the concern that DOH is using arbitrary values for PBDEs and that there is no accepted toxicity reference data or standards for PBDEs. Ecology discussed this with DOH and they provided the following information:

> "In 2008, US EPA established Reference Doses (RfDs) for BDE-47, BDE-99, BDE-153, and BDE-209 and established a Cancer Slope Factor (CSF) for BDE-209.
>
> IRIS assessments provide the following toxicity values for health effects resulting from chronic exposure to chemicals. Reference Dose (RfD): An estimate (with uncertainty spanning perhaps an order of magnitude) of a daily oral exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. It can be derived from a NOAEL, LOAEL, or benchmark dose, with uncertainty factors generally applied to reflect limitations of the data used. Cancer descriptors characterize the chemical as:
>
> - Carcinogenic to Humans
> - Likely to Be Carcinogenic to Humans
> - Suggestive Evidence of Carcinogenic Potential

[3] https://www.doh.wa.gov/Portals/1/Documents/Pubs/334-275.pdf
[4] https://www.doh.wa.gov/portals/1/Documents/Pubs/334-147.pdf

- Inadequate Information to Assess Carcinogenic Potential
- Not Likely to Be Carcinogenic to Humans
- BDE-209 has been characterized as Suggestive evidence of carcinogenic potential.

IRIS values and the underlying studies used to establish the criteria are published and can be seen at the EPA IRIS website[5]. A detailed description of the process in which develops an IRIS value for chemicals can be seen at IRIS websites Basic Information page[6]."

IEPC [2]

Can Ecology explain why it has based listings on the concentrations of PBDEs in whole fish tissue data from the Department of Health consumption advisory rather than filet data? The consumption analysis found that fish tissue data from using filets only were below the arbitrary value developed by the Department of Health and that only some of the whole fish data were above the value. It is standard practice for Ecology to rely on filet or filet with skin on to assess human health toxicity in fish tissue samples.

Response

Ecology only based the listings on Assessment Units (AUs) or waterbody segments where there were fillet data. Ecology did not list AUs that contained only whole body fish data. However, DOH does use both whole body and fillet data in their fish consumption advisory assessments. The table from DOH's 2007 health consultation (Appendix A) shows their assessment of both whole body fish and fillet data. It is important to note that DOH would have released fish consumption advisories for the Spokane River even without whole body fish tissue data for PBDEs, as there was more than enough data on PBDEs in fillet data alone.

IEPC [3]

Ecology should explain why it is using a fish consumption advisory based exclusively on data collected in 2005 for the current water quality assessment. Ecology was clear in the April 2021 Determinations for Data and Information Submitted for Use in the Water Quality Assessment, at 11, and Table 5, that it would not include studies of data that are outside the "WQA cycle window" of 2006 to 2017. This is particularly important where Ecology published a report in 2011 analyzing fish tissue data from 2005 and 2009 that demonstrates a significant decline in PBDE tissue concentrations. See Ecology, PBT Monitoring: PBDE Flame Retardants in Spokane River Fish, 2009 (March 2011)(Pub. No. 10-03-015). Ecology should exclude consideration of the Department of Health consumption advisory as a basis for 303(d) listing until it has better information on the trend over time of fish tissue concentrations for PBDEs.

[5] https://www.epa.gov/iris

[6] https://www.epa.gov/iris/basic-information-about-integrated-risk-information-system#process

Response

DOH has updated their fish consumption advisories for PBDEs in the Spokane River based on data collected within the current WQA cycle window (2006 to 2017). The update included data from the comprehensive 2012 fish tissue study on the Spokane River conducted by Ecology's Freshwater Fish Contaminant Monitoring Program (Ecology Publication No. 14-03-02[7]). Understanding the trends of a pollutant over time is not a requirement to place a waterbody on the 303(d) list.

IEPC [4]

Although Ecology Policy 1-11 allows for fish consumption advisories to be a basis for listing, the Department of Health document does not satisfy the credible data requirements under state law and Chapter 2 of Policy 1-11. Ecology will be in violation of the Credible Data statute, RCW 90.48.570-585 by relying on the questionable and scientifically unsubstantiated consumption advisory.

Response

Based on submitters comment, it is unclear how DOH fish consumption advisories does not meet the State Water Quality Credible Data Act (RCW 90.48.570.585[8]) or our Policy 1-11 Chapter 2: Ensuring Credible Data for Water Quality Management[9] data credibility requirements. However, DOH provide the following information that may help address the submitters concerns:

> "DOH's 2007 and 2011 assessment of contaminants in fish for the Spokane River followed standard risk assessment procedures outline by the Agency of Toxic Substances and Disease Registry (ATSDR)[10] as well as US EPA Guidance for Conducting Fish Advisories [11]. DOH's assessments underwent extensive external and internal review within DOH and ATSDR as well as a public comment period. In addition, DOH followed ATSDR's framework for assessing health impacts of multiple chemicals and other stressors. An updated version of that framework can be seen on their website[12]."

Additionally, all data used to generate DOH fish consumption advisories were reviewed by Ecology staff to ensure data meets quality assurance requirements detailed in Policy 1-11 Chapter 2.

IEPC [5]

As a requirement of water quality assessments under Category 5 (the proposed 303(d) listings for PBDE's for the Spokane River by Ecology), is a finding that effluent limitations are not stringent enough to implement applicable water quality standards. Aside from the fact that there are no approved state or federal water quality standards for PBDEs, there is no evidence

[7] https://apps.ecology.wa.gov/publications/publications/1403020.pdf
[8] https://app.leg.wa.gov/RCW/default.aspx?cite=90.48.585
[9] https://apps.ecology.wa.gov/publications/documents/2110032.pdf
[10] https://www.atsdr.cdc.gov/risk/index.html
[11] https://www.epa.gov/fish-tech/epa-guidance-developing-fish-advisories
[12] https://www.atsdr.cdc.gov/interactionprofiles/ipga.html

that Ecology has imposed effluent limitations on dischargers for PBDEs or that such effluent limitations would be successful to effectively address the PBDE fish consumption advisory. Ecology should consider assessing PBDEs under Category 2 to allow for an appropriate scientific evaluation of actual concerns relative to PBDEs in the river and the relationship, if any, between permitted discharges and PBDE levels in fish tissue.

Response

The comment that a finding that effluent limitations are not stringent enough to implement water quality standards is required for a Category 5 determination is incorrect. The Code of Federal Regulations states that states must list waters where any existing pollution control requirements are not stringent enough to implement water quality standards, not just effluent limits (CFR 130.7(b)(1)[13]). There is also legal precedence that a waterbody must be 303(d) listed even with no point source discharges (Pronsolino v. Nastri, 291 F.3d 1123, 1132 (9th Cir. 2002)).

Ecology has thoroughly reviewed the data and reports used to issue the Department of Health fish consumption advisory for PBDEs on the Spokane River. We determined these data demonstrate an impairment of our narrative water quality standards under our Policy 1-11 criteria for determining impairment of narrative standards. As a result, this waterbody will be placed in Category 5 for impairment of the harvesting designated use.

IEPC [6]

Ecology should also explain if it intends to develop a TMDL for PBDEs based on the proposed listing if it is approved by EPA. How will Ecology prepare a TMDL without a PBDE water quality standard, the absence of credible data of PBDEs in discharge effluent, the lack of knowledge as to the source of PBDEs in fish tissue, and the absence of any relationship between PBDEs in the water column and fish tissue data?

Response

This comment is outside the scope of the draft WQA results. A Category 5 listing indicates impairment of a designated use (in the case of PBDE's, the fish and shellfish harvest use). In accordance with Policy 1-11 Chapter 1: Washington's Water Quality Assessment Listing Methodology to Meet Clean Water Act Requirements[14], Ecology may consider impairment determinations based on fish advisories for chemicals that are not priority pollutants adopted in the water quality standards if data collected from specific AUs meet data requirements (See Section 2I. Toxics-Human Health Criteria). A decision on conducting a TMDL occurs after the Category 5 listing is approved by EPA, and can involve a number of factors that are outside the scope of what is required in the WQA process.

IEPC [7]

Ecology should also explain whether it expects the Spokane River Regional Toxics Task Force (Task Force) to expand its efforts to address PDBEs.

[13] https://www.govinfo.gov/content/pkg/CFR-2011-title40-vol22/pdf/CFR-2011-title40-vol22-sec130-7.pdf
[14] https://apps.ecology.wa.gov/publications/documents/1810035.pdf

Response

The Task Force's scope if work is separate of the WQA process. The results of the WQA in no way dictate the Take Force's work plan. Any decisions to expand the scope of the Task Force to include PBDEs would occur within the stablish protocols of the SRRTTF.

Interagency Team

IAT [1]

Identifying data not deemed usable for listing decisions has value as it provides transparency and supports quality assurance objectives. For example, Oregon has used Category 1 for data not assessed and Category 3d for data infeasible to assess. Similarly, California has used Category 3 for data not used in the assessment. Recommendation: For future WQA's, consider using a Category or a sub-category to identify data not used or deemed credible for listing decisions.

Response

This comment is outside the scope of the draft WQA results, but intended for future consideration. Ecology did review data and information submitted as part of the call-for-data and made determinations on what could be considered for listing purposes during this WQA. See 2018 WQA Supporting Information[15] document. We do note that as numeric data and information is analyzed and assessed by Ecology, we will not use data that does not meet credible data requirements. These data would not result in a category determination because we do not make water quality determinations based on questionable quality assurance or data that do not meet credibility requirements.

IAT [2]

Other states use sub-categories to make distinctions between data insufficiencies. This could be a helpful tool for categorizing listing and impairment challenges, as well as prioritization efforts. Recommendation: For future WQA's, consider using subcategories to Category 3 to help distinguish data insufficiencies in a way that will be helpful for identifying challenges and prioritizing work.

Response

This comment is outside the scope of the draft WQA results, but intended for future consideration. At this time, we do not anticipate making sub-categories from the 5 categories recommended by EPA. Category 3 listings typically do not have enough data to qualify for any other category. For every new WQA cycle, new data will be analyzed with any credible data available for a specific Category 3 segment and an updated category determination will be generated. Therefore, we do not see value in having subcategories for Category 3.

[15] https://apps.ecology.wa.gov/publications/summarypages/2210018.html

IAT [3]

The Environmental Protection Agency supports TMDL alternative approaches to prioritize water clean-up efforts and get to cleaner water faster than through a formal TMDL in certain watersheds. The process and terminology associated with these efforts in Washington State (e.g., 4b approach, Alternative Restoration Plans, Straight-to-Implementation (STI)) can vary widely and are not well understood by most stakeholders. Classifying and defining these types of approaches using a Category would help clarify processes and terminology. Recommendation: For future WQA's, consider adding a sub-category 5 to identify TMDL alternative approaches for waters that remain in Category 5.

Response

Determining Total Maximum Daily Load (TMDL) alternative approaches is outside the scope of the draft WQA results. This characterization is more appropriately dealt with after a Category 5 listing exists and the listing is prioritized for a TMDL or other cleanup work. This effort can be very site specific and depends on factors that are outside the scope of what the WQA requires for listing purposes. For more information on TMDL prioritization of Category 5's, see section 1H of Policy 1-11, Chapter 1.

IAT [4]

The Water Quality Atlas functionality would be enhanced if it included highway mileposts. Recommendation: Consider adding highway milepost data from WSDOT's internet Geodata Catalog page and selecting the "State Route Milepost Markers of Washington State

Response

Comment noted. We will consider your suggestion in future updates to the Water Quality Atlas.

IAT [5]

Salish Sea Model (SSM) outputs have been used to generate new Category 5 listings for dissolved oxygen in both fresh and marine waters. WQP 1-11 does not list the Salish Sea Model (SSM) as approved for any listing purpose. Further, Ecology's SSM QAPP (Publication No. 18-03-111) indicates the model is only to be used to estimate water quality outcomes. While the SSM may be predicting water quality impairment in particular areas, whether using that or any other model for prediction, Ecology must conduct monitoring and collect sufficient field data to establish actual impairment before assigning Category 5 for any pollutant to any waterbody segment. Recommendation: Clarify how Ecology determined that outputs from the SSM meet conditions of WQP 1-11 for dissolved oxygen listings.

Response

WQP Policy 1-11 Chapter 1 Section IE. Data and Information Submittals states that Ecology may use modeled outputs that meet credible data requirements. The 2018 Salish Sea Model Quality Assurance Project Plan[16] describes how the model satisfies data quality objectives and does not deviate from policy or Credible Data Act requirements for using models for

[16] https://apps.ecology.wa.gov/publications/documents/1803111.pdf

Ecology's regulatory decisions to help address dissolved oxygen impairments in Puget Sound.

The model was used to refine category determinations only within portions of Puget Sound where observational dissolved oxygen data has been collected. No dissolved oxygen category determinations were made based on the Salish Sea Mode (SSM)l alone. Additionally, no waterbodies were placed into Category 2 or 5 without observational data demonstrating exceedances of the numeric criteria. Please visit the Salish Sea Model's website[17] and the Puget Sound Nutrient Forum website[18] to access additional resources on the model. For more detailed information on how the model was used in the WQA, see the 2018 WQA Supporting Information document.

IAT [6]

Twenty-nine percent of Statewide Category 5 bioassessment listings have no known source (either EIM or the Water Quality Portal) listed when exported from the water quality assessment tool. Without knowing the source, what basis does Ecology use to determine the credibility of data? Recommendation: Review Category 5 bioassessment listings and describe the source (EIM or Water Quality Portal) of the data used. Regardless of the data source, we encourage Ecology to describe how the credibility of data was confirmed to support a Category 5 listing. If Ecology cannot confirm data credibility for these listings, they should be removed, or at most placed into Category 2.

Response

There are 32 Category 5 bioassessment listings that do not have the source field populated in the draft WQA Review Tool. Each of these 32 listings were carried forward from previous assessment cycles and were originally based on data from the Puget Sound Stream Benthos database. These data were reviewed, along with any supporting quality assurance documentation, at time of analysis last assessment cycle. Data from this database were not used in the 2018 WQA. Environmental Information Management (EIM) database and THE Water Quality Portal did not have new data in the assessment units for the 32 listings. Since there were no new data to inform these listings, the previous category remains the same. EPA requires that states keep waterbodies on the 303(d) list until there is newer data demonstrating designated uses are being met. The remarks for each listing have been updated to document the source of the listing information.

IAT [7]

WQP 1-11 considers data credible for use if the studies are listed in EIM as having QA planning and assessment levels of 3 or higher. However, the QA and assessment levels in EIM are assigned by the data submitter. Thus, Ecology appears to rely on a presumptive approach when assessing data credibility given that EIM does not have the capability for data submitters to upload QAPPs, SAPs or equivalent documents to support an authentic evaluation of data quality

[17] https://ecology.wa.gov/Research-Data/Data-resources/Models-spreadsheets/Modeling-the-environment/Salish-Sea-modeling

[18] https://www.ezview.wa.gov/DesktopDefault.aspx?alias=1962&pageid=37106

objectives and intended use. While the IAT appreciates the variety of challenges involved in ensuring credible data, there may be several ways of making improvements.

Recommendations: Some potentially easily implementable improvements to enhance data credibility assumptions, may include:

- Using hyperlinks to connect users to the Publications Database that contains Ecology's QAPPs and reports (hyperlinks are already utilized for other purposes in the WQA tool).
- Requiring a data submitter signatory certification (like the signatory certification required when discharge data is submitted for the NPDES Construction Stormwater General Permit). If signatory certification is required for construction discharges, a certifying signature seems appropriate for data submittals that form the basis of WQA listing decisions.

Response

This comment is outside the scope of the draft WQA results, but intended for future consideration of Policy 1-11 methodologies. Regarding your comment on requiring a signatory certification, we note that Ecology has had a program in place for several years to ensure that credible data is stored in Ecology's EIM database. Ecology staff with data management expertise work with individual data submitters to input data. The process of uploading each batch of data into EIM is time intensive and often involves several iterations of quality control review between the data submitter and Ecology before the data is acceptable. Ecology staff ultimately load the final reviewed dataset into EIM. While the commenter may not agree that the programs outlined in Policy 1-11 serve to verify data quality, we have found them to be effective and to minimize the possibility of data errors. Further, while we have not had to use it for enforcement purposes, the Water Quality Data Act at 90.48.590 stipulates that "any person who knowingly falsifies data is guilty of a gross misdemeanor."

Kalispel Tribe Natural Resources

Kalispel [1]

Our review of Ecology's draft WQ assessment and potential 303(d) listings reaffirms the impression that Ecology is acting to maximally protect the presence of pollution in water bodies instead of protecting people's health. The proposed WQ assessment and 303(d) listing methodologies continue the irresponsible adoption of under-protective human health criteria in the State's WQ standards by apparently using the same variable inputs from the flawed WQ Standards for calculating the allowable toxicant body burdens used in the new Fish Tissue Equivalent Concentrations (TECs).

Response

The variables used in the in the calculation of TECs are the same as those found in both Ecology's adopted Human Health Criteria 2016 rule that was partially disapproved by EPA and EPA's promulgated rule. The difference in human health criteria values are due to variables such as bioaccumulation values, which are not a part of the calculation of TECs.

Therefore, regardless of which set of human health criteria are in place for Clean Water Act actions, the calculation of the TECs are the same. Furthermore, Ecology has argued in support of continuing EPA's more stringent 2016 promulgated rule – the continuation of more stringent criteria will have no effect on the TEC thresholds for impairment.

Kalispel [2]

We support the concept of using TECs for assessing compliance with WQ standards for persistent biomagnifying toxics, and the Kalispel Water Quality Standards explicitly endorse the methodology of using fish tissue concentrations to evaluate compliance with our human health criteria. However, we disagree with Ecology's apparent methods for deriving TECs for the assessment and listings using flawed variable assumptions for TECs and listing policies. The process makes it difficult to determine what should be listed with what was excluded.

Response

See response to Kalispel [1] above.

Kalispel [3]

It appears that much WQ data and Fish Tissue data collected by the Kalispel Tribe has been excluded from the assessment. Our data were collected under a QAPP approved by EPA and is readily available on EPA's STORET and the National WQ data portal.

Response

All studies in the Water Quality Portal with the Organization ID "KNRD_WQX" were retrieved from the database as part of the data pull. The pull included three fish tissue studies, one study for toxic parameters in water, one study with discrete data on conventional water chemistry parameters, and one study with summarized time-series temperature data. See the data sources section of the 2018 WQA Supporting Information document. Data from these studies were considered for inclusion in the assessment, however not all data results were used as the basis for a specific listing for one or more of the following reasons:

1. Location of sampling site: Sampling sites located on tribal lands were not included in the assessment.
2. Parameter: Studies contained numeric results for parameters that do not have water quality criteria in Washington's water quality standards or parameter thresholds defined in Policy 1-11.
3. Tissue characteristics: For fin fish tissue samples, results from edible portions of fish were used in the assessment. Edible portions include fillet with or without the skin intact. Fin fish tissue types of whole or whole, not gut were not included in the assessment.
4. Composite samples for tissue: The methodology in Policy 1-11 for assessing tissue data is based on composite samples. Composite samples are considered to be composed of at least three individual organisms. If the number of composite information was not available with the result data, the samples were treated as an individual organism. In these cases, three or more individual organisms from the same year within an assessment unit would be needed to create a quasi-composite to be used in the

assessment. Individual organism samples that were not able to be combined into a quasi-composite sample were not used in the assessment.

5. Fraction analyzed: The criteria for many toxic parameters are for specific fractions. If the result data for these parameters were not reported as the appropriate fraction analyzed, those data were not included in the assessment.

Kalispel [4]

The critical target concentrations of toxins in fish tissue depend on the consumers' acceptable body burden of each toxicant and considerations of the cumulative impact from several toxicants occurring concurrently. Therefore, the variable inputs Ecology used to calculate each toxicant's maximum allowable body burden should be critically reviewed. Any uncertainty associated with the values selected should be biased toward protecting human health, not maximizing pollution

Response

Ecology calculated the Tissue Exposure Concentration (TEC) for each chemical based on the most recent toxic reference dose and risk level available by EPA's Integrated Risk Information System (IRIS). Ecology is one of the few states that utilize any method for translating these cancer and non-cancer effects into tissue concentration thresholds. As such, we believe we are taking precautionary methods to ensure that chemical that may not be at concentrations detectable in the water column are assessed through tissue based on the harvest risk.

Kalispel [5]

Assuming Dioxin is not a carcinogen is negligent for calculating a maximum body burden and TEC. Instead, a cancer risk factor should be applied based on reasonable scientific estimates to protect human health as the highest priority instead of protecting polluters.

Response

Ecology does not assume dioxin is not a carcinogen. Rather, we do not have adequate information to develop a cancer-based criteria or tissue exposure concentration for cancer (TECc) for dioxin.

The cancer assessment for 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) is currently in development by EPA. Without a reliable cancer slop factor (CSF), Ecology cannot calculate dioxin criteria based on cancer or a TECc for the water quality assessment. EPA agrees with this determination. In a May 6, 2016 filing with the United States District Court for the Western District of Washington, EPA stated that it will withdraw its propose dioxin criteria for Washington because "extensive additional scientific analysis is necessary before revised criteria" for dioxin can be promulgated (Puget Soundkeeper Alliance et. al. V. U.S.E.P.A., Case No. 2:16-cv-00293-JLR, EPA's Motion for Summary Judgment (May 6, 2016) at 13). As EPA explained in the Declaration of Elizabeth Southerland, Director of the Office of Science and Technology with EPA's Office of Water, "EPA did not update its CWA section 304(a) recommended criteria" for dioxin in 2015, and "IRIS does not currently contain a quantitative carcinogenicity assessment" for dioxin (Declaration of Elizabeth Southerland

(May 5, 2016)). These statements indicate that the existing science does not allow either Ecology or EPA to adopt new cancer-based dioxin criteria for Washington.

Based on these uncertainties, Ecology could not develop a reliable dioxin TECc appropriate for the regulatory contexts of the WQA.

Kalispel [6]

The draft policy places an excessive amount of emphasis on making sure there is no chance of an erroneous listing of a waterbody where some uncertainty exists. Where there is uncertainty and a chance for error in deciding if an impairment of a waterbody exists, the listing decisions should be conservatively based on protecting the natural resource and people's health, not protecting the pollution. Using a ten-fold multiplication factor as a screening tool for fish composite tissue data is unnecessary and arbitrary when using data from multiple multi-fish composite samples to decide on a listing since the chances for a decision being based on a population outlier have effectively been eliminated.

Response

Policy 1-11, Chapter 1, was finalized in November 2018, taking into account comments that were received on concerns with the multiplier for fish tissue as a screening tool for carcinogens. In the responsiveness summary[19], we noted that the "multiplier" is intended to address the multiple sources of cumulative uncertainties in the analysis. The TECc values should be viewed as estimates rather than absolute thresholds. TECs rely upon cancer potency factors derived from dose response relationships that are extrapolated to predict estimated risk of carcinogenicity at low doses. Additionally, TECs are based on the cumulative estimated risk over a lifetime of exposure. Laboratory analytical accuracy and precision introduce further uncertainty. The accuracy and precision of an analytical method inherently decreases as method detection limits are approached. This is important to consider because many of the TECc values are below practical quantitation or even method detection limits.

Another source of uncertainty is introduced when estimating a median tissue concentration based on few composite samples and using the estimated median value to assume long-term exposure. Given this uncertainty, Ecology determined that when the tissue level exceeds the TECc by an order of magnitude we can confidently determine that the harvest use is impaired. When tissue levels are within an order of magnitude of the TECc, we are less confident that the tissue contaminant levels are actually resulting in harvest use impairment. To make this determination, improved risk estimation methods, improved analytical technique, and/or more data would be needed to narrow the range of uncertainty.

In contrast, the TECn evaluation for 303(d) listing does not include a multiplier to account for uncertainty because uncertainty in a TECn is largely addressed by the inclusion of a modifying safety factor in the derivation of an EPA reference dose. Additionally, laboratory

[19] https://apps.ecology.wa.gov/publications/documents/1810036.pdf

analytical accuracy and precision is less of an issue since the magnitude of the TECn thresholds will, in most cases, be greater than practical quantitation limits.

Kalispel [7]

An impaired listing should only be downgraded from a Category 5 if a clean-up plan contains a path to the complete restoration of beneficial uses with clear, measurable, and enforceable interim performance milestones.

Response

Policy 1-11 Chapter 1 describes when delisting from Category 5 is appropriate. In general, once a segment qualifies for Category 5, it can only move out of Category 5 to Category 4A or 4B if a TMDL or alternative active cleanup program is in place. A Category 5 listing can also move to Category 1 (meets tested criteria) directly if new data indicates that it qualifies for Category 1 in accordance with this policy. Exceptions to these general rules are described for specific pollutant parameters found in Parts 2 and 3 of Policy 1-11, Chapter 1. It is also possible that a new assessment of data determines that a Category 5 from a previous listing cycle should move to Category 2 based on new data and on reconsideration of the appropriateness of the prior Category 5 listing.

Kent, city of

Kent [1]

I have attached current water quality monitoring data from Lakes Fenwick and Meridian in Kent. I was not able to review the draft water quality assessment review tool, but I understand that it lacks recent data for these two Kent lakes.

Response

Thank you for your submission. These data were submitted well outside the WQA Call for Data window and not under our standard data submittal process. Please consider submitting these data to our Environmental Information Management (EIM) database so these data can be incorporated into the next WQA. See Ecology's EIM website[20] for more information on how to submit data to EIM.

King County Department of Natural Resources and Parks

King [1]

Avoid using worst-case studies as the basis for impairment decisions. For nearly twenty years, King County has provided Ecology with information on water, sediment, and benthic macroinvertebrates. These data often come from studies that were not designed to inform regulatory decisions. Two common objectives for King County water quality studies are source

[20] https://ecology.wa.gov/Research-Data/Data-resources/Environmental-Information-Management-database/EIM-submit-data

tracing and swimming beach monitoring. In both cases, the County often targets worst-case conditions, either to find pollution sources, or to protect public health. We share the results with the public, Ecology, and the Environmental Information Management (EIM) database, but these studies do not represent ambient water quality conditions. Perhaps the data were not clearly flagged as being non-representative. In any case, it is not valid for Ecology to use the results as the sole basis for impairment decisions and Policy 1-11 recognizes this. Several of our comments provide additional detail on these studies and listings we deem inappropriate.

Response

WQP Policy 1-11 states we will not use data to assess the status of waters for the WQA when the data are not representative of water quality. Examples of this type of data would include mixing zone studies or data collected within a lake swimming beach during times of peak recreation. We review the study description, purpose, quality assurance documentation, records metadata, and any other associated information when considering including a study in the WQA. If King County has concerns regarding the appropriateness of including specific studies, please contact Ecology with the studies of concern.

King [2]

Avoid using the Salish Sea Model inappropriately for TMDL purposes. King County's Wastewater Treatment Division (WTD) works closely with Ecology to understand the effects of nutrients on primary productivity and water quality in Puget Sound. As part of this effort, the Salish Sea Model has incorporated dissolved oxygen (DO). This poses four problems. First, this model deviates from Ecology's policy for TMDL model development (Chapter 2 of Policy 1-11). Second, the model uncertainty has not been adequately quantified to understand potential error rates. Third, the model is not precise enough to document a 0.2 mg/L human-induced change in DO as required by regulation. Finally, some places Ecology listed as impaired, based on model results, are not impaired according to field measurements. These listings are in error. To remedy these problems, Ecology needs to:

1. Withdraw the model output from the current assessment,
2. Follow the Credible Data Act and policy requirements to develop any DO or nutrient models,
3. Ensure model outputs are consistent with monitoring data,
4. Apply the model consistently across Puget Sound, not just in select locations.

Response

Our WQP Policy 1-11 states will use modeled outputs that meet credible data requirements when the status of water quality is being determined relative to natural or reference conditions. The 2018 Salish Sea Model Quality Assurance Project Plan (QAPP) describes how the model satisfies data quality objectives and does not deviate from Credible Data Act (RCW 90.48.585) or WQP Policy 1-11 requirements for using models for Ecology's regulatory decisions to help address dissolved oxygen impairments in Puget Sound.

Uncertainty is part of any scientific endeavor. In TMDL studies, it is customary to report model results' root mean squared error and bias compared to observations as a measure of the model's ability to match observations. The approach for evaluating whether the

cumulative 0.2 mg/L dissolved oxygen depletion human limit is met is based on the difference of two almost identical SSM runs. This approach is not unique to this application and it is generally used for other TMDL studies that test compliance with such a standard. Within the accepted model accuracy, the difference of two nearly identical model runs is precise so that the 0.2 mg/L dissolved oxygen depletion threshold can be evaluated. For more information on model precision and uncertainty, visit the Salish Sea Model website and Puget Sound Nutrient Forum website.

Ecology applied the SSM consistently within the entire spatial extent of the model. No waterbody was placed into Category 5 (impaired) for dissolved oxygen without field measurements exceeding the biological numeric criteria. Please refer to supplemental methodology section of the 2018 WQA Supporting Information document for details on how the SSM was incorporated into our dissolved oxygen analysis.

King [3]

Avoid using toxicity identification evaluations studies as the basis for impairment decisions. Since the publication of the 2012 303d list, King County conducted numerous sediment bioassays in support of our National Pollutant Discharge Elimination System (NPDES) permits. Sometimes these bioassays have revealed sporadic mortality or impaired growth results. In those cases, King County further investigated the cause. One investigational approach is a toxicity identification evaluation (TIE). These studies repeat sediment bioassays under slightly different conditions to determine whether observed toxicity is due to natural factors (e.g., sediment grain size) or a contaminant. In the process, these studies intentionally reproduce toxicity so that the source can be identified. The repeated results do not represent the waterbody. In this case, the NPDES program concluded that no sediment quality standards had been violated. This is another example of the use of unrepresentative data to make listing decisions.

Response

Usually Ecology could not specifically address a commenter's concerns without knowing which EIM StudyID(s) and subsequent ListingID(s) were being questioned. Due to historic knowledge, Ecology believes KC is referring to April and July 2011 West Point WWTP sampling events and analyses. Ecology understands the TIE approach and generally agrees that TIE results do not represent the waterbody conditions.

However, due to differences in KC and Ecology's TIE bioassay data analysis results, via a July 2014 memo (Appendix B), Ecology requested additional information that would allow us to manually evaluate the TIE bioassay data. This information was the laboratory bench sheets and reference toxicant tests with control charts for the 2011 TIE. Ecology has no record of receiving such information, therefore our WQA findings will not change. Please forward the original dated email and/or documents for Ecology's further consideration.

King [4]

Eliminate conflicting messages about the relative safety of market squid. In 2017, King County's marine monitoring program revealed market squid have some of the lowest concentrations of polychlorinated biphenyls (PCBs) in any edible Puget Sound seafood. In consultations with both

King County and Washington State Departments of Health, Puget Sound squid were designated a "safer choice". Squid tissue is among the least contaminated edible seafood tissues in Puget Sound, though they do exceed the tissue equivalent concentrations (TEC) used in Policy 1-11. Ecology, for the first time, has created a listing based on the TEC. By concluding that squid are 'impaired', Ecology confounds public outreach and public health messaging at the state and local level. The public can perceive conflicting guidance as a reflection of institutional bias, or health expert incompetence, and this confusion is known to lead to less desirable consumer behavior. We welcome the opportunity to revise Policy 1-11, how designated uses are applied, and the use of the 303d impairment listing process. Consumers deserve consistent, trustworthy messages about fish and shellfish safety across public agencies.

Response

Comment noted. The Clean Water Act (CWA) requires waterbodies placed on the 303(d) list when it has been determined that the designated uses of that waterbody are not fully protected. If any indicator of that designated uses suggests the waterbody is impaired, that waterbody is placed onto the 303(d) list.

Therefore, when assessing for the harvesting use, Ecology does not differentiate between safety of harvesting individual species. Rather any edible resident fish/shellfish species meeting the requirements for a Category 5 designation in our Policy 1-11 will result in the waterbody being placed on the 303d list. Additionally, Department of Health's analysis for determining safety of fish/shellfish consumption considers both the risks and benefits of consumption, which can result in a more nuanced determination than the Clean Water Act allows for 303(d) listing purposes. We certainly understand your concerns regarding public messaging on this issue and we are committed to effectively communicating the nuances of what the WQA represents for water quality.

Kris Holm

Holm [1]

Ecology should reopen the comment period for the PBDE listing and provide adequate information regarding Ecology's listing assessment process with all supporting documentation.

Response

Ecology’s standard WQA process includes a 60-day public comment period, which has proven sufficient in past and current assessments. Ecology received a significant amount of comments within the 60-day comment period and no official requests to extend the public comment period for the draft WQA were submitted to Ecology during the comment period.

Ecology followed our WQP Policy 1-11 methodology in utilizing DOH fish consumption advisories for WQA purposes (See Section 2I. Toxics-Human Health Criteria). Our Policy 1-11 was developed through a full public review process, including stakeholders, Tribes, and EPA in both the development, review, and final approval of the policy. For more detailed information on development of the PBDE 303(d) listings this assessment cycle, please see supplemental methodology section of the 2018 WQA Supporting Information document.

Holm [2]

Ecology should also reconsider any PBDE listing based on the DOH advisory due to its lack of supporting data and lack of public or peer review.

Response

DOH's assessments of contaminants in fish for the Spokane River underwent extensive external and internal review within DOH and ATSDR, as well as a public comment period. Please see responses to comments from Inland Empire Paper Company and National Council of Air and Stream Improvement, Inc. for more information on DOH's fish consumption advisory for PBDEs and its suitability for the WQA.

Holm [3]

Ecology should mot rely On DOH fish advisory to Propose a Category 5 or other listing. The DOH advisory assessment is inadequate as it has not been independently reviewed by Ecology or peer reviewed to a level similar to Clean Water Act criteria. DOH did not seek public comment but seemed to rely primarily on sole source submittal of information. Ecology has not provided its own assessment of the impairment assessment conducted by DOH for the purpose of issuing a fish advisory based on DOH conclusions regarding combined impacts of PCB and PBDE non cancer effects. Ecology listing proposal provides no assessment of DOH conclusion. The fish tissue data relied upon by both DOH is over 15 years old. Ecology has conducted newer studies showing lower PBDE levels in 2009 report. Ecology proposed listing appears to have ignored any more recent data. DOH has not updated its fish advisory despite stated intentions in advisory to fo so.

Response

Please see responses to comments from Inland Empire Paper Company and National Council of Air and Stream Improvement, Inc. for more information on DOH's fish consumption advisory for PBDEs and its suitability for the WQA. Ecology followed our WQP Policy 1-11 methodology in utilizing DOH fish consumption advisories for WQA purposes (See Section 2I. Toxics-Human Health Criteria). Our Policy 1-11 was developed through a full public review process, including stakeholders, Tribes, and EPA in both the development, review, and final approval of the policy.

Holm [4]

Ecology cannot delegate its authority under 303(d) Clean Water Act to assess potential impairment to another agency's assessment. Ecology must conduct its own assessment and provide opportunity for public review and comment. Reliance on another agency's assessment and application under the Clean Water Act is equivalent to state rulemaking and is subject to APA requirements. Please see Dioxin Organochlorine cases. DOH reliance on precautionary approaches is insufficient to support a 303(d) impairment determination.

Response

We disagree and note that we followed the methodologies in Policy 1-11, Chapter 1, which went through a significant public review process and is recognized by EPA as the listing methodology for the 303(d) list.

Holm [5]

Ecology comment period is insufficient given this first time listing approach based solely On DOH advisory.

Response

See response to comment Holm [1].

Holm [6]

Ecology also failed to coordinate with the SRRTTF in a timely manner regarding the major impact on the TF obligations and Ecology's own long term participation. Thank you.

Response

The comment is outside the scope of the draft WQA results. The purpose of the Water Quality Assessment is to satisfy Sections 303(d) and 305(b) of the Clean Water Act, requiring states to provide a list of impaired waters and a general report on water quality. Ecology is not required to coordinate 303(d) listing decisions with external parties.

Additionally, the Spokane River Regional Toxics Task Force's (SRRTTF) scope of work is separate of the WQA process. The results of the WQA in no way dictate the Take Force's work plan. Any decisions to expand the scope of the Task Force to include PBDEs would occur within the stablish protocols of the SRRTTF.

Lincoln Loehr

Loehr [1]

This comment pertains to all of the marine water category 5 (impaired) listings for dissolved oxygen. The listings are based on 53 year old dissolved oxygen criteria that are not biologically based, are lacking in any identified scientific rationale, are not scientifically defensible, and are not based on credible information and literature for developing and reviewing a surface water quality standard. The dissolved oxygen criteria do not meet the federal requirements of 40 CFR 131.11, nor do they meet the requirements found in Chapter 2 of WQP Policy 1-11 “Ensuring Credible Data for Water Quality Management”. Since Ecology is using non-credible criteria, there is no basis for asserting that the waters are impaired. The 0.2 mg/l change component of the criteria is not biologically based. The listings should be changed to Category 2 (unsure) and notation provided that the listings will be re-evaluated after Ecology goes through a credible process to develop new criteria involving scientific input and public and scientific review. EPA should be involved since they have experience with marine DO [dissolved oxygen] criteria development.

Response

Category 5 listings for marine dissolved oxygen are based on water quality standards that are in effect for Clean Water Act purposes. Current literature supports our dissolved oxygen standards. Although revisions to the water quality standards are outside the scope of the WQA, we reiterate that Ecology remains open to new, peer-reviewed science that shows the current water quality criteria are inappropriate and do not support the existing designated uses. As we have said previously, any future update to the water quality

standards must be based on new scientific information and would require a CWA review. In addition, where new standards apply to waters utilized by endangered species, the EPA CWA review will require a biological evaluation of compliance with Endangered Species Act. This would be the case for an update to any portion of Washington's marine dissolved oxygen criteria.

Lummi Tribe Natural Resources Dept.

Lummi [1]

Ecology's draft 2018 water quality assessment includes waterbodies located within the external boundaries of the Lummi Indian Reservation. As Washington State water quality standards do not apply to on-Reservation waters, I wanted to let you know that this error shows up on the assessment map.

Response

Thank you for bringing this to our attention. Ecology is committed to ensuring we only include Washington Waters of the State in the WQA. We have modified water quality determinations based on the Lummi Indian Reservation boundary provided by tribe representatives. Any water quality determinations lying entirely within the external boundary of Lummi waters were removed from the assessment. For AUs located partially within the Lummi external boundary, we reviewed monitoring locations and only kept water quality determinations based on data collected outside of Lummi waters. The spatial extent of these AUs will be modified to reflect only off-Reservation waters once additional technical resources are available for the following WQA.

Lummi [2]

The Lummi Water Resources Division monitors several sites on the northern Reservation boundary to quantify water quality as state waters flow onto the Reservation. It looks like at least some data from most of those sites were included in the assessment, but I can't tell which years of data were used. Nearly all of them are impaired (every year), but the listing information for the sites seems to only reference impairment up through 2009.

Response

Thank you for the updated latitude/longitude coordinates provided for the monitoring locations beginning with "LUMMINSN_WQX". With this information were able to accurately georeference these locations to waters bordering the Lummi Reservation. This resulted in the inclusion of monitoring data collected from 2006 to 2017 at several assessment units off-Reservation.

Lummi [3]

We have a couple other sites that are on the northern Reservation boundary (Slater Road) that monitor waters as they cross onto the Reservation that are not included on the assessment map. I've attached a map that shows the sites on the northern Reservation boundary (Slater Road):

- SW014 – Onion Creek as it flows from P66 facility to culvert under Slater Road – this was not shown as an assessed water body on the map
- SW011 – Jordan Creek just south of the Slater Road bridge – waterbody name incorrectly as tributary to Jordan Creek
- SW010 – tributary to Jordan Creek at Slater Road – waterbody name incorrectly as Jordan Creek
- SW012 – Schell Creek, tributary to Lummi River – this was not shown as an assessed water body on the map
- SW013 – agricultural ditch, tributary to Lummi River
- SW009 – Lummi River just south of Slater Road

Response

Thank you for the additional information on these monitoring locations. We have georeferenced these locations to the appropriate waterbodies upstream of the reservation boundary and have incorporated the data into updated water quality determinations for those waterbodies.

Lummi [4]

The site names for Jordan creek and it's tributary are switched. Jordan Creek (SW011) is to the west of the tributary (SW010).

Response

Thank you for the information. We have modified the waterbody names for these monitoring location's assessment units as suggested.

National Council for Air and Stream Improvement, Inc.

NCASI [1]

The recent proposed 303(d) listing of the Spokane River for PBDEs relies on a guidance document from the Washington Department of Health titled "Potential Cumulative Health Effects Associated with Eating Spokane River Fish Spokane, Spokane County, Washington" (DOH 334-275) to incorporate a risk assessment approach that would account for a perceived interaction between PCBs and PBDEs that could potentially impact cumulative toxicity. The original guidance from the Washington Department of Health had not indicated a need to account for this potential interaction and this document notes the new approach was proposed in response to a request from the Center of Justice, who was concerned that the previous guidance, "did not address the cumulative effects of contaminants of concern via fish consumption."

Response

The recent proposed 303(d) listing of the Spokane River for PBDEs did not solely rely on the document: "Health Consultation: Potential Cumulative Health Effects Associated with Eating Spokane River Fish – Spokane, Spokane County, Washington (Pub. No. DOH 334-275)" prepared by DOH in 2011. While true that the 2011 Health Consultation addressed the cumulative effects of PBDEs and PCBs on fish consumption, DOH addressed the effects of

PBDEs, PCBs, and other contaminants separately in both 2007 and in 2018. As shown in Appendix A from the 2007 document: "Health Consultation: Evaluation of PCBs, PBDEs and Selected Metals in the Spokane River, Including Long Lake Spokane, Washington (Pub. No. DOH 334-147)", PBDEs were evaluated separately based on neurological endpoints. DOH has stated that meal restrictions based solely on PBDEs would occur even without the potential cumulative impacts from PCBs. The fish consumption advisories were updated in 2009 to include PBDEs based on the 2007 Health Consultation Report. The fish consumption advisories for the Spokane River were further updated in 2018 based on several more recent studies including a comprehensive 2012 fish tissue study on the Spokane River conducted by Ecology's Freshwater Fish Contaminant Monitoring Program (Ecology Publication No. 14-03-020).

NCASI [2]

The Washington Department of Health disseminated the above report [DOH 334-275] providing an approach that attempts to take into account the cumulative effects of PBDEs and PCBs; the proposed approach was to use a Hazard Index (HI).

Response

Ecology discussed this DOH and they provided the following information:

> "In an advisory role, DOH uses not only ATSDR guidance for assessing multiple contaminants in fish but also best professional judgement to provide consumption advice to consumers. In assessing multiple contaminants that may be present in fish at the same time and having similar health endpoints (e.g. adverse impacts on neurological development in infants and children), DOH has adopted a conservative, health protective approach. The intent of this approach is to lessen the possible adverse impacts that combinations of contaminants may have on health outcomes. In adopting this approach, DOH is aware that the mode of action of the various contaminants is not known but the target endpoint is similar and warrants protective action."

NCASI [3]

The Washington Department of Health chose to rely on the Agency for Toxic Substances and Disease Registry (ATSDR) Minimal Risk Levels (MRLs) for PCBs rather than an EPA Reference Dose (RfD)...Use of the MRL in a regulatory context is not only inappropriate due to not being fit-for-purpose, but is also unnecessary considering that EPA has derived RfDs for 2 Aroclors (1254 and 1016), which would be suitable for incorporating into an evaluation of chemical mixture dose additivity. Under the above specific ATSDR guidance, use of an MRL for regulatory development is not advised, nor is use of an MRL in lieu of an existing EPA RfD.

Response

In response to the concern that DOH relied on MRLs for PCBs, Ecology discussed this DOH and they provided the following information:

> "DOH did in fact used the MRL for PCBs as a screening tool as part of the assessment. Additional factors such as health benefits, the robustness of data, and risk management and risk communication strategies were also incorporated prior to providing the final guidance on consumption."

NCASI [4]

The critical endpoints identified by USEPA for PBDEs (neurological) and PCBs (dermal, ocular, and immune) are not the same and do not overlap. There is no evidence that the underlying mechanism of action of these chemical classes is similar between disparate organ systems. Given the minimal requirement of the Hazard Index approach to apply dose additivity (e.g., based on an RfD) to the same target organ system, the Hazard Index approach is not appropriate for managing exposures to mixtures of PBDEs and PCBs.

Response

In response to the concern that PBDEs and PCBs have different target organ systems for critical endpoints, Ecology discussed this DOH and they provided the following information:

> "It is correct to state that the critical endpoints for PBDEs and PCBs are different. For PBDEs, the critical endpoint is neurological impacts while the critical impact for PCBs is on the immune system. However, many contaminants including PBDEs and PCBs can have other adverse effects. The critical endpoint is the health endpoint that occurs at the lowest dose. Use of an RfD or MRL based on the critical endpoint protects against all other possible health endpoints that might occur at higher doses. Chemicals may therefore have several criteria aimed at protecting a given health outcome. In this case, DOH relied on ATSDR's non-critical MRL for PCBs aimed at protecting neurological endpoints along with the RfD for PBDEs who's critical endpoint is the same (i.e., neurological impacts).
>
> In assessing contaminants for possible fish consumption advice, DOH initially assesses each contaminant separately as was done in this health consultation. Given the similarity on health outcomes, DOH also assessed the potential interaction of both PBDEs and PCBs. Consumption advice, if needed, is then based on whichever contaminant or combination of contaminants results in the more restrictive meal limits.
>
> It should be noted that calculated meal restriction based solely on PBDEs without the potential impact from PCBs still results in fish advisories for multiple fish species at multiple locations throughout the Spokane River (Appendix A)."

Northwest Environmental Advocates

NWEA [1]

Do Ecology's documentation requirements preclude members of the public ("third parties") from submitting data and information about water quality concerns if they were not themselves the data collectors?

Response

No. Use of third party data submittals is described in Policy 1-11, Chapter 1, 1E. "Data and Information Submittals." See sub-section "Additional Information on Data Submittals, Third Party Data Submittals."

NWEA [2]

What does it mean for data to be “suitable for water quality-based actions”?

Response

See WQP Policy 1-11 Chapter 2. “Ensuring Credible Data for Water Quality Management”, Section 2. Water Quality-Based Actions Subject to Water Quality Data Act Policy. This section provides a description of actions that are subject to the provisions of the Water Quality Data Act and is intended to promote the generation and use of credible data in actions undertaken to assess and improve water quality.

NWEA [3]

How does someone submitting data “indicate[] whether the data are suitable for water quality-based actions”?

Response

For the Water Quality Assessment, WQP Policy 1-11 Chapter 1 provides detailed descriptions of what data submitters must provide in order to ensure that the data and information meets state credible data requirements. See Section 1D. “Ensuring Data Credibility in the Assessment.” and Section 1.E “Data and Information Submittals” that provides details on what must be provided for numeric data submittals and Information submittals based on narrative standards.

NWEA [4]

Does Ecology use data when the submitter has failed to indicate whether the data is suitable for water quality-based actions?

Response

Ecology reviews all data and information submitted to determine if the data is suitable for water quality-based actions, regardless of whether or not the submitter has indicated, or failed to indicate, that the data is suitable. See WQP Policy 1-11 Chapter 1, Section 1D. Ensuring Data Credibility in the Assessment, sub-section “Data Unusable for the Assessment” that describes circumstances when Ecology will not use data or information to evaluate the status of water quality in the WQA, and provides examples of unusable data.

NWEA [5]

Why does the requirement that the data collectors must determine that the data are “suitable for water quality-based actions” not inappropriately limit the data that Ecology considers in the assessment?

Response

Ecology must be able to ascertain the quality of data prior to using these data for regulatory decisions such as the 303(d) list. Therefore, Ecology will not use data or information to evaluate the status of water quality in the WQA when it does not meet data credibility requirements, or does not have sufficient information to determine the quality of the data. See WQP Policy 1-11 Chapter 1, Section 1D. Ensuring Data Credibility in the Assessment, sub-section “Data Unusable for the Assessment”

NWEA [6]

Why does the requirement that data collectors determine that data "are representative of the waterbody" not inappropriately limit the data that are considered in the assessment?

Response

The Water Quality Data Act at RCW 90.48.585(1)(b) requires that samples or measurements taken for purposes of actions described in 90.48.580(2)(a) must be representative of water quality conditions at the time the data was collected. The application of water quality standards must rely on data that are not bias spatially or temporally and should be collected in a manner to reflect the conditions of the water at the time it was collected. Portions of the surface water quality standards reflect this (spatial) requirement by stating that data should not be collected in a manner as to bias the results. Example: WAC 173-201A-200(1)(c)(vi)(B)" …samples should….Not be taken from shallow stagnant backwater areas, within isolated thermal refuges, at the surface, or at the water's edge." Similarly, the recreational use criteria require that data not be collected in a manner that would act to mask periods of non-compliance. This demonstrates an issue of a temporal data collection method that could bias the determination of compliance when comparing samples to the geometric mean and 10% sample criteria. There are many monitoring plans that, by virtue of their objective, may seek to bias data collection spatially and temporally – the requirement for the data submitter is to ensure that the collection methods align with the purpose of obtaining a sample that is representative of the general waterbody conditions and not collected in a manner that could bias the assessment determination – intentional or unintentionally.

NWEA [7]

How does Ecology rationalize its rejection of data that are not "representative of the waterbody"?

Response

The Water Quality Data Act at RCW 90.48.585(1)(b) requires that samples or measurements taken for purposes of actions described in 90.48.580(2)(a) must be representative of water quality conditions at the time the data was collected.

NWEA [8]

Does Ecology request documentation from data collectors such as universities and public agencies pertaining to their research on water quality concerns when it has learned about and obtained such research?

Response

Yes, Ecology reserves the right to request further quality assurance documentation from any entity associated with data for use in the WQA. See WQP Policy 1-11 Chapter 1, Section 1D. Ensuring Data Credibility in the Assessment, sub-section "Data Unusable for the Assessment". An example of why this is important is discussed in the previous response regarding spatial and temporal bias that some datasets may pose, intentionally or unintentionally.

NWEA [9]

Does Ecology have a method of assessing whether waters are "threatened" and has Ecology proposed to list any waters that are "threatened"? If not, why not?

Response

Yes, see WQP Policy 1-11 Chapter 1, IF. Category Descriptions, sub-section 'Category 5. The 303(d) List'. Ecology may place an assessment unit that is currently meeting standards in Category 5 when trend analysis indicates that the assessment unit is not expected to meet applicable water quality standards by the next WQA cycle. A valid statistical design and analysis methodology is required to justify a Category 5 listing based on trend analysis (see USGS publication, Statistical Methods in Water Resources, September 2002[21]. To date, we have not listed any waters currently meeting standards based on a trend analysis because there has not been documentation submitted to meet this requirement.

NWEA [10]

How does Ecology differentiate between "data" and "information" as those terms are used in 40 C.F.R. § 130.7(b)(5)? Please define "information" in Ecology's understanding of that term.

Response

Data is a broad term for facts and information used to make an analysis and can come in many forms. In fact, Merriam-Webster's dictionary defines data as "facts or information used usually to calculate, analyze, or plan something." Ecology has regularly used the word "data" to imply both monitoring pollutant parameter data as well as any associated information that would lead to credible water quality determinations. Data submittals for the Assessment include many types of information to determine that the monitoring data was credibly collected and analyzed, specifics about the monitoring site, and other information for the particular assessment. Examples of this include Quality Assurance Project Plans, verification studies, effectiveness monitoring studies, or other water quality-focused studies that are used for narrative listing decisions. WQP Policy 1-11, Chapter 1 methodology includes several references to information, other than numeric monitoring data, that should be considered in the Assessment. See Section 1D. "Ensuring Data Credibility in the Assessment" and Section 1.E "Data and Information Submittals", which both provide details on data and information that must be provided for both numeric data submittals and Information submittals based on narrative standards. Water quality studies that draw credible conclusions about a waterbody can be used to make decisions based on both numeric and narrative criteria.

NWEA [11]

Does Ecology use "information" to place waterbody segments on its 303(d) list for waterbodies that are in violation of numeric water quality criteria?

Response

Yes, see response to comment NWEA [10].

[21] https://pubs.usgs.gov/tm/04/a03/tm4a3.pdf

NWEA [12]
What steps has Ecology take to actively solicit "information" that are not data that may be relevant to placing waterbodies on the 303(d) list?

Response

We conducted a Call-for-Data in 2016 (see WSR 16-03-088[22]) and 2018 (see WSR 18-05-036[23]) to seek new water quality data and information for fresh and marine waters to be used for updating Washington's Water Quality Assessment. In the solicitations, Ecology requested that numeric water quality data be submitted into Ecology's Environmental Information Management (EIM) database to be used for the Assessment and that narrative information that provides conclusive evidence that a beneficial water use is being impaired be submitted directly to the Water Quality Program at the address provided in the notice. In addition, we sent the Call-for-Data solicitation to interested parties via the Water Quality Listserv and Water Quality Partnership email lists, which went out to well over 1000 entities. Our outreach strategy also included personally reaching out to over 300 individuals through letters or emails, which represented tribal and local governments, federal and state agencies, universities, county health districts, permit holders, and organizations that previously submitted data.

NWEA [13]
Has Ecology listed any waterbodies on the 2018 303(d) based solely on "information"? If so, which waterbodies and what was the basis of those listings?

Response

We are unclear what the commenter would consider to be "solely on information". If the commenter is asking whether we list waters using information that is not based on numeric criteria associated with the state's water quality standards, we note that methodologies described in Part 2 for benthic biological indicators, total phosphorus in lakes, and toxics-human health criteria all rely on the narrative standards at WAC 173-201A-260 as the basis for listing. If you would like a list of those waterbodies, you can use the WQA Search tool directly to produce parameter-specific lists within the geographic areas you are interested in. As previously noted, Ecology uses both data and information to analyze submittals for the purpose of determining if the submittal meets Washington's credible data laws and policies. For water quality–related studies suggesting impairment of a use, Ecology assesses the submittals to determine impairment based on narrative standards using the methodology described in WQP Policy 1-11 Chapter 1, 1E. "Data and Information Submittals", sub-section "Information Submittals Based on Narrative Standards".

NWEA [14]
Does Ecology interpret the Credible Data Act, RCW 90.48.570-590, to preclude the use of "information" that is not "data" for the purpose of placing waterbody segments on its 303(d) list?

[22] http://lawfilesext.leg.wa.gov/law/wsr/2016/03/16-03-088.htm
[23] http://lawfilesext.leg.wa.gov/law/wsr/2018/05/18-05-036.htm

Response

No, if the information meets credible data requirements as described in WQP Policy 1-11 Chapter 1, Ecology has and will continue to use it for listing purposes. We also note, as we did in a previous response from this commenter, that we do not differentiate the terms "information" and "data" to be mutually exclusive of one another. Ecology considers "data" to be a broad term for facts and information used to make an analysis and can come in many forms. Ecology has regularly used the word "data" to imply both monitoring pollutant parameter data as well as any associated information that would lead to a credible listing decision. We use data and information to make listings based on both numeric and narrative standards.

NWEA [15]

Does Ecology have evidence that orca whales are only contaminated with unsafe levels of dioxin when they occupy the 0.836 square kilometers that constitute Assessment Unit ID 47122F4I4_01_01?

Response

Evidence of contamination beyond listings that are based on available data and information is outside the scope of the WQA. The purpose of the WQA is to determine the status of water quality in Washington State using the Water Quality Data Act (RCW 90.48.570 – 590)) and the methodologies described in Water Quality Policy 1-11, Chapter 1, in order to fulfill the federal Clean Water Act Section 303(d) List and Section 305(b) state water quality status report. Further, we note that the listing was initiated during the 2004 WQA, prior to when the Water Quality Data Act requirements in RCW 90.48.580 went into effect (after June 10, 2004) to ensure that credible data be used for actions to determine whether any water of the state should be placed on or removed from Category 5. Policy 1-11, Chapter 1 was subsequently revised to provide guidance to ensure data credibility in the WQA and guidance on data and information submittals, including the use of narrative standards.

NWEA [16]

Does Ecology have evidence that seals in Puget Sound off Alkai Point in Seattle are only contaminated with total furans, PCBs, and dioxin when they occupy the 0.836 square kilometers of Assessment Unit ID 47122F4I4_01_01?

Response

Evidence of contamination beyond listings that are based on available data and information is outside the scope of the WQA. See additional response above.

NWEA [17]

Is it Ecology's position that the Credible Data Act restricts Ecology's impairment determination for dioxin in killer whales and total furans, PCBs, and dioxin in seals to a single assessment unit (Assessment Unit ID 47122F4I4_01_01)?

Response

Evidence of contamination beyond listings that are based on available data and information is outside the scope of the WQA. See additional response above.

NWEA [18]
What data and information have resulted in determinations of other than Category 5 because Ecology deemed them not "representative of the waterbody"?

Response

The methodologies described in Water Quality Policy 1-11, Chapter 1 provide details on what is considered "representative of the waterbody" under the specific parameter methodologies described in Part 2 of the policy. Information submitted for a listing based on narrative standards must demonstrate that the contaminant is causing adverse effects to a designated use, and also demonstrate that the contaminant is coming from the specific waterbody associated with the study in order to be considered "representative of the waterbody".

NWEA [19]
What steps did Ecology take to collect data and information on the impairment status of wildlife for this assessment?

Response

Ecology did not specifically request data and information on one specific use (as the comment appears to suggest), but solicited for any readily available data and information regardless of the specific use. We conducted a Call-for-Data in 2016 (see WSR 16-03-088) and 2018 (see WSR 18-05-036) to seek new water quality data and information for fresh and marine waters to be used for updating Washington's Water Quality Assessment. In the solicitations, Ecology requested that numeric water quality data be submitted into Ecology's Environmental Information Management (EIM) database to be used for the Assessment and that narrative information that provides conclusive evidence that a beneficial water use is being impaired be submitted directly to the Water Quality Program at the address provided in the notice. In addition, we sent the Call-for-Data solicitation to interested parties via the Water Quality Listserv and Water Quality Partnership email lists, which went out to well over 1000 entities. Our outreach strategy also included personally reaching out to over 300 individuals through letters or emails, which represented tribal and local governments, federal and state agencies, universities, county health districts, permit holders, and organizations that previously submitted data.

Federal law requires that "water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters." 40 C.F.R. § 131.10(b). Washington's water quality standards reflect this federal requirement. See WAC 173-201A-260(3)(b) ("Upstream actions must be conducted in manners that meet downstream water body criteria. Except where and to the extent described otherwise in this chapter, the criteria associated with the most upstream uses designated for a water body are to be applied to headwaters to protect nonfish aquatic species and the designated downstream uses.")

NWEA [20]
How does Ecology reflect this requirement to protect downstream uses in developing its 303(d) list in either its listing methodology and/or its proposed 2018 list?

Response

The provision for protection of downstream waters cited in the comment is outside the scope of the WQA. The WQA and 303(d) listing process is based on data and information applied to a specific segment of water.

NWEA [21]

How does Ecology's listing of one segment of marine waters in Puget Sound as violating water quality standards based on dioxin levels in orcas account for protection of downstream waters and uses?

Response

The WQA and 303(d) listing process is based on data and information applied to a specific segment of water. When collecting tissue data and The purpose of the WQA is to determine the status of water quality in Washington State using the Water Quality Data Act (RCW 90.48.570 – 590) and the methodologies described in Water Quality Policy 1-11, Chapter 1 in order to fulfill the federal Clean Water Act Section 303(d) List and Section 305(b) state water quality status report.

NWEA [22]

How does Ecology evaluate protection of downstream waters in marine waters?

Response

The provision for protection of downstream waters cited in the comment is outside the scope of the WQA. The WQA and 303(d) listing process is based on data and information applied to a specific segment of water.

NWEA [23]

Does Ecology agree or disagree that its provision at WAC 173-201A-260(3)(b) is consistent with the federal requirement set out at 40 C.F.R. § 131.10(b)? Please explain your rationale.

Response

Questions regarding the water quality standards and their relation to federal regulations is outside of the scope of the WQA.

NWEA [24]

Did Ecology use the results of the Salish Sea model as the basis of listing for current and future (threatened), impairment of dissolved oxygen levels for marine segments without water quality data? If not, why not?

Response

Policy 1-11 Chapter 1, IE. "Data and Information Submittals" states that Ecology will use modeled outputs that meet credible data requirements when the status of water quality is being determined. Credible data requirements are defined in the Water Quality Data Act at RCW 90.48.585. This section requires that credible data be used when determining whether any water of the state is to be placed on or removed from the section 303(d) list. The Salish Sea model was used to verify and refine Category determinations only within portions of Puget Sound where observational dissolved oxygen data has been collected. No dissolved

oxygen category determinations were made based on the Salish Sea Model alone. Additionally, no waterbodies were placed into Category 2 or 5 without observational data demonstrating exceedances of the numeric criteria. For more specific information on how model results were incorporated with observational data to produce category determination, please see the 2018 Water Quality Assessment Supporting Information document. It is important to note that this process is not different from the modeling information that results from a TMDL modeling analysis. The impaired listings Category 5 or 4A apply to those waters where exceedances of the criteria have been demonstrated through data collection. The model however, is used to focus on the implementation needs to improve water quality – regardless of where and how many Category 5s led to the analysis.

NWEA [25]

Does Ecology have a method of determining designated use impairment that is not based on exceedances of numeric criteria?

Response

Yes, see the methodology described in WQP Policy 1-11 Chapter 1, 1E. Data and Information Submittals, sub-section "Information Submittals Based on Narrative Standards". See also parameter-specific methodologies described in Part 2 for benthic biological indicators, total phosphorus in lakes, and toxics-human health criteria that rely on the narrative standards at WAC 173-201A-260 as the basis for listing.

NWEA [26]

Does Ecology have a method of determining designated use impairment that is based on the independent applicability of designated uses, namely that the use is impaired by a water quality impact?

Response

See the methodology described in WQP Policy 1-11 Chapter 1, 1E. Data and Information Submittals, sub-section "Information Submittals Based on Narrative Standards".

NWEA [27]

Other than Assessment Unit ID 47122F4I4_01_01, has Ecology ever placed a waterbody on the list of impaired waters designated use impairment that is not based on exceedances of numeric criteria (including conversions to tissue exposure concentrations)? If so, please identify the assessment unit(s).

Response

There are numerous listings in Category 5 (the 303(d) List) that are not based on exceedances of state-adopted numeric criteria. Using the Draft WQA Search Tool the commenter can search for listings of impaired waters with parameters that do not use exceedances of numeric criteria as the basis for listing. These include: benthic macroinvertebrates bioassessment, fine sediment, toxics listed by individual chemical parameter with the Designated use "water supply – Domestic water, toxics listed by individual chemical parameter with the Designated use "Miscellaneous – Harvesting",

polybrominated diphenyl ethers, total phosphorus. The assessment unit associated with each listing will be included in the listing ID information. If you need assistance using the Search Tool, contact water quality program staff at 303d@ecy.wa.gov.

NWEA [28]
Does Ecology believe it has the authority to list waters for designated use impairment where a specific pollutant is not known?

Response
Yes, as long as the information and data associated with the basis for listing meet credible data requirements, and methodologies described in Policy 1-11 Chapter 1 are followed. Examples of listings without a known pollutant include all benthic macroinvertebrates water listings and sediment bioassay listings.

NWEA [29]
Has Ecology ever listed waters for designated use impairment where a specific pollutant is not known? If so, please identify the assessment unit(s).

Response
Yes, see Category 5 listings for benthic macroinvertebrates. The commenter can use the Water Quality Assessment Search tool directly to produce a list that will include the assessment unit associated with each listing. If assistance is needed to use the Search Tool, contact water quality program staff at 303d@ecy.wa.gov.

NWEA [30]
Does Ecology list waters for designated use impairment of finfish and shellfish based on the adverse impact of tissue levels of contaminants on aquatic species regardless of whether there is a foodweb pathway to human consumption? (We were unable to find any such listings.) If so, how?

Response
The methodologies described in Policy 1-11 Part 2H. "Toxics-Aquatic Life Criteria" provide details on how listings are made based on water column data. To our knowledge, EPA does not have nationally recommended tissue criteria levels for the protection of aquatic life. Ecology does not use tissue residue levels as a basis for listing based on aquatic life criteria. The existence of a pollutant in tissue is not a basis for a determination of impairment or exceedance of water quality standards unless a threshold concentration is attributed to an impact to designated uses. If a water quality-related study was submitted with tissue data that suggested a use impairment, Ecology would apply the methodology described in WQP Policy 1-11 Chapter 1, 1E. Data and Information Submittals, sub-section "Information Submittals Based on Narrative Standards" to determine if the study could be used as the basis for listing a specific waterbody segment.

NWEA [31]
Does Ecology list waters on the basis of tissue residue levels and health impacts of toxic pollutants on the designated use of anadromous fish (for protection of aquatic life, not human health) in any waters of the state? If so, please provide an example.

Response

Washington's water quality standards have aquatic life criteria for freshwaters and marine waters that are intended to protect all aquatic life, not just specific to anadromous fish. The aquatic life criteria apply to both fresh and marine water quality, but do not include tissue criteria levels intended to protect the health of anadromous fish. To our knowledge, EPA does not have nationally recommended tissue criteria levels for the protection of aquatic life. Ecology does not use tissue residue levels as a basis for listing based on aquatic life criteria. See Part 2 of WQP Policy 1-11 Chapter 1, 2H. "Toxics-Aquatic Life Criteria" for the methodology Ecology uses for listings based on protection of aquatic life. If a water quality-related study was submitted with tissue data that suggested an aquatic life use impairment, Ecology would apply the methodology described in WQP Policy 1-11 Chapter 1, 1E. Data and Information Submittals, sub-section "Information Submittals Based on Narrative Standards" to determine if the study results could be used as the basis for listing a specific waterbody segment as impairing the aquatic life use based on tissue data.

NWEA [32]

Does Ecology list waters on the basis of data and information on toxic contamination of Pacific staghorn sculpin? If not, why not?

Response

Yes, Ecology verified with Washington Department of Fish and Wildlife that Pacific staghorn sculpin is an edible species. Ecology will consider edible fish and shellfish tissue data to determine that the harvest use is being met, using the methodology described in Part 2 of WQP Policy 1-11, Chapter 1, section 2I. "Toxics-Human Health Criteria", under 2I(2) "Finfish and Shellfish Harvest Use Assessment". See "Data Evaluation for Tissue Samples" for information on tissue data that can be used in the assessment.

NWEA [33]

Does Ecology consider data and information on depleted population size of aquatic species in making determinations on designated use support/impairment? If so, please provide an example.

Response

Ecology will consider data and information received during the call for data, including studies on depleted population size of aquatic species, using the methodology described in WQP Policy 1-11 Chapter 1, 1E. Data and Information Submittals, sub-section "Information Submittals Based on Narrative Standards" to determine if the information can be used as the basis for listing a specific waterbody segment. By way of examples, during this current assessment Ecology analyzed several U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) submittals related to a decline in aquatic species or wildlife related to the Endangered Species Act (ESA), but found that the intent of the studies were either unrelated to determining water quality or ambient conditions of specific waterbodies, or the study did not document that impairment of the existing or designated use was related to the environmental alteration on that same waterbody segment or grid.

To review Ecology decisions on submittals for consideration of narrative standards that were made during this WQA, see 2018 WQA Supporting Information Document.

NWEA [34]

What steps did Ecology take to collect data and information on impairment of designated uses for this assessment?

Response

Ecology determines impairment of designated uses in Washington waterbodies by applying methodologies in WQP Policy 1-11 Chapter 1 for both numeric and narrative data and information. As a first step, Ecology conducted a Call-for-Data in 2016 (see WSR 16-03-088) and 2018 (see WSR 18-05-036) to seek new water quality data and information for fresh and marine waters to be used for determining impairment of designated uses in Washington's waterbodies. In the solicitations, Ecology requested that numeric water quality data be submitted into Ecology's Environmental Information Management (EIM) database to be used for the Assessment and that narrative information that provides conclusive evidence that a beneficial water use is being impaired be submitted directly to the Water Quality Program at the address provided in the notice. In addition, we sent the Call-for-Data solicitation to interested parties via the Water Quality Listserv and Water Quality Partnership email lists, which went out to well over 1000 entities. Our outreach strategy also included personally reaching out to over 300 individuals through letters or emails, which represented tribal and local governments, federal and state agencies, universities, county health districts, permit holders, and organizations that previously submitted data.

As a next step, Ecology considered whether data and information could be used, in accordance with WQP Policy 1-11 and credible data requirements. In addition to numeric data submittals to the agency's Environmental Information Management (EIM) database and federal Water Quality Portal, Ecology also received submittals of information and data outside of EIM to consider for use in the WQA for listing decisions based on narrative standards. Ecology decisions on submittals for consideration of narrative standards that were made during this WQA are documented in 2018 WQA Supporting Information document. Ecology analyzed submittals and determined those that met the listing requirements for use in the WQA and were used, as well as those submittals that did not meet the listing requirements and the reasons the submittal did not qualify for use in the WQA.

It is important to note that submittals that were not used to make a listing based on narrative criteria may have numeric data associated with the submittal. If numeric water quality data associated with, or related to, the study was already in EIM or the federal Water Quality Portal, it would have been accessed directly, regardless of whether or not the narrative submittal was used.

NWEA [35]

Does Ecology consider data and information on the adverse impacts of toxic contaminants on aquatic species that are not incorporated into numeric criteria in making determinations on designated use support/impairment?

Response

Data and information from submittals specific to the situation described in the comment would be considered using the methodology described in WQP Policy 1-11 Chapter 1, 1E. Data and Information Submittals, sub-section "Information Submittals Based on Narrative Standards" to determine if the information could be used as the basis for listing a specific waterbody segment. An example of such a case in this assessment are 303(d) listings for polybrominated diphenyl ethers (PBDEs) based on Department of Health fish consumption advisories. While there are no numeric criteria for PBDEs, DOH health consultation studies found PBDE levels in fish tissue in the Spokane River demonstrated potential adverse health effects to humans consuming fish in the river. Ecology reviewed the data, reports, and quality assurance documents used to develop the advisories to confirm all components of the Credible Data Act were met prior to development of listings. Category 5 determinations were generated for portions of the river where data were collected to support fish consumption advisories. Ecology would follow similar protocols for other data and information submitted showing adverse impacts of toxic contaminants on aquatic species that are not incorporated into numeric criteria.

NWEA [36]

Does Ecology list waters for designated use impairment where it has not identified the original human "source" of the pollutant (e.g., discharge, nonpoint sources)?

Response

Yes. WQP Policy 1-11 Chapter 1 describes the listing methodologies for using data and information to make determinations for the 5 categories in the WQA. It is not the purpose of the WQA to determine the human sources of pollution that may be causing the impairment that results in Category 5 listings. Category 5, as the 303(d) List, becomes the "to do" list for a Total Maximum Daily Load (TMDL) or other pollution control program designed to bring the waterbody back into compliance with the water quality standards. The TMDL or alternative would be the appropriate stage to identify all human sources of pollution.

NWEA [37]

When Ecology states that the source of a pollutant must be identified, does that mean that the pollutant must be measurable in the water column as well as tissue residue in wildlife? If not, what does it mean that the source must be identified?

Response

In order to use information to make a Category 5 listing based on narrative criteria, the data submitter must provide information that documents a designated use impairment in the waterbody segment, and must document that deleterious, chemical, or physical alterations are causing the designated use impairment in the same waterbody segment. In other

words, the information provided must clearly document the connection between the waterbody as the source of the contaminant, and the cause and effects of the associated use (i.e. aquatic life) in order to meet credible data requirements in Washington. By way of example, to create a Category 5 listing based on a study showing harm to wildlife from a specific contaminant, the study would need to demonstrate that the contaminant was causing adverse effects to wildlife, and also demonstrate that the contaminant is coming from specific waterbody segment(s) associated with the study.

NWEA [38]

Does Ecology list marine waters of Puget Sound for designated use impairment where it has not identified a human source of the toxic pollutant?

Response

Yes, Category 5 impaired waterbody listings are based on listing methodologies described in the Policy 1-11. Human sources of the toxic pollutant do not need to be identified in order to list waters.

NWEA [39]

Is it Ecology's position that the Credible Data Act prohibits Ecology from listing waters as impaired based on a designated use impairment if the source of the pollutant has not been identified?

Response

Responding to our "position" on the intent of the Credible Data Act is outside of the scope of the intent of the WQA. However, it appears the commenter may be misconstruing the use of the word "source" noted in the methodology for listing a waterbody segment based on narrative standards to mean that the human-caused sources of a pollutant must be identified. Rather the language in this portion of the standards explains that the source of the contaminant must be attributed to a waterbody. This is not to mean that the source from which the waterbody receives the contaminant must be known. Human-caused sources of the toxic pollutant are not required to be identified as part of the listing process; that would happen subsequently with development of a TMDL or alternative pollution control program. In order to make listings based on narrative standards, unless the methodology for using narrative criteria is specified in the parameter sections (such as bioassessment, toxics-human health criteria, or total phosphorus), the data submitter must provide information that demonstrates that the contaminant is causing adverse effects to a designated use, and also demonstrate that the contaminant is coming from the specific waterbody associated with the study. Those two pieces of evidence must be tied together in order to reach a reasonable determination that the waterbody is causing the impairment of the existing or designated use associated with the study.

NWEA [40]

In the methodology cited above, in Ecology's reference to "cause, and effects" is the word "cause" intended to mean the biological mechanism by which a pollutant causes harm to the species (e.g., metabolic, reproductive) and is "effects" intended to mean a measurable impact to the designated use (e.g., depleted population)?

Response

The term "cause and effect" is commonly used to describe a relationship between actions or events in which at least one action or event is a direct result of the others. In the case of its reference in the methodology, the information submitted for considering a listing based on narrative standards must demonstrate that the contaminant is causing adverse effects to a designated use, and also demonstrate that the contaminant is coming from the specific waterbody associated with the study. Those two pieces of evidence must be tied together in order to reach a reasonable determination that the waterbody is causing the impairment of the existing or designated use associated with the study.

NWEA [41]

Please elaborate on the kinds of "effects" that Ecology would consider to be a demonstration of designated use impairment of aquatic or aquatic-dependent wildlife.

Response

Information submitted for a listing based on narrative standards must demonstrate that the contaminant is causing adverse effects to a designated use, and also demonstrate that the contaminant is coming from the specific waterbody associated with the study. Those two pieces of evidence must be tied together in order to reach a reasonable determination that the waterbody is causing the impairment of the existing or designated use associated with the study.

NWEA [42]

Is it Ecology's position that the Credible Data Act prohibits Ecology from listing waters as impaired based on a designated use impairment if the effect has been identified but not the cause?

Response

Information submitted for a listing based on narrative standards must demonstrate that the contaminant is causing adverse effects to a designated use, and also demonstrate that the contaminant is coming from the specific waterbody associated with the study. Those two pieces of evidence must be tied together in order to reach a reasonable determination that the waterbody is causing the impairment of the existing or designated use associated with the study.

NWEA [43]

Is it Ecology's position that the Credible Data Act prohibits Ecology from listing waters as impaired based on designated use impairment if the cause has been identified but not the effect?

Response

Information submitted for a listing based on narrative standards must demonstrate that the contaminant is causing adverse effects to a designated use, and also demonstrate that the contaminant is coming from the specific waterbody associated with the study. Those two pieces of evidence must be tied together in order to reach a reasonable determination that

the waterbody is causing the impairment of the existing or designated use associated with the study.

NWEA [44]

Please explain how the Credible Data Act requires that designated use impairment be identified by source, cause, and effect of pollution on wildlife.

Response

The Water Quality Data Act at RCW 90.48.585(1)(b) requires that samples or measurements must be representative of water quality conditions at the time the data was collected. Policy 1-11, Chapter 1 provides guidance on ensuring that credible data is used in the Assessment, and guidance on assessment of studies to determine impairment based on narrative standards. In order to create a Category 5 listing based on a study showing harm to wildlife from a specific contaminant, the study would need to demonstrate that the contaminant was causing adverse effects to wildlife, and also demonstrate that the contaminant is coming from a specific waterbody segment(s) associated with the study.

NWEA [45]

Ecology states that it may consider studies about designated use support that address pollutants not identified in its methodology and goes on to discuss the source, causes, and effects of "the contaminant." Will Ecology place a waterbody segment on the 303(d) list for an unidentified contaminant? Will Ecology consider studies of chemical mixtures?

Response

Yes, see Category 5 listings for benthic macroinvertebrates. We also have listings for chlorinate pesticides, HPAHs, LPAHs, and other chemical mixtures.

NWEA [46]

Has Ecology evaluated any culverts or dams as physical alterations that have caused a designated use impairment?

Response

Yes. EPA Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act[24] states that segments should be placed in Category 4c when the states demonstrates that the failure to meet an applicable water quality standard is not caused by a pollutant, but instead is caused by other types of pollution. Pollution, as defined by the CWA is "the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water" (section 502(19)). In these cases, pollution does not result from a pollutant and a TMDL is not required. If during the call-for-data, data and information regarding culverts or other physical alterations is submitted and meets credible data and quality assurance requirements, we would place the listing in Category 4C.

[24] https://www.epa.gov/sites/default/files/2015-10/documents/2006irg-report.pdf

NWEA [47]

Given that salmonids are the primary diet of Southern Resident killer whales and that Ecology has listed a single segment of Puget Sound marine waters as having unsafe levels of dioxin, why does Ecology not evaluate tissue residue levels of dioxin in salmonids as prey for the designated use of whales as wildlife (regardless of Ecology's policy of excluding anadromous fish as the basis for Category 5 listings; see Methodology at 77)?

Response

The initiation of this kind of study is outside the scope of the development of the 303(d)/305(b) lists, which rely on readily available information and are not a requirement to conduct independent research studies. If a water quality-related study was submitted with tissue data that suggested a use impairment to another use, Ecology would apply the methodology described in WQP Policy 1-11 Chapter 1, 1E. Data and Information Submittals, sub-section "Information Submittals Based on Narrative Standards" to determine if the study could be used as the basis for listing a specific waterbody segment.

NWEA [48]

Is it Ecology's position that dioxin is the only toxic contaminant that is causing impairment to the endangered Southern Resident killer whales?

Response

Ecology's position on toxic contamination in killer whales is outside the scope of the WQA. The purpose of the WQA is to determine the status of water quality in Washington State using the Water Quality Data Act and the methodologies described in Water Quality Policy 1-11, Chapter 1, in order to fulfill the federal Clean Water Act Section 303(d) List and Section 305(b) state water quality status report.

NWEA [49]

Listing ID no. 36166 is the sole listing for toxic contamination of orca whales based on studies done in 2000 and 2002. Is it Ecology's position that there are no new data and information pertaining to toxic contamination of and adverse impact on orca whales produced in the last two decades?

Response

Ecology's position on data and information pertaining to toxic contamination of orca whales is outside the scope of the WQA. It is not Ecology's "position" to assume whether or not data and information is available. The purpose of the WQA is to determine the status of water quality in Washington State using the Water Quality Data Act and the methodologies described in Water Quality Policy 1-11, Chapter 1, in order to fulfill the federal Clean Water Act Section 303(d) List and Section 305(b) state water quality status report.

NWEA [50]
What are the "source," "cause," and "effects" that are the basis for Ecology's determination of designated use impairment of killer whales by dioxin in Assessment Unit ID 47122F4I4_01_01?

Response
This listing was initiated during the 2004 WQA, prior to The Water Quality Data Act requirements in RCW 90.48.580 went into effect (after June 10, 2004) to ensure that credible data be used for actions to determine whether any water of the state should be placed on or removed from Category 5. Policy 1-11, Chapter 1 was subsequently revised to provide guidance to ensure data credibility in the WQA and guidance on data and information submittals, including the use of narrative standards.

NWEA [51]
What kinds of "information" that are not water quality "data" will Ecology use as the basis for impairment determinations, if any?

Response
Data submittals for the Assessment include many types of information to determine that the monitoring data was credibly collected and analyzed, specifics about the monitoring site, and other information for the particular assessment. Examples of this include Quality Assurance Project Plans, verification studies, effectiveness monitoring studies, or other water quality-focused studies that are used for narrative listing decisions. WQP Policy 1-11, Chapter 1 methodology includes several references to information, other than numeric monitoring data, that should be considered in the Assessment. See Section 1D. "Ensuring Data Credibility in the Assessment and Section 1.E "Data and Information Submittals", which both provide details on data and information that must be provided for both numeric data submittals and Information submittals based on narrative standards. Water quality studies that draw credible conclusions about a waterbody can be used to make decisions based on both numeric and narrative criteria.

Ecology's proposed list contains no search parameters for "contaminants of emerging concern" (CEC), pharmaceuticals and personal care products (PPCP), and other toxic contaminants for which Washington has no numeric criteria. Similarly, the methodology makes no mention of these pollutants despite their being addressed in Washington's narrative criterion for toxics.

NWEA [52]
Does Ecology obtain and evaluate for the purpose of this assessment data and information on CEC, including but not limited to PPCP, and other toxic contaminants for which Washington has no numeric criteria? If not, why not?

Response
We do not have specific listing methodologies developed for "contaminants of emerging concern (CEC)". Since Washington standards do not have numeric criteria for CECs, data and information submittals related to CECs would be considered for determining impairment based on narrative standards using the methodology described in WQP Policy 1-11 Chapter

1, 1E. Data and Information Submittals, sub-section “Information Submittals Based on Narrative Standards”.

NWEA [53]
What steps, if any, did Ecology take to collect data and information on CECs for this assessment?

Response
Ecology did not specifically request data and information on a specific set of criteria (as the comment suggests), but solicited for any readily available data and information regardless of the specific use. We conducted a Call-for-Data in 2016 (see WSR 16-03-088) and 2018 (see WSR 18-05-036) to seek new water quality data and information for fresh and marine waters to be used for updating Washington’s Water Quality Assessment. In the solicitations, Ecology requested that numeric water quality data be submitted into Ecology’s Environmental Information Management (EIM) database to be used for the Assessment and that narrative information that provides conclusive evidence that a beneficial water use is being impaired be submitted directly to the Water Quality Program at the address provided in the notice. In addition, we sent the Call-for-Data solicitation to interested parties via the Water Quality Listserv and Water Quality Partnership email lists, which went out to well over 1000 entities. Our outreach strategy also included personally reaching out to over 300 individuals through letters or emails, which represented tribal and local governments, federal and state agencies, universities, county health districts, permit holders, and organizations that previously submitted data.

NWEA [54]
What studies on CECs in Washington waters has Ecology rejected as the basis for the 2018 assessment?

Response
As part of the public review for this WQA, we produced a document that provides Ecology’s determinations on submittals of information and data that we considered for use in the WQA for listing decisions based on narrative standards. This document includes a list of submittals that meet credible data and Policy 1-11 listing requirements and were included in this WQA, as well as several tables that include narrative submittals that were determined to not meet the listing requirements for use for the WQA because, for one or more reasons, the submittal did not meet credible data requirements described in statutes (RCW 90.48.570-590) and WQP Policy 1-11, Chapter 1. Please see 2018 WQA Supporting Information Document.

NWEA [55]
What steps did Ecology take to collect data and information on impacts of multiple contaminants for this assessment?

Response
The initiation of this kind of study is outside the scope of the development of the 303(d)305(b) lists which rely on readily available information and are not a requirement to

conduct independent research studies on the confounding effects of multiple contaminants. Where such studies exist and support the determination that multiple contaminants cumulatively result in impairment of a use, Ecology will review for assessment determinations.

NWEA [56]

Does Ecology evaluate compliance with its narrative prohibition on multiple toxic substances that cause cumulative adverse impacts, such as additive and synergistic effects, to designated and existing uses?

Response

Ecology uses both data and information to analyze submittals for the purpose of determining if the submittal meets Washington's credible data laws and policies. For water quality–related studies suggesting impairment of a use, Ecology assesses the submittals to determine impairment based on narrative standards using the methodology described in WQP Policy 1-11 Chapter 1, 1E. Data and Information Submittals, sub-section "Information Submittals Based on Narrative Standards". The data submitter must provide information that demonstrates that the cumulative effects of multiple contaminants (as the comments suggests), is causing adverse effects to a designated use, and also demonstrate that the contaminants are coming from the specific waterbody associated with the study. Those two pieces of evidence must be tied together in order to reach a reasonable determination that the waterbody is causing the impairment of the existing or designated use associated with the study. The initiation of this kind of study is outside the scope of the development of the 303(d)305(b) lists which rely on readily available information and are not a requirement to conduct independent research studies on the confounding effects of multiple contaminants. Where such studies exist and support the determination that multiple contaminants cumulatively result in impairment of a use, Ecology will review for assessment determinations.

NWEA [57]

How does Ecology evaluate the cumulative impacts of toxic contaminants and conventional parameters (e.g., temperature and dissolved oxygen increase to toxicity) when developing the 303(d) list?

Response

The initiation of this kind of study is outside the scope of the development of the 303(d)305(b) lists which rely on readily available information and are not a requirement to conduct independent research studies. Submittals on the cumulative impacts of toxic or conventional parameters must provide information that demonstrates that the cumulative effects of multiple pollutants, are causing adverse effects to a designated use, and also demonstrate that the contaminants are coming from the specific waterbody associated with the study. Those two pieces of evidence must be tied together in order to reach a reasonable determination that the waterbody is causing the impairment of the existing or designated use associated with the study.

NWEA [58]
Does Ecology list any waters where the quality of the water is adversely affecting the quality and/or quantity of prey consumed by species higher on the food chain?

Response
The initiation of this kind of study is outside the scope of the development of the 303(d)305(b) lists which rely on readily available information and are not a requirement to conduct independent research studies. The submittal being considered by Ecology must provide information that demonstrates that the quality of prey consumed by species higher on the food chain are causing adverse effects to a designated use, and also demonstrate that quality of the water is the cause of the adverse effects. Those two pieces of evidence must be tied together in order to reach a reasonable determination that the waterbody is causing the impairment of the existing or designated use associated with the study.

NWEA [59]
Does Ecology evaluate tissue levels of polybrominated diphenyl ethers (PBDEs) where the Washington Department of Health has not issued a fish consumption advisory? If not, why not?

Response
Ecology uses fish tissue data that meets the methodology described in Part 2 of WQP Policy 1-11, Chapter 1, section 2I. "Toxics-Human Health Criteria", under 2I(2) "Finfish and Shellfish Harvest Use Assessment". See the description under this sub-section that provides guidance on the use of Department of Health Fish Advisories. Otherwise, data submittals for PBDEs would be considered under the narrative standards and the submittal would need to demonstrate that the PBDEs are causing adverse effects to a designated use, and also demonstrate that the PBDEs are coming from the specific waterbody associated with the study. Those two pieces of evidence must be tied together in order to reach a reasonable determination that the waterbody is causing the impairment of the existing or designated use associated with the study. Please also reference the Supplemental Methodology section of the 2018 WQA Supporting Information document for more information on how PBDEs category determinations were developed.

NWEA [60]
Does Ecology evaluate adverse impacts to aquatic species to implement the narrative criteria where data indicate that numeric criteria are not sufficiently protective of aquatic species?

Response
As with other data submittals based on the narrative standards, the data submittal must provide information that documents a designated use impairment in the waterbody segment, and must document that deleterious, chemical, or physical alterations are causing the designated use impairment in the same waterbody segment. In other words, the information provided must clearly document the connection between the waterbody as the contaminant, and the cause and effects of the associated use (i.e. aquatic life) in order to meet credible data requirements in Washington.

NWEA [61]

Does Ecology use values that have been determined to be cause adverse health impacts to fish and wildlife in assessing data and information? (For example: Tetra Tech, The Health of the River 1990-1996, Integrated Technical Report 52 (May 20, 1996) ("Concentrations of organochlorine insecticides, PCBs, and to a lesser extent PCDDs and PCDFs in the liver of river otters [of the Lower Columbia River] were highly correlated with each other and many were significantly related to baculum [penis bone] and testes size or weight." "[h]istorically, some individual mink contained PCB concentrations known to make adult female mink in laboratory studies incapable of producing young."). If not, what is the basis for not doing so?

Response

The data submittal must provide information that documents a designated use impairment in the waterbody segment, and must document that deleterious, chemical, or physical alterations are causing the designated use impairment in the same waterbody segment. In other words, the information provided must clearly document the connection between the waterbody as the contaminant, and the cause and effects of the associated use (i.e. aquatic life) in order to meet credible data requirements in Washington.

NWEA [62]

Does Ecology consider violations of the Tier I protection of existing uses to be the basis for listing on the 303(d) list? If not, why not?

Response

Tier I antidegradation, protection and maintenance of existing and designated uses, is intrinsically applied through the numeric and narrative criteria, which are written such that if you are meeting criteria, Tier I anti-degradation is being met. As described in WAC 173-201A-310(1), "No degradation may be allowed that would interfere with, or become injurious to, existing or designated uses, except as provided for in this chapter." Information required to make a listing based on narrative standards, including anti-degradation, would need to document both the environmental alternation (degradation) of the waterbody and documentation that the impairment of an existing or designated use is related to the environmental alteration.

WAC 173-201A-310(2) further states that "For waters that do not meet assigned criteria, or protect existing or designated uses, the department will take appropriate and definitive steps to bring the water quality back into compliance with the standards." This sub-section infers that Category 5 listings, in accordance with Tier 1 requirements, need a TMDL or alternative pollution control program, to improve water quality.

NWEA [63]

Does Ecology evaluate data and information pertaining to the quality of wetlands? If not, why not?

Response

Water quality criteria approved in Washington's water quality standards were developed for protection of flowing streams and lakes. Therefore, these criteria are not applicable to wetland environments. Impairment determinations for wetlands would rely on narrative

information showing that the uses provided by the wetland were not being attained. Narrative data submittals related to wetlands would need to document both the environmental alternation (degradation) of the associated wetlands and documentation that the impairment of an existing or designated use is related to the environmental alteration.

NWEA [64]
What steps did Ecology take to collect data and information on HABs, excess nitrogen, phosphorus, algae, or aquatic weeds for this assessment?

Response

Ecology accessed the Washington State Lakes Environmental Data Database to evaluate the status of aquatic weeds. Ecology does not currently have a methodology for assessing HABs in lakes and currently relies on the Phosphorus action values to determine where nutrients are contributing to excessive algae and often related HABs. As phosphorus and nitrogen have natural and human-caused sources, it is difficult to determine the level at which phosphorous and nitrogen causes impairment. However, the response of excess nutrients to primary production is demonstrated by dissolved oxygen concentrations for which we have biologically based numeric criteria to identify excess nutrient conditions. Ecology considers any HABs, nitrogen, phosphorus, or algae data or information submitted for consideration for listing under the narrative criteria listing process.

Ecology did not specifically request data and information on one specific criteria (as the comment suggests), but solicited for any readily available data and information regardless of the specific use and associated criteria. We conducted a Call-for-Data in 2016 (see WSR 16-03-088) and 2018 (see WSR 18-05-036) to seek new water quality data and information for fresh and marine waters to be used for updating Washington's Water Quality Assessment. In the solicitations, Ecology requested that numeric water quality data be submitted into Ecology's Environmental Information Management (EIM) database to be used for the Assessment and that narrative information that provides conclusive evidence that a beneficial water use is being impaired be submitted directly to the Water Quality Program at the address provided in the notice. In addition, we sent the Call-for-Data solicitation to interested parties via the Water Quality Listserv and Water Quality Partnership email lists, which went out to well over 1000 entities. Our outreach strategy also included personally reaching out to over 300 individuals through letters or emails, which represented tribal and local governments, federal and state agencies, universities, county health districts, permit holders, and organizations that previously submitted data.

NWEA [65]
What does Ecology do with data and information that demonstrate excess nitrogen, phosphorus, algae, or aquatic weeds?

Response

Ecology accessed the Washington State Lakes Environmental Data Database to evaluate the status of aquatic weeds. See the 2018 Water Quality Assessment Supporting Information document for more details on how these data were used to updated aquatic plant

determinations. Ecology uses both data and information to analyze submittals for the purpose of determining if the submittal meets Washington's credible data laws and policies. For water quality–related studies suggesting impairment of a use, Ecology assesses the submittals to determine impairment based on narrative standards using the methodology described in WQP Policy 1-11 Chapter 1, 1E. Data and Information Submittals, sub-section "Information Submittals Based on Narrative Standards". The data submitter must provide information that demonstrates that the contaminant is causing adverse effects to a designated use, and also demonstrate that the contaminant(s) are coming from the specific waterbody associated with the study. Those two pieces of evidence must be tied together in order to reach a reasonable determination that the waterbody is causing the impairment of the existing or designated use associated with the study.

NWEA [66]

On what basis does Ecology not use its narrative criteria to identify waters with excess nitrogen, phosphorus, algae, aquatic weeds, or offenses against aesthetic values?

Response

Ecology uses both data and information to analyze submittals for the purpose of determining if the submittal meets Washington's credible data laws and policies. For water quality–related studies suggesting impairment of a use, Ecology assesses the submittals to determine impairment based on narrative standards using the methodology described in WQP Policy 1-11 Chapter 1, 1E. Data and Information Submittals, sub-section "Information Submittals Based on Narrative Standards." The data submitter must provide information that demonstrates that the contaminant is causing adverse effects to a designated use, and also demonstrate that the contaminant(s) are coming from the specific waterbody associated with the study. Those two pieces of evidence must be tied together in order to reach a reasonable determination that the waterbody is causing the impairment of the existing or designated use associated with the study.

NWEA [67]

Why does Ecology not use its narrative criteria to identify waters where excessive algae is growing based on chlorophyll-a measurements?

Response

This question inaccurately assumes that Ecology does not or would not consider this data for assessment purposes. If during the call-for-data, data and information regarding excessive algae growth is submitted and meets credible data and quality assurance requirements, we would review the submittal based on the methodology for narrative standards and would place the listing in Category 4C. EPA "Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act" states that segments should be placed in Category 4c when the state demonstrates that the failure to meet an applicable water quality standard is not caused by a pollutant, but instead is caused by other types of pollution. Pollution, as defined by the CWA is "the man-made or man-induced alteration of the chemical, physical, biological, and

radiological integrity of water" (section 502(19)). In these cases, pollution does not result from a pollutant and a TMDL is not required.

NWEA [68]
What does Ecology do with data and information on HABs?

Response
As with other data submittals based on narrative standards, the submittal must demonstrate that the HABs are causing adverse effects to a designated use, and also demonstrate that the HABs) are coming from the specific waterbody associated with the study. Those two pieces of evidence must be tied together in order to reach a reasonable determination that the waterbody is causing the impairment of the existing or designated use associated with the study.

NWEA [69]
On what basis does Ecology not use its Eyes Over Puget Sound data and information as the basis for finding that there is excess nutrient pollution or the impacts of such pollution as measured, for example, in excess algal growth?

Response
Eyes over Puget Sound is an Ecology-sponsored program that obtains monthly high-resolution aerial photo observations and gathers water data at our monitoring stations and state ferry transects, in order to provide a visual picture of the health of Puget Sound. This is a powerful educational tool to allow the observer to see what is currently happening in Puget Sound, see how weather and climate are shaping Puget Sound water quality, and offers free educational material for others. Any data collected as part of Eyes over Puget Sound that is in our agency's Environmental Information Management (EIM) database is utilized in the WQA. This visual information alone is not sufficient for determining an impairment to a designated use, which is the purpose of the 303(d) list.

Additional Information Provided to EPA March 1, 2022 via E-mail
Ecology provides the following information at EPA's request to provide more information supporting Ecology's response to comment NWEA [69] in Ecology's Response to Comments: 2018 Water Quality Assessment document.

Background on Eyes over Puget Sound

Eyes over Puget Sound[25] is an Ecology-sponsored program that obtains monthly high-resolution aerial photo observations and gathers water data at our monitoring stations and state ferry transects, in order to provide a visual picture of the surface conditions of Puget Sound. Eyes over Puget Sound is a powerful educational tool allow observers to see what is currently happening in Puget Sound, see how weather and climate are shaping Puget Sound water quality, and offers free educational material for others.

[25] https://ecology.wa.gov/Research-Data/Monitoring-assessment/Puget-Sound-and-marine-monitoring/Eyes-over-Puget-Sound

Eyes over Puget Sound is one of several programs at Ecology that provide information to assist in assessing long term monitoring of marine water and sediments[26] to identify ecosystem changes in Puget Sound, using a variety of instruments and sampling gear deployed from seaplanes, boats, and passenger ferries.

In addition to water quality monitoring, Eyes over Puget Sound publishes a surface conditions report several times a year. The report highlights water quality and quantity data, climatic and air temperature observations, and precipitation observations. It provides commentary on the results, and shares photos from the month's aerial observations as well as photo observations sent in by volunteers. The purpose of the reports are to provide higher level observations (what they term "summary conditions at a glance") with public interest stories interwoven into the reports to engage the interested public in what is happening in Puget Sound at that time/season.

Applicability and use in the Water Quality Assessment

For purposes of the Water Quality Assessment (WQA), Ecology uses information and data associated with the Eyes over Puget Sound program that meet credible data requirements described in Water Quality Policy 1-11, Chapter 1: Washington's Water Quality Assessment Listing Methodology to Meet Clean Water Act Requirements, and Chapter 2: Ensuring Credible Data for Water Quality Management. In accordance with Policy 1-11 Chapter 2, documentation must be provided for submitted data and information to ensure that the data are suitable for consideration in the WQA. The assessment of the data must consider whether the data, in total, fairly characterize the quality of the waterbody at that location at time of sampling. This is typically done through applying a Quality Assurance Project Plan or equivalent quality assurance procedures. Primarily, we assess numeric pollutant data that are collected from marine monitoring stations that are part of the monthly Eyes over Puget Sound program as well as other monitoring programs that are part of the Monitoring and Assessment Program[27] at Ecology. In the 2018 WQA, we used more than 2.3 million data points that serve as a basis for the Eyes over Puget Sound Program, incorporating dissolved oxygen, pH, and temperature records spanning 67 locations in Puget Sound into our assessment (see EIM StudyID 'MarineWater'). These data were assessed based on Washington's marine water quality standards and other WQA methodology considerations, used in tandem with any relevant natural condition and/or Salish Sea Model analyses (see Supporting Information for 2018 WQA for more information on these analyses).

Application of the Narrative Criteria in the Water Quality Assessment

Any data or information we receive for purposes of the WQA that we do not have numeric water quality standards are compared against our narrative standards. Policy 1-11 Section IE. Data and Information Submittals provides details the information needed to

[26] https://ecology.wa.gov/Research-Data/Monitoring-assessment/Puget-Sound-and-marine-monitoring/Long-term-changes-in-marine-water
[27] https://ecology.wa.gov/Research-Data/Monitoring-assessment/Puget-Sound-and-marine-monitoring

demonstrate an impairment of a designated use under our narrative standards. Particularly the methodology for determining use impairment based on narrative standards states:

> "In order to use information to make a Category 5 listing based on narrative criteria, the data submitter must provide information to show:
>
> - documentation of a designated use impairment in the AU, and
> - documentation that the deleterious chemical or physical alterations are causing the designated use impairment in the same AU."

While the commentary and photos shared through the Eyes over Puget Sound surface conditions reports are valuable for providing generalized observations and future predictions on the conditions at the time, they alone are not sufficient for determining persistent impairment to a designated use, which is the purpose of the 303(d) list.

It is unclear which designated use the commenter suggests is impaired based on photos. Surface water algae growth is not inherently harmful to aquatic life. Rather it is the biochemical responses to excess algae growth, such as suppressed dissolved oxygen or pH, which can produce conditions unfavorable to aquatic organisms. We assesses for these biochemical impacts directly through application of our dissolved oxygen and pH numeric criteria. There is also no information or data provided with the photographs to suggest toxicity levels of algal blooms that would be harmful to aquatic life or contact recreation, which is necessary as not all algal blooms have toxic byproducts. Lastly, the presence of algae from aerial photography is not sufficient to determine persistent impairment of the aesthetics use. Information could be evaluated only if observations were included that noted the material was persistently visually displeasing or producing nuisance odors, which has prevented their enjoyment of the waterbody. It is important to note that estuaries such as Puget Sound have large natural variations in depth, water circulation, influences from the ocean, and seasonal conditions. Therefore, information documenting persistence of impairment is paramount to support a 303(d) listing. Without this ancillary information, it is difficult to evaluate and make a decision on an impairment of aesthetic uses. The same concerns regarding persistence is also important for recreational uses. However again, it is ambiguous as to which designated use the commenter suggests is impaired on only photographs.

We also note that determining impairment of a designated use based on a photograph without background information on the circumstances surrounding the photo do not provide credible information to make an impairment determination that will be used for the regulatory purposes of the 303(d) list. For example, the Surface Conditions Report for June 17, 2021 (Publication 21-03-074[28]) includes photographs sent in by volunteers showing beach wrack on a beach in Snohomish County (see "Beach Wrack: a Harbor for Fecal Bacteria"). Beach wrack is a natural occurrence in marine environments and can be defined as the accumulation of seaweed, surfgrass, driftwood, and other organic materials produced by coastal ecosystems that wash ashore by the surf, tides, and wind. Beach wrack

[28] https://apps.ecology.wa.gov/publications/documents/2103074.pdf

accumulations on beaches are referred to as the "wrack line" which usually marks the **high tide line as a result of the shifting tides.** The organic portions of wrack provide food and habitat to many species that inhabit the shoreline, including insects and birds. As the Eyes over Puget Sound commentary indicates, bacteria can build up in beach wrack, often as a result of higher summer temperatures or wildlife foraging through the wrack for food. The animal feces, not the wrack itself, is a source of fecal bacteria, thus beachcombers are warned to be cautious when in contact with beach wrack. Listing this waterbody based on photos of the wrack solely, for either aesthetics or recreation uses, would result in a 303(d) listing based on a natural processes, which is not in line with the goal of the 303(d) list and would be in contradiction to EPA's 2006 Integrated Reporting Guidance. While it is clear that standalone photographs do not to meet Ecology's credible data requirements for 303(d) listings, this example highlights the regulatory pitfalls if we were to 303(d) list on such little information.

NWEA [70]

State law provides that Ecology "shall respond to questions regarding the data, literature, and other information it uses" to develop the 303(d) list. RCW 90.48.580(3). Will Ecology provide the list of previous data and information submissions that it has rejected with the rationale for why? If not, why not?

Response

Ecology decisions on submittals for consideration of narrative standards that were made during this WQA are documented in 2018 WQA Supporting Information document. Ecology analyzed submittals and determined those that met the listing requirement for use in the WQA and were used, as well as those submittals that did not meet the listing requirements and the reasons the submittal did not qualify for use in the WQA.

NWEA [71]

Will Ecology provide a list of studies from federal agencies, universities, and other researchers upon which it has relied to place waters on the 303(d) list?

Response

Yes, Ecology will provide a list of data and information submittals to EPA as part of the state's submittal package for this WQA, which also serves to meet state statutory requirement in RCW 34.05.272[29] that requires Ecology to provide citation information associated with Washington's WQA. In additions, the EPA data submittal document includes a list of submittals that Ecology received during the call-for-data that were not in EIM or the federal water quality portal and considered for use in this WQA.

NWEA [72]

How does Ecology account for toxic contamination found in tissue of anadromous species in its 303(d) list and assessment?

[29] https://app.leg.wa.gov/RCW/default.aspx?cite=34.05.272

Response

See the methodology described in Part 2 of WQP Policy 1-11, Chapter 1, section 2I. "Toxics-Human Health Criteria", under 2I(2) "Finfish and Shellfish Harvest Use Assessment" for a description of the methodology that Ecology used to assess harvest use support when tissue data was available. Sub-section "Resident species used for Category 5" states that, for Category 5 listing purposes, fish/shellfish tissue data must be representative of chemical contamination in the waterbody from which the fish was collected. Therefore, Category 5 listings must be based on tissue data from resident fish/shellfish species. For purposes of the WQA, a fish/shellfish species is considered to be a resident species when it is collected from a waterbody in which it spends the majority of its lifespan. In freshwaters and marine waters, anadromous fish species are generally considered to be non-resident unless information exists that the species is resident to the area. If a water quality-related study was submitted with tissue data from anadromous species that suggested a use impairment that does not fall within the methodology at section 2I, Ecology would apply the methodology described in WQP Policy 1-11 Chapter 1, 1E. Data and Information Submittals, sub-section "Information Submittals Based on Narrative Standards" to determine if the study could be used as the basis for listing a specific waterbody segment.

NWEA [73]

If there are no new data and information within the 10 year window for a specific segment/parameter, does Ecology have a scientific basis for its presumed assumption that water quality has improved rather than stayed the same or become worse?

Response

Ecology's determinations are based on data and information submitted as part of the WQA call-for-data. When no new data and information are available within the ten-year assessment window, Ecology does not assume water quality has improved. If there are no new data and information within the 10 year window for a specific segment/parameter, the listing would remain in whatever category it is currently in until new, updated data is assessed in order to determine if the water quality has changed.

NWEA [74]

Incorporation of previous comment: Letter from Nina Bell, NWEA, to Patrick Lizon, Ecology, Re: Call-for-Data for "Next" Water Quality Assessment (April 6, 2018) (attachments were previously provided)

Response

As part of this WQA process, Ecology reviewed associated submittals provided in NWEA's correspondence and associated emails, for consideration of whether the submittals met Policy 1-11 methodology requirements for listing based on either numeric or narrative standards. Decisions on this review are documented 2018 WQA Supporting Information document. Ecology analyzed submittals and determined those that met the listing requirement for use in the WQA and were used, as well as those submittals that did not meet the listing requirements and the reasons the submittal did not qualify for use in the WQA.

NWEA [75]
Incorporation of previous comment: Letter from Nina Bell, NWEA, to Susan Braley, Ecology, Re: DRAFT Water Quality Policy 1-11, Chapter 1, Washington's Water Quality Assessment Listing Methodology to meet Clean Water Act Requirements (April 6, 2018) (attachments were previously provided)

Response

NWEA comments on proposed revisions to Policy 1-11, Chapter 1 in 2018 were responded to in Ecology publication 18-10-036, Water Quality Program Policy 1-11 Chapter 1: October 2018 Public Review Response to Comments[30]. See NWEA responses on pages 9, 15, 18, 27, 33, 34, 35, 36, 38, 40, 42, 44, 51, 53, 59, 61, 65, 71, 81, 84, 87, 89, 90, 91, 96, 97, 102, 121, 124, 129.

NWEA [76]
Incorporation of previous comment: Letter from Nina Bell, NWEA, to Patrick Lizon, Ecology, Re: Washington's Draft Integrated Report and Section 303(d)(1) List of Impaired Waters (May 15, 2015)

Response

The Submission of Readily Available Data and Information included under part E. of NWEA's 2015 correspondence were considered during this cycle's review of submittals for consideration of whether the submittals met Policy 1-11 methodology requirements for listing based on either numeric or narrative standards. Decisions on this review are documented in the 2018 WQA Supporting Information document. Other NWEA comments on Washington's Draft Integrated Report and Section 303(d)(1) List of Impaired Waters (May 15, 2015) were responded to in Ecology's document "2014 Proposed Water Quality Assessment Public Review-Response to General Comments, Revised October 13, 2015" (see NWEA responses on pages 20-46). A copy of this document can be obtained upon request by contacting Ecology at 303d@ecy.wa.gov.

NWEA [77]
Incorporation of previous comment: Letter from Nina Bell, NWEA, to Susan Braley, Ecology, Re: 2011 Proposed Revisions to Water Quality Policy 1-11, Assessment of Water Quality for the Clean Water Act Sections 303(d) and 305(b) Integrated Report (Sept. 1, 2011); and

Response

NWEA comments on the 2011 Proposed Revisions to Water Quality Policy 1-11, Assessment of Water Quality for the Clean Water Act Sections 303(d) and 305(b) Integrated Report (Sept. 1, 2011) were responded to in Ecology's document "Response to Comments, Revisions to Policy 1-11, July 2012" (see NWEA responses on pages: 2, 4, 5, 11, 13, 16, 17, 19, 21, 25, 26, 27, 30, 36, 37, 40, and 41). A copy of this document can be obtained upon request by contacting Ecology at 303d@ecy.wa.gov.

[30] https://apps.ecology.wa.gov/publications/SummaryPages/1810036.html

NWEA [78]

Incorporation of previous comment: Letter from Nina Bell, NWEA, to Ken Koch, Ecology, Re: 2008 Draft Assessment of Water Quality for the Clean Water Act Sections 303(d) and 305(b) Integrated Report (April 30, 2008)

Response

NWEA comments on the 2008 Draft Assessment of Water Quality for the Clean Water Act Sections 303(d) and 305(b) Integrated Report (April 30, 2008) were responded to in Ecology's document "The Department of Ecology's Response to Public Comments for the 2008 Water Quality Assessment" (see NWEA responses starting at page 4). A copy of this document can be obtained upon request by contacting Ecology at 303d@ecy.wa.gov.

Northwest Indian Fisheries Commission

NWIFC [1]

NWIFC remains concerned regarding Ecology's assessment methods that require an exceedance of tissue exposure concentration (TECc) by a factor of 10 or more before listing an assessment unit, resulting in a methodology that requires contamination at levels ten times greater than the applicable water quality standards for carcinogens. We notified Ecology of these concerns while commenting on the Agency's Policy 1-11 update on April 6, 2018 (NWIFC 2018 Comments attached). Among other concerns expressed in 2018, NWIFC reminds Ecology of the need to ensure that when waters are assessed for contaminants, carcinogenic effects and toxic effects, both, must be considered when warranted.

Response

Comment noted. While we appreciate your concerns, we note that the "multiplier" is intended to address the multiple sources of cumulative uncertainties in the analysis. The TECc values should be viewed as estimates rather than absolute thresholds. TECs rely upon cancer potency factors derived from dose response relationships that are extrapolated to predict estimated risk of carcinogenicity at low doses. Additionally, TECs are based on the cumulative estimated risk over a lifetime of exposure. Laboratory analytical accuracy and precision introduce further uncertainty. The accuracy and precision of an analytical method inherently decreases as method detection limits are approached. This is important to consider because many of the TECCc values are below practical quantitation or even method detection limits.

Another source of uncertainty is introduced when estimating a median tissue concentration based on few composite samples and using the estimated median value to assume long-term exposure. Given this uncertainty, Ecology determined that when the tissue level exceeds the TECc by an order of magnitude we can confidently determine that the harvest use is impaired. When tissue levels are within an order of magnitude of the TECc we are less confident that the tissue contaminant levels are actually resulting in harvest use impairment. To make this determination, improved risk estimation methods, improved analytical technique, and/or more data would be needed to narrow the range of uncertainty.

In contrast, the TECn evaluation for 303(d) listing does not include a multiplier to account for uncertainty because uncertainty in a TECn is largely addressed by the inclusion of a modifying safety factor in the derivation of an EPA reference dose. Additionally, laboratory analytical accuracy and precision is less of an issue since the magnitude of the TECn thresholds will, in most cases, be greater than practical quantitation limits.

Northwest Pulp and Paper Association

NWPPA [1]

NWPPA has reviewed and supports, and by this reference thereto, fully incorporates herein, the June 4, 2021 comments of Dr. Giffe Johnson of the National Council for Air and Stream Improvement, Inc. (NCASI).

Response

See responses to the National Council for Air and Stream Improvement, Inc. comments.

NWPPA [2]

NWPPA has also reviewed and the supports the comments of the Inland Empire Paper Company (IEPCO), and by this reference thereto, also fully incorporates herein, those June 4, 2021 comments submitted by Environmental Manager, Doug Krapas.

Response

See responses to Inland Empire Paper Company comments.

Seattle, City of

Seattle–Ivancevich [1]

Tissue data collected from cutthroat trout is used to justify several Category 5 listings in Lake Washington. Ecology should ensure this listing is based on data from the resident variety of cutthroat trout and not the anadromous or potamodromous varieties. If the variety cannot be verified, listings dependent on data from this species is recommended to be placed in Category 2 instead of Category 5.

Response

After data were pulled for consideration in the WQA, Ecology reviewed the status of all species that might have been characterized as non-resident. The cutthroat trout data in Lake Washington were included in this review. The project manager confirmed that the fish collected for the study were resident.

Seattle–Ivancevich [2]

Terminology should be consistent between the water quality assessment listings and the associated data listed in the EIM database. For example, the WQA listings use Bis(2-ethylhexyl)phthalate, while EIM uses Di(2-ethylhexyl) phthalate.

Response

Parameter names that have synonyms are standardized to the name listed in the Water Quality Standards for the WQA process. This facilitates combining data pulled from different studies and source databases for comparison to criteria and thresholds.

Seattle–Ivancevich [3]

Ecology should ensure that WQA listings use the exact sample name as listed in the EIM database. For example, Study data from Study number Kcmar-1 consistently uses sample point names that start with "303D" which is different than the sample point names in EIM.

Response

The example provided is a unique example of inconsistencies in monitoring location names. The KCmar-1 study information was pulled from EIM in February 2020 for use in the WQA. At that time, the Location IDs had the "303D" prefix. The data submitters contacted Ecology in early 2021 to clean up Location IDs and combine duplicates. The Location naming convention changed, and the "KCM" prefix replaced the "303D" prefix. The previous version of the Location ID is maintained in EIM as an alias. This allows the correct location information and results in EIM to display even though the previous Location ID iteration is displayed in the Data Sources section of a Draft Water Quality Assessment Search Tool listing. We do our best to ensure consistency between EIM and the WQA and will continue to maintain the most current water quality monitoring location and study information in our applications.

Seattle–Ivancevich [4]

Data in EIM linked to methyl mercury listings for tissue is specified only as "Mercury." Ecology should verify that this data is indeed the methyl mercury fraction. If the data is not methyl mercury data, the listings are not appropriate as WQP 1-11 does not mention or support this aspect of the draft WQA as written. If the data is methyl mercury data, this should be clarified in the EIM database.

Response

Ecology used total mercury tissue data in the water quality assessment to assess against the methyl mercury criteria because the methyl mercury form comprises the bulk of mercury in fish tissue. Please see supplemental methodology section of the 2018 WQA Supporting Information document for more detailed rational and methodology on of methyl mercury assessment.

Seattle-Ivancevich [5]

Verification of sediment bioassay listings is unclear without providing additional guidance on how Ecology selected and interpreted the bioassay tests. The Ecology Listing ID page should provide test type (growth/mortality), test species and life stage, and reference sample point name for each sample point contributing to the listing, similar to what is provided for tissue listings.

Response

The WQP Policy 1-11 Part 3: Assessment Considerations for Sediment Quality Standards provides guidance as to how sediment bioassay data is used to categorize an assessment unit (AU). Ecology uses the MyEIM Search and Analysis Tool to analyze EIM sediment bioassay data based on the Sediment Management Standards. The Basis Statement identifies the specific EIM StudyID, LocationID, and Sample Date used to categorize an AU.

Seattle-Ivancevich [6]

There are 81 new Category 4B listings in the Duwamish Waterway and Elliot Bay where the Assessment Unit was not classified in any category during the 2012 water quality assessment, and no chemical data is referenced as part of the new listing. An additional 11 new Category 4B listings in the Duwamish Waterway cite only pre-2000 data (507011, 507017, 507024, 507035, 507040, 507046, 508213, 508224, 508233, 508244, 625360). Review of a few of these listings (805715, 805736, 805784) suggests that recent data exists in the EIM database for many, if not all, of these listings. Ecology should review and cite the appropriate recent data for these listings even when there is a cleanup plan in place. In any case, listing in Category 5 would be incorrect.

Response

Ecology will confirm that the final Basis Statement identifies that the AU contains a sediment cleanup site which is in the Lower Duwamish Waterway Superfund Site designated area. Listed parameters are as contained in Ecology's Integrated Site Information System (ISIS) or provided by the Cleanup Site Manager. Not from an analysis of Ecology's Environmental Information Management (EIM) System data.

Spokane Riverkeeper

SRK [1]

We suggest making this process more accessible...It is important to simplify and even demystify this process for a public that values and enjoys these surface waters and their designated uses. In addition to a webinar and links to complex data bases, we suggest providing fact sheet(s) that include lists of waterbodies wherein water quality categories for various parameters have shifted. These lists could be specific to WRIAs or Watersheds. This could be cross indexed to include those waterbodies that have been listed or delisted for various parameters as Category 5 on the states 303(d) list.

Response

Comment noted. Thank you for your suggestions. We have provided a fact sheet on our website that provides a general summary of all assessment results. However, we have a very diverse group of tribes and stakeholders reviewing the water quality assessment that all have differing interests. For this reason, our Draft WQA Search Tool and Draft Water Quality Atlas provide all results for the water quality assessment and have a robust set of tools to query data down to data of interest. We also have provided help documents and a webinar that guide reviewers on how to use these tools to their benefit. We have been and

will continue to be more than happy to assist tribes and stakeholders in querying data or developing analyses of assessment results to answer questions of interest.

SRK [2]

We provided comment to Ecology on April 6, 2018 entitled “Comments on Washington’s Water Quality Assessment Policy 1-11 Draft” that state our numerous concerns and some support. This letter is being resubmitted with our comments as they continue to be relevant for the Spokane Riverkeeper commenting on the water Quality Assessment. Specifically, the following continue to be of deep concern for the Spokane Riverkeeper:

1. Soundkeeper (with Spokane Riverkeeper) is particularly alarmed that for all carcinogens, Ecology's new impairment designations per this Guidance won't be triggered except at levels greater than (less protective than) the effective water quality standards for Washington. This is a fatal flaw and must be corrected. Ecology plans to apply a 10x multiplier across the board for carcinogens. (Draft p. 67). What is the scientific basis for use of a multiplier? Applying a functional 10x multiplier was a fundamental flaw in Ecology’s earlier proposed Human Health Criteria and it was the basis of its sound rejection by tribes, NGOs, community members and the US EPA. How does this proposed multiplier square with that clear message received by Ecology? How was this particular multiplier derived? For PCBs, although the TECc is 0.23 ppb, this means that a water segment would only be listed as Category 5 if the median of 3 composite samples was 2.3 ppb or higher, which is under-protective for PCBs. For medians between 1x and 10x the TECc, only a Category 2 listing would result. This is unacceptable. Ecology cannot change the treatment of data to effectively render the human health criteria less protective, especially where the carcinogenic effects of chemicals are concerned. By adding a 10x multiplier, Ecology is weakening existing water quality standards.”
2. Ecology's plan for dioxins and arsenic is harmful and insufficient to protect human health. (Draft pp. 73-74). Ecology can and should immediately calculate and implement a TECc and DWECc for these compounds. Until that time, Ecology should apply the NTR standards. Because TCDD is so toxic both as a non-carcinogen and as a carcinogen, perhaps a single detection or exceedance in fish tissue (TECn or TECc) should result in a Category 5 listing instead of a Category 2 listing.

Response

Comments noted. We reiterate the responses we provided during the 2018 public comment period on Policy 1-11.

1. The "multiplier" is intended to address the multiple sources of cumulative uncertainties in the analysis. The TECc values should be viewed as estimates rather than absolute thresholds. TECs rely upon cancer potency factors derived from dose response relationships that are extrapolated to predict estimated risk of carcinogenicity at low doses. Additionally, TECs are based on the cumulative estimated risk over a lifetime of exposure. Laboratory analytical accuracy and precision introduce further uncertainty. The accuracy and precision of an analytical method inherently decreases as method

detection limits are approached. This is important to consider because many of the TECc values are below practical quantitation or even method detection limits.

Another source of uncertainty is introduced when estimating a median tissue concentration based on few composite samples and using the estimated median value to assume long-term exposure. Given this uncertainty, Ecology determined that when the tissue level exceeds the TECC by an order of magnitude we can confidently determine that the harvest use is impaired. When tissue levels are within an order of magnitude of the TECC we are less confident that the tissue contaminant levels are actually resulting in harvest use impairment. To make this determination, improved risk estimation methods, improved analytical technique, and/or more data would be needed to narrow the range of uncertainty.

In contrast, the TECn evaluation for 303(d) listing does not include a multiplier to account for uncertainty because uncertainty in a TECn is largely addressed by the inclusion of a modifying safety factor in the derivation of an EPA reference dose. Additionally, laboratory analytical accuracy and precision is less of an issue since the magnitude of the TECn thresholds will, in most cases, be greater than practical quantitation limits.

For PCBs, from Ecology's perspective, placing an AU in Category 5 when the median PCB tissue concentration for three composite samples exceeds 2.3 ppb is highly protective. We are not aware of any other state, federal, or international human health risk thresholds for PCBs in fish tissue that is less than 2.3ppb. We note that at 23 ppb, the PCB level that Washington DOH has been using to trigger a fish consumption advisory is 10 times higher than the TECc of 2.3 ppb which Ecology will use to conclude that the fish and shellfish harvest use is impaired. We also note that the method detection limit for most historical arochlor analyses (the most commonly used PCB analytical technique) in Ecology's EIM database has ranged between 5 and 10ppb, which is well above the 10 times TECc (i.e. 2.3ppb) this means that if PCBs are detected using arochlor analysis, they automatically exceed the 10X TECc threshold. Lastly, to put this issue in perspective, Ecology sampling data suggests that out of hundreds of PCB in tissue samples that Ecology has collected to date from samples throughout Washington state, less than 20% of these samples have had PCB values below 2.3ppb. This means that for the vast majority of samples, the issue of the 10X multiplier is irrelevant.

2. Ecology will evaluate the non-carcinogenic effects of dioxins and arsenic for the protection of public health, but because of the uncertainties around the cancer slope factors for these two compounds, and especially in light of EPA's partial disapproval of Washington's human health criteria, we cannot in good faith apply numbers that EPA has deemed to be indefensible. In EPA's Technical Support Document issued in November 2016 as part of their partial approval/disapproval of Washington's human health criteria, EPA noted its intent to reevaluate the existing federal human health criteria for these two compounds by 2018. EPA noted that it was withdrawing its federal proposal of proposed criteria for dioxin and arsenic, given the uncertainty regarding aspects of the science, and was taking no action on Washington's dioxin criteria. As a

default, EPA left the existing criteria from the NTR in effect for Washington based on assumptions made in the criteria equations at that time. The TECn and DWECn for these compounds are well below the NTR numbers EPA promulgated. Given this and the short timeframe that EPA indicated it is reevaluating the federal criteria for these compounds, we have decided to wait until EPA has come out with defensible numbers before applying a TECc or DWECc.

SRK [3]

We do not approve of delisting TCDETDQ from category 5 to Category 2

Response

We believe your comment refers to Listing ID 78625 for 2,3,7,8-TCDD TEQ. This listing was erroneously placed in Category 5 during the 2012 WQA. 2,3,7,8-TCDD TEQ is a calculated value that is assessed using the 2,3,7,8-TCDD threshold value, and any exceedances result in a Category 2 determination according to Policy 1-11. Category 2 is the correct category for this listing.

Tacoma, City of

Tacoma [1]

Ecology's guidance "Determinations for Data and Information Submitted for Use in the Water Quality Assessment" ("Data Determination") states "Modeled results are not appropriate to determine that standards in Washington are being met at specific waters." Use of Salish Sea Model data would appear to be inappropriate for water quality assessments.

Response

Ecology will not use model output alone for listing purposes, but may use modeled results in tandem with collected water quality data to determine if designated uses are being met. This important caveat has been included in the 2018 WQA Supporting Information document for clarity. Our Policy 1-11 WQA methodology document states modeled results may be used for WQA purposes, as long as the model meets Credible Data Act requirements. Studies in Table 3 of the "Data Determination" document did not have supporting observational water quality data to support water quality determinations or did not represent ambient conditions within specific waterbodies. The SSM was applied in tandem with collected observational water quality data in marine waters to determine designated uses are being met. No water dissolved oxygen category determinations were made based on the SSM alone.

Tacoma [2]

The Salish Sea Model as described in the January 2019 Bounding Scenarios Report is also outside the water quality data 2006 through 2017 window for the assessment as described on page 11 and in table 5 in the Data Determination document.

Response

While the citation year for the Puget Sound Nutrient Source Reduction Project Volume 1: Model Updates and Bounding Scenarios (Ecology Pub. 19-03-001[31]) is 2019, the model outputs used were for years 2006 and 2014 conditions, which reside within the water quality assessment window.

Tacoma [3]

The 2019 Salish Sea Model is also contradicted by the modeling results in the January 2011 South Puget Sound Dissolved Oxygen Study which has been determined to meet the listing requirements for consideration in the current water quality assessment (Data Determination on page 7).

Response

No specific contradictory example was provided. Ecology finds no contradictions between the results of the South Puget Sound Dissolved Oxygen study and the 2019 Puget Sound Nutrient Source Reduction Project Volume 1: Model Updates and Bounding Scenarios report. The two works complement each other, yet are not directly comparable. Examples of differences include but are not limited to: modeling years, parameter inputs, etc.

Tacoma [4]

Data and remarks do not seem to be consistant with determinations in some cases. For example Listing ID 10208 is classified in Category 5 but the remarks state that it should be in Category 2. Similarly Listing ID 10222 is classified in Category 2 but the remarks state that it should be classified in Category 5. If the remarks are from earlier assessments the listings should reflect that.

Response

Historic remarks have been removed from the listing for clarity. Conflicting statements in the remarks were due to inclusion of remarks from previous assessment determinations.

Tacoma [5]

In addition, there are instances where the Salish Sea Model was used to conclude that “human influences are not likely contributing to dissolved oxygen exceedance(s) in this area” (Listing ID 43007) and in other areas the Salish Sea Model was used to conclude that “human activities are likely contributing to dissolved oxygen exceedance(s) in this area” (Listing ID 66158). These differing conclusions from the same analysis of the Salish Sea Model appear to be arbitrary. There does not appear to be any consistency in how the reported data affects the listings. Data reported on the listing can show few if any exceedances and be placed in category 5 or have many exceedances and be placed in Category 2. Sometimes this is explained by Best Professional Judgement that the exceedances are non-anthropogenic but this does not appear to always be the case.

[31] https://apps.ecology.wa.gov/publications/documents/1903001.pdf

Response

The model was used to refine Category determinations only within portions of Puget Sound where observational dissolved oxygen data has been collected. No dissolved oxygen category determinations were made based on the SSM alone. Additionally, no waterbodies were placed into Category 2 or 5 without observational data demonstrating exceedances of the numeric criteria. For more specific information on how model results were incorporated with observational data to produce category determination, please see the supplemental methodology section of the 2018 WQA Support Information document.

Tacoma [6]

Tacoma is concerned about the heavy reliance of the water quality assessment on modeled results. The Salish Sea Model in particular does not have the resolution to detect exceedances of the Washington State Standard for Dissolved Oxygen in marine waters.

Response

As previously mentioned, the 2018 WQA only made dissolved oxygen determinations in Puget Sound where observational data was available. No determinations were made based on model results alone. Model resolution and accuracy have been thoroughly vetted through both and internal and external review processes. Information on the model resolution and accuracy are documented in the 2019 Bounding Scenario Report and the Salish Sea Model Quality Assurance Project Plan found on Ecology's website and the Nutrient Forum website. While no model, including the SSM, is expected to achieve perfect accuracy, the overall level of accuracy that has been achieved with the SSM meets regulatory expectations.

Tacoma [7]

It is also unclear whether the model is applying the same standard for dissolved oxygen under EPA approved water quality standards for Washington in WAC 173-201A-210(1)(d). This may have the effect of misidentifiying impaired waters as unimpaired or unimpaired waters as impaired. Reliance on the Salish Sea Model may have the effect of directing scarce resources away from critical water quality problems and toward areas that are unimpaired and/or dominated by natural conditions. 303(d) listings are the first step in identifying and correcting water quality problems. The indentification of problem areas and the causes of those problems inform the TMDL process that is the solution to degraded water quality. The use of accurate and appropriate data in the water quality assessment process is crucial.

Response

Our traditional method of assessing dissolved oxygen in the WQA, as detailed in Policy 1-11 Chapter 1, is comparing observational data against our biological numeric criteria (WAC 173-201A-200, Table 200 (1)(d))[32]. The Salish Sea Model output analyzes the second part of our dissolved oxygen standards; whether humans' actions are causing dissolved oxygen levels to decrease by more than 0.2 mg/L (WQA 173 201A-200 (1)(d)(i)). Therefore,

[32] https://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A-200

including both observational data and model information in the WQA allows us to evaluate both parts of our dissolved oxygen standards.

The method to determine attainment of EPA approved dissolved oxygen standards has been documented by Ecology and reviewed and approved by water quality standards staff at Ecology. Reducing cumulative anthropogenic nutrient loads so that dissolved oxygen standards are attained is a high priority for Ecology, and using the Salish Sea Model to provide additional clarity on impaired waterbodies due to cumulative anthropogenic impacts will direct resources towards correcting critical water quality problems on the 303(d) list.

Additionally, the WQA team has developed several policies and procedures to ensure we are closely following Washington's Credible Data Act (RCW 90.48.570-585), assuring that we are using accurate and appropriate data for the WQA. For more information on the WQA's data quality assurance and quality control procedures, see Policy 1-11 Chapter 2: Ensuring Credible Data for Water Quality Management.

WA State Department of Ecology

Ecology-McCrea [1]
Assessment Unit basis statements for 4B-categorized sediment should cite the specific document on which the 4B decision is based. Ideally, these would be similarly identified and hyperlinked as the WQ Improvement Projects are. At a minimum, the basis statement should include the document name and date.

Response

Category 4B Basis Statements contain Cleanup Site ID (CSID) numbers that enables a reviewer to retrieve all publically available information about the stated sediment cleanup site from Ecology's Cleanup and Tank Search database. It also leads one to a cleanup site page that summaries site activities.

Ecology-McCrea [2]
Policy 1-11 states All contaminants exceeding SQS must meet the EPA-approved sediment quality standards prior to being eligible to be moved into Category 1." Please define "the EPA-approved sediment quality standards" referenced in this sentence. It is my understanding that the EPA-approved water quality standards for sediments are expressed in Parts I-IV of the SMS and numerically would be the same as the SQS. Thus the sentence as written does not make sense.

Response

This is an editorial error. The sentence should read All contaminants must meet the EPA-approved sediment quality standards prior to being eligible to be moved into Category 1. Policy 1-11 text will be corrected during its next revision.

Ecology-McCrea [3]
It is unclear that categorizing sediment listings under 4B based on a MTCA/CERCLA/RCRA legal cleanup plan agreement is consistent with the Clean Water Act's intent for Category 4 of the Assessment. Category 4 means "Impaired but Does Not Require a TMDL" " ...because

stakeholders are actively implementing a pollution control program designed to attain compliance with water quality standards in a reasonable amount of time." The Policy 1-11 documentation for sediment-based 4B decisions does not emphasize the achievement of designated uses which is a component of water quality standards; instead it emphasizes having "an active cleanup in process documented through a legal administrative mechanism" which stops short of indicating the cleanup is designed to achieve water quality standards. If the cleanup is not designed to achieve water quality standards, it is unclear how the cleanup plan qualifies as the basis of a 4B listing.

TCP appears to be unaware that their efforts to place sediment cleanup sites in 4B can serve to undermine the regulatory and/or legal rationale that permit writer's must rely on to justify the very permit-related decisions that TCP site managers are suggesting be made. It is therefore important that we have organized and constructive cross-program discussions to better align ourselves internally. 5. As you know indicating the cleanup is designed to achieve water quality standards. If the cleanup is not designed to achieve water quality standards it is unclear how the cleanup plan qualifies as the basis of a 4B listing.

Response

In Washington State, Ecology addresses sediment contamination through the Sediment Management Standards (SMS; WAC 173-204) and Model Toxics Control Act (MTCA; WAC 173-340). This reality was discussed with EPA who reviewed and approved WQP Policy 1-11 Part 3: Assessment Considerations for Sediment Quality Standards. Cleanup standards must be at least as stringent as all applicable state and federal laws. Applicable laws may impose certain technical and procedural requirements for performing cleanup actions. The SMS defines applicable laws as all legally applicable requirements in MTCA [WAC 173-340-710(3)], and those requirements that Ecology determines are applicable or relevant and appropriate requirements (ARARs) in WAC 173-340-710(4).

Ecology-McCrea [4]

Cleanup site managers often make suggestions about what they think WQP should do in NPDES permitting of discharges to their sediment cleanup sites. Unfortunately there are situations when EPA Superfund revises cleanup levels (through an Explanation of Significant Difference ESD) due to a range of factors (such as cancer slope factor changes or Technical Impractibility Waivers). It is possible if not likely that such revisions influence the sediment cleanup targets. How do the WQA sediment 4B listings get reassessed to determine whether or not the changed cleanup plan means that SQS (the Clean Water Act-approved standards) will not be achieved (or are no longer the target) for the cleanup action?

Response

Sediment 4B listings are determined by the information in Ecology's Integrated Site Information System (ISIS) in conjunction with WQP Policy 1-11.

Specific Comments

Table 2. Comments received on specific Listing IDs and Ecology's response.

Commenter	Listing ID(s)	Comment Received	Ecology Response
Avista	17547, 80237	Avista has concerns about the implications and validity of listing [Lake Spokane]. for pH based on two pH measurements that are less than a unit (0.2 to 0.5) above the water quality standard. The slightly elevated pH is likely a natural result of the geology of the Spokane River watershed. Avista requests that pH Verification Monitoring be conducted before it is listed as Category 5 and suggests that pH be listed as Category 2 until such monitoring can be conducted.	These two sections of Lake Spokane were placed in Category 5 based on much more than two exceedances of the pH numeric criteria. The basis table for Listing 17547 shows 8/26 sample points exceeded the criteria between 2016-2017. The basis table for Listing 80237 shows 9/21 samples exceeded the criteria in the same period. Additionally, every year of pH data on both of these assessment units since 2010 shows several exceedances of the criteria. At this point in time, we have no information to suggest these exceedances of the criteria are due to natural conditions. As a result, we are required under the CWA when to place a waterbody on the 303d list when data demonstrates the designated uses are not being met. Ecology has made strides in recent years to invest verification monitoring on waterbodies identified as impaired, prior to development of TMDLs or other water quality improvement projects. Your comment is noted about a request for verification monitoring in this watershed and we will pass this request onto the pertinent Ecology programs.
Avista	17548	The 2018 draft WQA also proposes listing dissolved oxygen (DO) in the upper portion of	Changed category to 4A. Ecology TMDL staff have reviewed listing 17548 for dissolved oxygen in Lake

Commenter	Listing ID(s)	Comment Received	Ecology Response
		Lake Spokane as Category 5 (Listing 17548). The Spokane River and Lake Spokane Dissolved Oxygen TMDL (DO TMDL) was approved by EPA in 2010 and continues to be implemented. The study area for the DO TMDL reaches from the outlet of Coeur d'Alene Lake to Long Lake Dam. Avista believes that Listing 17548 for DO in Lake Spokane should be a Category 4A since there is a TMDL in place for this waterbody.	Spokane with the mentioned TMDL and agree that should be a Category 4A since there is an existing TMDL (Spokane River and Lake Spokane Dissolved Oxygen TMDL[33]; February 2010) in place that covers the area defined by the proposed listing. The implementation strategy described in the 2010 Spokane River dissolved oxygen TMDL includes ongoing efforts to reduce phosphorus loading from the Idaho state line to Long Lake Dam. The TMDL established wasteload allocations for point source dischargers, as well as allocations for non-point sources; the majority of which are upstream of Listing 17548. Ecology is in the early stages of a 10-Year Assessment of the Spokane River Dissolved Oxygen TMDL to evaluate progress toward meeting the goals of the TMDL.
CREDC	49044, 49047	The Columbia River Economic Development Council (CREDC), supports the change of the Columbia River's listing from a Category 5 "Impaired" status to a Category 1 "Healthy" status based on the updated science.	Comment noted. Thank you for your support.
DCWA	49044, 49047	The Alliance and City are writing to strongly support and affirm the change in the following two Columbia River listings for dissolved oxygen (DO) from a Category 5 status to a	Comment noted. Thank you for your support.

[33] https://apps.ecology.wa.gov/publications/documents/0710073.pdf

Commenter	Listing ID(s)	Comment Received	Ecology Response
		Category 1 status: Listing No. 49044; Listing No. 49047.	
Ecology – Huybregts	48944	Conflicting information in remarks section. Suggest cat 5 then cat 2. "Assessment Cycle 2018 - During 2015, at least one daily minimum value did not meet standards but there were not enough excursions to determine a Category 5." vs. "This listing is determined to be on category 2 since fewer than 3 excursions exist from all data considered, or fewer than ten percent of annual samples were an excursion of the criteria, yet at least one excursion exists."	The remark indicating Category 2 was from a previous assessment cycle and is no longer relevant. We have modified the remarks section for clarity supporting the Category 5 determination
Ecology – Huybregts	66124	No data provided in Basis Table. Should it include the year 2000 sample?	Correct. The exceedance of the numeric criteria in 2000 placed this waterbody in Category 2 in a previous WQA. This listing was placed Category 5 this assessment cycle because due to a combination of the historic observational data exceedance standards and findings from incorporation of the SSM indicating human activities are likely influence dissolved oxygen levels in this portion of Puget Sound.
Ecology – Huybregts	64297	Complete sentence in remarks field (i.e., .will remain in Category 5").	The remarks sections has been modified for clarity.

Commenter	Listing ID(s)	Comment Received	Ecology Response
Ecology – Huybregts	806217 through 806243	Non-time critical removal actions were performed on some East Waterway sediments in 2004 and 2005 (273,330 cubic yards) but this is not the final remedy and this is the last operable unit of the Harbor Island Superfund site without a Proposed Plan ot Record of Decision (ROD). If there is no ROD for East Waterway yet, it appears these listings should be classified as category 5 (i.e., not 4b).	Ecology acknowledges corrected information and will confirm listings are Administrative Override Category 5.
Ecology – Huybregts	805925 806078 806083	These three listings are from samples located within the Lower Duwamish Waterway superfund site. Since the Lower Duwamish Waterway has a signed Record of Decision (ROD, 2014) that addresses sediment and tissue contamination, shouldn't these be category 4b listings?	Ecology will confirm that the draft listings are now categorized as 4B.
Ecology – Huybregts	806178 through 806204	New sediment cat-4b listings (PAHs, PCBs, As) under the Waterbody name Duwamish Waterway" but the basis for the 4b listing states "This Assessment Unit is located in an area with a legally enforceable cleanup plan therefore it is assessed as Category 4B. The area is commonly known as Harbor Island East WW. Statute: CERCLA has a ROD. Site Status: Source tracing underway. Cleanup expected in 2015. FSID: 989871. CSID: 1372 Note: AU also contains bioassay data." Looking at the map	The Waterbody Name for all AU's within grid 47122F3H4 have been changed to "DUWAMISH EAST WATERWAY". Believe commenter meant to say like Comment 425 listings should be categorized as Administrative Override Category 5, because the Harbor Island Superfund Site East WW OU does not have a ROD. Ecology will confirm listings are Administrative Override Category 5.

Commenter	Listing ID(s)	Comment Received	Ecology Response
		location this is definitely the East Waterway so should be listed as such (i.e. change waterbody name to "Duwamish East Waterway". Also there is no ROD (or Proposed Plan) for the East Waterway Operable Unit of the Harbor Island Superfund site yet (unlike the other Harbor Island Operable Units) so this should be listed as category 4b.	
Ecology – Huybregts	805663 through 805709	There are a number of new cat-1, cat-2 and cat-3 listings in the Lower Duwamish Waterway (LDW) due to new data (many AOC3 2018 samples). In accordance with the administrative override policies (and figures 5 and 7), cat 1, 2, or 3 listings within the boundaries of a cleanup site (i.e. the LDW Record of Decision) are meant to be placed in cat-4b. As such, there should be no sediment listing for the Duwamish Waterway (not East Waterway) that appear anything other than 4b. If they do, they should be modified. The following examples should be assigned a cat-4b listing based on this policy. Sediment samples collected in 2018 as part of LDW AOC3 adjacent to BDC led to this segment of the LDW being denoted as category 1 (did not exceed SMS/SQS for aquatic life-benthic	Ecology agrees. All AUs in the Lower Duwamish Waterway Superfund Site should be listed as Category 4B. Ecology will confirm that is now the case.

Commenter	Listing ID(s)	Comment Received	Ecology Response
		sediment designated use). These were new listings (not in WQA 2012) under listing IDs	
Ecology – Huybregts	805736 805784 805785	The following examples should be assigned a cat-4b listing based on this policy. Three new category 4b listings for PCBs in sediment in front of BP2 and Slip 4 EAAs (IDs 805736, 805784, 805785) due to new data	Ecology agrees. All AUs in the Lower Duwamish Waterway Superfund Site should be listed as Category 4B. Ecology will confirm that is now the case.
Ecology – Huybregts	Not provided	The following examples should be assigned a cat-4b listing based on this policy. Set of new listings in sediment in front of CleanScapes/Crowley site in LDW. The new 2018 sediment sample meant that 3 samples were available, hence the new listing. Those parameters with 1/3 samples exceeding SMS received cat-2, while those with 0/3 received cat-	Ecology agrees. All AUs in the Lower Duwamish Waterway Superfund Site should be listed as Category 4B. Ecology will confirm that is now the case.
Ecology – Huybregts	805833 through 805879	The following examples should be assigned a cat-4b listing based on this policy. At least 3 sediment samples collected in 2018 as part of LDW AOC3 and in 2011 with the outfall sediment sampling event between Industrial Container Services (Trotsky) and SIM area led to this segment of the LDW being denoted as cat-1 (0/3 samples exceeded SMS/SQS for	Ecology agrees. All AUs in the Lower Duwamish Waterway Superfund Site should be listed as Category 4B. Ecology will confirm that is now the case.

Commenter	Listing ID(s)	Comment Received	Ecology Response
		aquatic life-benthic sediment designated use) or cat-2 (1/3 samples exceed SMS).	
Ecology – Huybregts	806161 through 806177	The following examples should be assigned a cat-4b listing based on this policy. New cat-3 listings are new because one 1998 sample was included.	Ecology agrees. All AUs in the Lower Duwamish Waterway Superfund Site should be listed as Category 4B. Ecology will confirm that is now the case.
Ecology – Huybregts	805716 through 805735	The following examples should be assigned a cat-4b listing based on this policy. New set of category 3 listings for 2 sediment samples collected in front of PACCAR in 2006	Ecology agrees. All AUs in the Lower Duwamish Waterway Superfund Site should be listed as Category 4B. Ecology will confirm that is now the case.
Ecology – Huybregts	805716 through 80573	At least 3 sediment samples collected in 2018 as part of LDW AOC3 and in 2011 with the outfall sediment sampling event between Industrial Container Services (Trotsky) and SIM area led to this segment of the LDW being denoted as cat-1 (0/3 samples exceeded SMS/SQS for aquatic life-benthic sediment designated use) or cat-2 (1/3 samples exceed SMS). These were new listings (not in WQA 2012)	Ecology agrees. All AUs in the Lower Duwamish Waterway Superfund Site should be listed as Category 4B. Ecology will confirm that is now the case.
Ecology – Khan	40912	Listing should be moved to 4A since it is within Pilchuck River Temperature/DO TMDL footprint.	Category changed to 4A. added WQ Improvement Project link to Listing ID. Updated remarks. TMDL staff will submit supporting information to EPA to support change to 4A.

Commenter	Listing ID(s)	Comment Received	Ecology Response
Ecology – Khan	10607 93598 93518 93626 93325 93403 93225 94290 94314 94316 94417 94473 73890 73886	Listing should be moved to 4A since it is within Snoqualmie River Temperature TMDL footprint.	Category changed to 4A. added WQ Improvement Project link to Listing ID. Updated remarks. TMDL staff will submit supporting information to EPA to support change to 4A.
Ecology – Khan	93390 93557 93611 93285 93599 93606 93549 93245 93619 93527 93566 93545 93490 93215	Listing should be moved to 4A since it is within Stillaguamish Temperature TMDL footprint.	Category changed to 4A. added WQ Improvement Project link to Listing ID. Updated remarks. TMDL staff will submit supporting information to EPA to support change to 4A.

Commenter	Listing ID(s)	Comment Received	Ecology Response
	93392 93233 93508 93393 93306 93428 93428 93247 93455 93221 93648 93461 93366 93441 93576 93242 93416 7243		
Ecology – Khan	6641	This listing needs to move back to 4A since it is within the Stillaguamish Multiparameter (pub # 05-10-044) TMDL footprint.	Category changed back to 4A. added WQ Improvement Project link to Listing ID. Updated remarks.
Ecology – Khan	88093 88211 89104 88481 88974 89000	This listing should be moved to 4A since it is within the Stillaguamish Multiparameter TMDL (Pub # 05-10-044) footprint.	Category changed to 4A. added WQ Improvement Project link to Listing ID. Updated remarks. TMDL staff will submit supporting information to EPA to support change to 4A.

Commenter	Listing ID(s)	Comment Received	Ecology Response
	88307 74174 74175 88912 60307 60326 60300 60299 50886 70859 70859 88297 88888 89102 89141 93388 88422 88926 88188 88417 81888 81965 82175 82258 50826 50875 81743		

Commenter	Listing ID(s)	Comment Received	Ecology Response
Ecology – Khan	89256 88175 89006 89087 83043 74323 74198 9831 74185 74187 74192 74193	This listing should be move to 4A since it is within the Snohomish River Tributaries FC TMDL footprint.	Category changed to 4A. added WQ Improvement Project link to Listing ID. Updated remarks. TMDL staff will submit supporting information to EPA to support change to 4A.
Ecology – Khan	77777 10843 50749 50750 50753 82949 82288 82291 82292 82290 82195 82976 88885 71203 71205 71202	This listing should be moved to 4A since it is within the Snoqualmie Multiparameter TMDL footprint.	Category changed to 4A. added WQ Improvement Project link to Listing ID. Updated remarks. TMDL staff will submit supporting information to EPA to support change to 4A.

Commenter	Listing ID(s)	Comment Received	Ecology Response
	71207 81972 82304 88208 89182 80625 80629 80630 80631 10609 82289		
EPA	88311	This should remain in Category 5. Short AU not included in Little Bear Bacteria TMDL.	No change needed. These listings are newly identified bacteria impairments lying within the footprint of the Little Bear Bacteria TMDL. Ecology TMDL leads have reviewed these listings and have determined that the TMDLs implementation activities will address these impairments and thus should be moved into Category 4A. Ecology TMDL leads will provide a written justification to EPA to support listings staying in 4A.
EPA	88339, 88360, 88445, 89166	This should remain in Category 5. Not included in Bear Evans Bacteria TMDL.	No change needed. See response above to EPA Listing ID 88331 comment.
EPA	618047	Why was the Category 1 Administrative Override detailed in Policy 1-11 not used here to retain the Category 4b designation?	The sediment assessment does not have a Cat 1 Administrative Override. The sediment assessment uses Administrative Overrides for Cat 4A, 4B, and 5 (known

Commenter	Listing ID(s)	Comment Received	Ecology Response
			potential cleanup sites). **New site.** The 2018 revised draft AU 47122F3H5_SW is a Cat 4B linked to 1988 Term 5 site [CSID 4814] with chemicals based on 2021 ISIS for 10 new listings. Harbor Island West WW became Cat 4Bs for Harbor Island West WW Lockheed Shipbuilding Co Yard 1 [AU 47122F3H5_NW; CSID 4391] and Harbor Island West WW Todd Pacific Shipyard (TSS-OU9) [AU 47122F3I5_NW; CSID 4427] with chemicals based on 2021 ISIS.
EPA	610693	Why was the Category 1 Administrative Override detailed in Policy 1-11 not used here to retain the Category 4b designation?	The sediment assessment does not have a Cat 1 Administrative Override. The sediment assessment uses Administrative Overrides for Cat 4A, 4B, and 5 (known potential cleanup sites). **Process change. Updated Cat 4B Admin O/R file.** The 2018 revised draft shows Cat 4B arsenic for US NAVY KEYPORT site CSID 127 based on the 2021 ISIS.
EPA	610694	Why was the Category 1 Administrative Override detailed in Policy 1-11 not used here to retain the Category 4b designation?	The sediment assessment does not have a Cat 1 Administrative Override. The sediment assessment uses Administrative Overrides for Cat 4A, 4B, and 5 (known potential cleanup sites). **Process change. Updated Cat 4B Admin O/R file.** The 2018 revised draft for US NAVY KEYPORT site CSID 127

Commenter	Listing ID(s)	Comment Received	Ecology Response
			based on the 2021 ISIS does not include Bis(2-ethylhexyl)phthalate; thus ListingID 610694 no longer exists. ISIS 2021 identifies Cat 4B metals as being confirmed parameters.
EPA	610695	Why was the Category 1 Administrative Override detailed in Policy 1-11 not used here to retain the Category 4b designation?	The sediment assessment does not have a Cat 1 Administrative Override. The sediment assessment uses Administrative Overrides for Cat 4A, 4B, and 5 (known potential cleanup sites). **Process change. Updated Cat 4B Admin O/R file.** The 2018 revised draft ListingID 610695 shows Cat 4B cadmium for US NAVY KEYPORT site CSID 127 based on the 2021 ISIS.
EPA	610697	Why was the Category 1 Administrative Override detailed in Policy 1-11 not used here to retain the Category 4b designation?	The sediment assessment does not have a Cat 1 Administrative Override. The sediment assessment uses Administrative Overrides for Cat 4A, 4B, and 5 (known potential cleanup sites). **Process change. Updated Cat 4B Admin O/R file.** The 2018 revised draft shows Cat 4B copper for US NAVY KEYPORT site CSID 127 based on the 2021 ISIS.
EPA	610698	Why was the Category 1 Administrative Override detailed in Policy 1-11 not used here to retain the Category 4b designation?	The sediment assessment does not have a Cat 1 Administrative Override. The sediment assessment uses Administrative Overrides for Cat 4A, 4B, and 5 (known potential cleanup sites).

Commenter	Listing ID(s)	Comment Received	Ecology Response
			Process change. Updated Cat 4B Admin O/R file. The 2018 revised draft shows Cat 4B lead for US NAVY KEYPORT site CSID 127 based on the 2021 ISIS.
EPA	610700	Why was the Category 1 Administrative Override detailed in Policy 1-11 not used here to retain the Category 4b designation?	The sediment assessment does not have a Cat 1 Administrative Override. The sediment assessment uses Administrative Overrides for Cat 4A, 4B, and 5 (known potential cleanup sites). **Process change. Updated Cat 4B Admin O/R file.** The 2018 revised draft shows Cat 4B zinc for US NAVY KEYPORT site CSID 127 based on the 2021 ISIS.
EPA	622318	The data used for this determination were from 1985; previous Cat 5 determination was based on newer 1996 data. Please clarify why this data was not used for this determination.	**Process change.** The 1996 data was excluded due to a sampling depth greater than 16 cm.
EPA	505622	Why was the Category 2 Administrative Override detailed in Policy 1-11 not used here to retain the Category 4b designation?	The sediment assessment does not have a Cat 2 Administrative Override. The sediment assessment uses Administrative Overrides for Cat 4A, 4B, and 5 (known potential cleanup sites). **Category 4B correction.** Approved 2012 Cat 4B Central Seattle Waterfront site [CSID 2545] moved to Cat 5 in AU 47122G3A3_NW with chemicals based on 2021 ISIS.

Commenter	Listing ID(s)	Comment Received	Ecology Response
EPA	615205	Why was the Category 2 Administrative Override detailed in Policy 1-11 not used here to retain the Category 4b designation?	The sediment assessment does not have a Cat 2 Administrative Override. The sediment assessment uses Administrative Overrides for Cat 4A, 4B, and 5 (known potential cleanup sites). **Category 4B correction.** Approved 2012 Cat 4B UNOCAL Seattle Marketing Terminal site [CSID 1428] moved to Cat 5 with chemicals based on 2021 ISIS.
EPA	625029	Previous listing was based on 3 samples from 1994. Current determination is based on only one sample from 1994 that appears to be from the same dataset. Why were the other 2 samples not considered?	**Process change.** ASARCO87 and ASARCO89 locations were excluded due to blank sampling depths.
EPA	625032	Previous listing was based on 3 samples from 1994. Current determination is based on only one sample from 1994 that appears to be from the same dataset. Why were the other 2 samples not considered?	**Process change.** ASARCO87 and ASARCO89 locations were excluded due to blank sampling depths.
EPA	625033	Previous listing was based on 3 samples from 1994. Current determination is based on only one sample from 1994 that appears to be from the same dataset. Why were the other 2 samples not considered?	**Process change.** ASARCO87 and ASARCO89 locations were excluded due to blank sampling depths.

Commenter	Listing ID(s)	Comment Received	Ecology Response
EPA	625038	Previous listing was based on 3 samples from 1994. Current determination is based on only one sample from 1994 that appears to be from the same dataset. Why were the other 2 samples not considered?	**Process change.** ASARCO87 and ASARCO89 locations were excluded due to blank sampling depths.
EPA	609024	The same data used to make this determination appears to be what was used for the previous listing. Why was this removed from the TMDL?	**Process change. Updated Cat 4B Admin O/R file.** The 2018 revised draft for GP Outfall site [CSID 2279] based on the 2021 ISIS does not include 4-Methylphenol; thus ListingID 609024 no longer exists. AU 48122H5D1_SE which contains the GP Outfall site is listed as a Cat 4A for mercury [ListingID 609023].
EPA	609023	The same data used to make this determination appears to be what was used for the previous listing. Why was this removed from the TMDL?	**Process change.** The 2018 revised draft ListingID 609023 for GP Outfall site [CSID 2279] contained in AU 48122H5D1_SE is a Cat 4A listing for mercury.
EPA	610701	Why was the Category 3 Administrative Override detailed in Policy 1-11 not used here to retain the Category 4b designation?	The sediment assessment does not have a Cat 3 Administrative Override. The sediment assessment uses Administrative Overrides for Cat 4A, 4B, and 5 (known potential cleanup sites). **Process change. Updated Cat 4B Admin O/R file.** The 2018 revised draft for US NAVY KEYPORT site [CSID 127] based on the 2021 ISIS does not include 1,2,4-Trichlorobenzene; thus ListingID 610701 no longer

Commenter	Listing ID(s)	Comment Received	Ecology Response
			exists. AU 47122H6A2_SW which contains the US NAVY KEYPORT site is listed as a Cat 4B for metals.
EPA	610692	Why was the Category 3 Administrative Override detailed in Policy 1-11 not used here to retain the Category 4b designation?	The sediment assessment does not have a Cat 3 Administrative Override. The sediment assessment uses Administrative Overrides for Cat 4A, 4B, and 5 (known potential cleanup sites). **Process change. Updated Cat 4B Admin O/R file.** The 2018 revised draft for US NAVY KEYPORT site [CSID 127] based on the 2021 ISIS does not include 1,4-Dichlorobenzene; thus ListingID 610692 no longer exists. AU 47122H6A2_SW which contains the US NAVY KEYPORT site is listed as a Cat 4B for metals.
EPA	610702	Why was the Category 3 Administrative Override detailed in Policy 1-11 not used here to retain the Category 4b designation?	The sediment assessment does not have a Cat 3 Administrative Override. The sediment assessment uses Administrative Overrides for Cat 4A, 4B, and 5 (known potential cleanup sites). **Process change. Updated Cat 4B Admin O/R file.** The 2018 revised draft for US NAVY KEYPORT site [CSID 127] based on the 2021 ISIS does not include 4-Methylphenol; thus ListingID 610702 no longer exists. AU 47122H6A2_SW which contains the US NAVY KEYPORT site is listed as a Cat 4B for metals.

Commenter	Listing ID(s)	Comment Received	Ecology Response
EPA	610703	Why was the Category 3 Administrative Override detailed in Policy 1-11 not used here to retain the Category 4b designation?	The sediment assessment does not have a Cat 3 Administrative Override. The sediment assessment uses Administrative Overrides for Cat 4A, 4B, and 5 (known potential cleanup sites). **Process change. Updated Cat 4B Admin O/R file.** The 2018 revised draft for US NAVY KEYPORT site [CSID 127] based on the 2021 ISIS does not include Benzoic Acid; thus ListingID 610703 no longer exists. AU 47122H6A2_SW which contains the US NAVY KEYPORT site is listed as a Cat 4B for metals.
EPA	610699	Why was the Category 3 Administrative Override detailed in Policy 1-11 not used here to retain the Category 4b designation?	The sediment assessment does not have a Cat 3 Administrative Override. The sediment assessment uses Administrative Overrides for Cat 4A, 4B, and 5 (known potential cleanup sites). **Process change. Updated Cat 4B Admin O/R file.** The 2018 revised draft shows Cat 4B mercury for US NAVY KEYPORT site CSID 127 based on the 2021 ISIS.
EPA	618047	Why was the Category 1 Administrative Override detailed in Policy 1-11 not used here to retain the Category 4b designation?	The sediment assessment does not have a Cat 1 Administrative Override. The sediment assessment uses Administrative Overrides for Cat 4A, 4B, and 5 (known potential cleanup sites). **New site.** The 2018 revised draft AU 47122F3H5_SW is a Cat 4B linked to 1988 Term 5 site [CSID 4814] with chemicals based on 2021 ISIS for 10 new listings.

Commenter	Listing ID(s)	Comment Received	Ecology Response
			Harbor Island West WW became Cat 4Bs for Harbor Island West WW Lockheed Shipbuilding Co Yard 1 [AU 47122F3H5_NW; CSID 4391] and Harbor Island West WW Todd Pacific Shipyard (TSS-OU9) [AU 47122F3I5_NW; CSID 4427] with chemicals based on 2021 ISIS.
Fuller-Vernier	8200 8213	Utilities should be required to filter drinking water. More public health information should be provided.	While the Water Quality Assessment analyzes waters for potential impairment to drinking water uses, drinking water in Washington is protected under the federal Safe Drinking Water Act (1974), which is regulated by the Washington State of the Department of Health and local health departments and is separate from the WQA. For more drinking water public health information, see the Department of Health's Drinking Water website[34].
Klickitat	72905	Klickitat County requests that Ecology review the data sources for this listing. One cited data source (Study ID ERST) appears to be incorrectly attributed to this reach. The ERST study references data from the Lower Stillaguamish Pollution Identification and Correction Program". The Stillaguamish River is in Snohomish County while the reach in this list (Listing ID 72905 - Unnamed Creek [Trib to	Study ID "ERST" has been removed from this listing, as it was incorrectly attributed to the monitoring location "ERST_EF013153UW". However, both monitoring locations used for this listing are correctly georeferenced to Assessment Unit 17070106000888_001_001. The data has been reviewed at your request and the Category 5 determination is still valid.

[34] https://www.doh.wa.gov/communityandenvironment/drinkingwater

Commenter	Listing ID(s)	Comment Received	Ecology Response
		Dead Canyon]) is in Klickitat County. Klickitat County requests Ecology review this ERST data source, remove it from Listing ID 72905 if appropriate, and review the remaining data sources to determine whether the category 5 temperature listing is still warranted in the absence of this misappropriated data source.	
Klickitat	77924 72908	Klickitat County believes the category 5 listing is not appropriate for the Klickitat River. This listed reach is partially in the Columbia River inundation zone caused by the Bonneville Dam backwaters and partially in the free flowing segment of the Klickitat River. The monitoring location for Listings 72908 and 77924 (Location ID CR-K-KR1, Klickitat River at Forest Service Camp) is clearly in the Columbia River inundation zone. Klickitat County requests that this currently single reach be split into two reaches so that the Columbia River inundation zone is delineated using the NHD polygon feature for the Columbia River. This would more closely align to the NHD hydrography it contains. The area from the lowest extent of the free flowing Klickitat River up to Silva Creek should be its own reach.	Metadata for Location IDs CR-K-KR1 and OREGONDEQ-36038-ORDEQ detail that these monitoring locations are meant to characterize the water condition at the very end of the free-flowing reach of the Klickitat River, which is also represented by assessment unit 17070106000007_001_001. While the Columbia River may at times influence the hydrology of the lower Klickitat River, Ecology does not believe this section of the river is representative of Columbia River. State surface water quality standards indicate that core summer salmonid habitat conditions (temperature greater than 16 °C and dissolved oxygen concentrations greater than 9.5 mg/L) apply all the way to the mouth of the Klickitat River. As a result, these listings will remain in Category 5 based on the application of the Klickitat River's aquatic life criteria. Thank you for your suggestion regarding modifying our assessment units. We do our best to refine assessment units in between each assessment cycle. We will review

Commenter	Listing ID(s)	Comment Received	Ecology Response
		Klickitat County requests that no measurements from the Columbia River inundation zone/Bonneville Dam backwater be attributed to the free flowing portions of the Klickitat River.	this case and make any necessary edits to assessment unit types/extents.
Klickitat	21587	Klickitat County believes the category 5 listing is not appropriate for the White Salmon River. The draft category 5 determination is based on a historic Category 5 determination being carried forward from a previous assessment. This historic category 5 determination was for a bacteria - fecal coliform exceedance in calendar year 1995, which was prior the establishment of WQP Policy 1-11 for Ensuring Credible Data for Water Quality Management. Additionally, more recent sampling completed in 2010 (see basis table and data sources) showed no excursions of either the highest daily average criterion or the three-month geometric mean criterion. Klickitat County requests that Ecology use the more recent and quality-assured sampling data when determining category status for this reach, which would not result in a category 5 listing."	For a waterbody to be removed from the 303d list (Category 5), EPA requires data demonstrating designated uses are being met in that waterbody (Category 1). Our Policy 1-11 methodology details data requirements for a Category 1 determination for bacteria. Three data points in one year is not sufficient data to determine recreational uses are regularly being attained. Due to lack of more recent sufficient data and past exceedances of the criteria in 1995, 1993, and 1992, this Category 5 determination remains. If there are specific concerns regarding data quality control, please contact Ecology and we will address those concerns accordingly.

Commenter	Listing ID(s)	Comment Received	Ecology Response
Loehr	10151	The 4th remark conflicts with the second remark. Perhaps remove older remarks when listing decision is based on the newer remark.	We have removed older remarks for clarity.
Loehr	42985	Just curious. How did the DO data compare to a 5 mg/l criterion? Our standards indicate Good (5 mg/L) is protective of all the same species as Excellent (6) and Extraordinary (7). So, if it meets 5, then it is not producing an impairment, even if it is not meeting 7.	The water quality assessment applies the appropriate water quality criteria specified in WAC 173 201A. Any questions regarding surface water quality standards should be directing to our surface water quality standards team at swqs@ecy.wa.gov.
NAVFC	53180	How is this a Category 5? The small island in the impairment map block is occupied by seals and birds. Where is the 2010 to present data?	This waterbody was placed in Category 5 due to exceedances of the 10% criteria in water-year 2006. There were not sufficient data in more recent years to determine designated uses were being met. Waterbodies are placed on the 303(d) list when there are violations of water quality standards and remain there until 1) more recent data show designated uses are being met; 2) a clean-up plan is in place; or 3) there is sufficient information to support that designated uses cannot be attained due to naturally occurring conditions. To date, there has been no data or information suggesting designated uses are impaired at this location due to natural conditions. The Washington State Department of Health stopped monitoring at their station “PORT TOWNSEND 177” in

Commenter	Listing ID(s)	Comment Received	Ecology Response
			2009 (see remarks with listing), thus data are only available at this location through water-year 2009.
NAVFC	814847 814771 814663	This listing is obviously from waste generated in the pulp mill to the west. You realize this listing will cause unnecessary stormwater sampling and not address the actual cause of the impairment?	For sediment, the Water Quality Assessment (WQA) identifies Sediment Management Standards chemical and/or bioassay conditions in an assessment unit. The purpose of the WQA is to determine the status of sediment quality using the methodologies described in WQP Policy 1-11, Chapter 1 not to determine what entity may have caused the identified conditions. An AU may be reassessed based on (1) submittal of new chemical and bioassay data to Ecology's Environmental Information Management (EIM) System or (2) in the case of a Federal site updated information provided to Ecology's Integrated Site Information System (ISIS) will be considered in the next WQA.
NAVFC	621602	What is this impairment based on? There is no basis table data. What sampling data justified this impairment? This impairment will cause unnecessary stormwater sampling and catch basin grit samping.	Sediment listings do not contain a Basis Table. Sediment listing information is presented in the Basis Statement and other fields. This AU was listed for mercury based on information provided in Ecology's Integrated Site Information System (ISIS). Of the Sediment Management Standards chemicals, ISIS lists metals, phenols; PCBs, and PAHs as being confirmed to exceed SIZmax.

Commenter	Listing ID(s)	Comment Received	Ecology Response
			An AU may be reassessed based on (1) submittal of new chemical and bioassay data to Ecology's Environmental Information Management (EIM) System or (2) in the case of a Federal site updated information provided to ISIS will be considered in the next WQA.
NAVFC	809170 809175 809174 809187	What is this impairment based on? There is no basis table data. What sampling data justified this impairment? This impairment will cause unnecessary stormwater sampling and catch basin grit samping.	This AU was listed for PCBs. In addition, see response to NAVFC comment on Listing 621602.
NAVFC	616347 809173 809186 809182	What is this impairment based on? There is no basis table data. What sampling data justified this impairment? This impairment will cause unnecessary stormwater sampling and catch basin grit samping.	This AU was listed for mercury. In addition, see response to NAVFC comment on Listing 621602.
NAVFC	607991 608005	How is this still on the impairment map? This is 30 year old data in the Basis Statement. How is this still listed?	This AU was assessed based on data in Ecology's Environmental Information Management (EIM) System. An AU may be reassessed based on (1) submittal of new chemical and bioassay data to EIM or (2) in the case of a Federal site updated information provided to Ecology's Integrated Site Information System (ISIS) for consideration in the next WQA.

Commenter	Listing ID(s)	Comment Received	Ecology Response
NAVFC	614608	What sampling data in this based on? This will cause unnecessary stormwater sampling and catch basing grit sampling.	This AU was listed for mercury based on information provided in Ecology's Integrated Site Information System (ISIS). Of the Sediment Management Standards chemicals, ISIS lists metals, phenols; and PAHs as being confirmed to exceed SIZmax. An AU may be reassessed based on (1) submittal of new chemical and bioassay data to Ecology's Environmental Information Management (EIM) System or (2) in the case of a Federal site updated information provided to ISIS for consideration in the next WQA.
NAVFC	614610 607843 511477 511477	What sampling data in this based on? This will cause unnecessary stormwater sampling and catch basing grit sampling.	This AU was listed for phenol. In addition, see response to NAVFC comment 614608.
NAVFC	511335 607841 511473 511473	What sampling data in this based on? This will cause unnecessary stormwater sampling and catch basing grit sampling.	This AU was listed for mercury. In addition, see response to NAVFC comment 614608.
NAVFC	511473	How are these 4B areas still listed? These were based on 1989 samples. What justifies them still being in the listing? This causes unnecessary stormwater and catch basin grit sampling.	This AU was listed based on information provided in Ecology's Integrated Site Information System (ISIS). An AU may be reassessed based on (1) submittal of new chemical and bioassay data to Ecology's Environmental Information Management (EIM) System or (2) in the

Commenter	Listing ID(s)	Comment Received	Ecology Response
			case of a Federal site updated information provided to ISIS for consideration in the next WQA.
NAVFC	620461	So is this going to be elevated to a 4a or 4b like some of the others? I don't understand how 30+ year old sample are justifying 303.d listings?	This AU was assessed based on data in Ecology's Environmental Information Management (EIM) System. An AU may be reassessed based on (1) submittal of new chemical and bioassay data to EIM or (2) in the case of a Federal site updated information provided to Ecology's Integrated Site Information System (ISIS) for consideration in the next WQA.
Pierce	72626	The study and location referenced as data sources are in Snohomish County. These data do not appear to belong to the identified stream segment.	No change needed. The NHD reach code associated with Location ID ERST_WN001062DW in the EIM database is 17110015000317, located at NHD measure 97.96. This NHD information corresponds with assessment unit 17110015000317_001_001. The latitude/longitude coordinates in the EIM database confirm this georeferencing.
Pierce	72628	The study and location referenced as data sources are in Snohomish County. These data do not appear to belong to the identified stream segment.	No change needed. All three locations associated with this listing have an NHD reach code of 17110015011704, with measures ranging from 2.6-22.4. This information corresponds with assessment unit 17110015011704_001_001. The latitude/longitude coordinates in the EIM database confirm this georeferencing.
POV	49044, 49047	The Port of Vancouver supports Ecology's proposed listing change for the Columbia River	Commented noted. Thank you for your support.

Commenter	Listing ID(s)	Comment Received	Ecology Response
		from a Category 5 “Impaired” to a Category 1 “Healthy” status.	
SCL	88796 88798 88799 88800	Listings 88800, 88798, 88796 and 88799 identify calculated methyl mercury concentrations in Ross lake salmonids well above tissue-based criteria. It appears these calculations are based on total mercury, with an estimation of the concentration of the methylated form based on modeling. Analytical methods are available from which methyl mercury concentrations can be determined empirically in specialized commercial labs. These results could be compared against the estimated concentrations to check the modeled concentrations and inform decision making around a potentially significant regulatory action. Given the significance of the results presented, and the inherent uncertainty associated with them, identifying a 303(d) listing based on such estimated methylmercury concentrations should not be considered without verification of actual measured methyl mercury results.	Listings 88800, 88798, 88796 and 88799 are not based on calculated or modeled methyl mercury values. Data used for these listings are total mercury. Ecology used total mercury tissue data in the water quality assessment based on research showing that the methyl mercury form comprises the bulk of mercury in fish tissue. See supplemental methodology document of the 2018 WQA Supporting Information document.
Seattle - Beedle	38339	The listing for this segment appears to be in error. The minimum measured dissolved	We reviewed information on LocationIDs SCL_BWQS-V10 and SCL_BWQS-V10_B and determined these data are more representative of the Pend Oreille, rather than the tributary. As a result these data have been

Commenter	Listing ID(s)	Comment Received	Ecology Response
		oxygen level of 10 mg/l appears to be above the listed criterion/threshold of 9.5 mg/l.	georeferenced to the Pend Oreille river assessment unit 17010216000056_001_001 and category determinations were updated. See Listing ID 97875.
Seattle – Beedle	93399	Data for this segment appears to be out of date. The data does not represent the current conditions in the segment after the Boundary Relicensing efforts that includes the Mill Pond dam removal project, Sullivan Lake cold water pipe project, implementation of the Temperature Attainment Plan and implementation of the Fish and Aquatics Management Plan.	We reviewed information on LocationID SCL_BWQS-V2 and determined these data are more representative of the Pend Oreille, rather than the tributary. As a result these data have been georeferenced to the Pend Oreille river assessment unit 17010216000053_001_001 and category determinations were updated. See Listing ID 11452.
Seattle – Beedle	93218	Data for this segment appears to be using data from the reservoir that is not representative of the channel upstream of the reservoir.	We reviewed information on LocationIDs SCL_BWQS-V11 and SCL_BWQS-V11_B and determined these data are more representative of the Pend Oreille, rather than the tributary. As a result, these data have been georeferenced to the Pend Oreille river assessment unit 17010216000053_001_001 and category determinations were updated. See Listing ID 11452.
Seattle – Beedle	82097	Data for this segment appears to be using data from the reservoir that is not representative of the channel upstream of the reservoir.	We reviewed information on LocationID SCL_BWQS-V9 and determined these data are more representative of the Pend Oreille, rather than the tributary. As a result, these data have been georeferenced to the Pend Oreille river assessment unit 17010216000053_001_001 and

Commenter	Listing ID(s)	Comment Received	Ecology Response
			category determinations were updated. See Listing ID 11452.
Seattle – Beedle	93463	Data for this segment appears to be using data from the reservoir that is not representative of the channel upstream of the reservoir.	We reviewed information on LocationID SCL_BWQS-V4 and determined these data are more representative of the Pend Oreille, rather than the tributary. As a result, these data have been georeferenced to the Pend Oreille river assessment unit 17010216000049_001_001 and category determinations were updated. See Listing ID 87737.
Seattle – Beedle	93647	Data for this segment appears to be using data from the reservoir that is not representative of the channel upstream of the reservoir.	We reviewed information on LocationID SCL_BWQS-V5 and determined these data are more representative of the Pend Oreille, rather than the tributary. As a result, these data have been georeferenced to the Pend Oreille river assessment unit 17010216000048_001_001 and category determinations were updated. See Listing ID 97873. Additionally, dissolved oxygen data associated with these locations were also moved to this assessment unit, resulting in new Category 5 Listing ID 97876.
Seattle – Beedle	93337	Data for this segment appears to be using data from the reservoir that is not representative of the channel upstream of the reservoir.	We reviewed information on LocationIDs SCL_BWQS-V10 and SCL_BWQS-V10_B and determined these data are more representative of the Pend Oreille, rather than the tributary. As a result, these data have been georeferenced to the Pend Oreille river assessment unit 17010216000056_001_001 and category determinations were updated. See Listing ID 97875.

Commenter	Listing ID(s)	Comment Received	Ecology Response
Seattle – Beedle	93236	Data for this segment appears to be using data from the reservoir that is not representative of the channel upstream of the reservoir.	We reviewed information on LocationID SCL_BWQS-V2 and determined these data are more representative of the Pend Oreille, rather than the tributary. As a result, these data have been georeferenced to the Pend Oreille river assessment unit 17010216000053_001_001 and category determinations were updated. See Listing ID 11452.
Seattle – Cawrse	8066	For Listing 8066 - In the Basis Statement for the listing, King County water quality data collected at Station 527 show the water quality criterion for lead was exceeded in samples collected in 1998 and 2000. Unfortunately, Station 527 is not in Salmon Bay (Assessment Unit #17110012005963_001_001), but Lake Union (Assessment Unit #17110012005964_001_001). As the remaining data from monitoring Stations 512 and 518 in the Salmon Bay Assessment Unit indicate that the water quality criterion for lead was met, the Salmon Bay AU should be removed from the Category 5 list.	We have reviewed the referenced locations and agree with your georeferencing conclusions. The data have been georeferenced to the correct assessment units. As a result of correcting georeferencing, Salmon Bay (AU: 17110012005963_001_001) will be moving into Category 3 and UNION LAKE/WASHINGTON SHIPPING CHANNEL (AU: 17110012005964_001_001) will move to Category 5, based on exceedances of the criteria at station 527.
Seattle – Fisher	86776	It appears that four stations were sampled in Ross lake for fish tissue analysis of mercury, but results for PCBs are only represented for one of the four stations. Were these composite samples collected at the other stations also analyzed for PCBs? If so, where	There are four listings in Ross Lake for methyl mercury (88796, 88798, 88799, and 88800). These listings were generated from data collected at Location IDs ROSSLK-F-H0J4, ROSSLK-F-I0D4, ROSSLK-F-I0E2, and ROSSLK-F-I0I4, respectively. PCB fish tissue from these same locations were the basis for 4 different PCBs listings: 86775,

Commenter	Listing ID(s)	Comment Received	Ecology Response
		are these results and are they reflective of the data associated with listing 86776? If not, why not, as the weight of the composite samples collected were more than sufficient to conduct a split analysis for both contaminants of concern without having to sacrifice additional fish.	78954, 86776, and 86777, respectively. Listing IDs 78954, 86775, and 86777 were placed in Category 2 because the tissue data within each of the respective assessment units exceeded the TECc. The data were not sufficient for a Category 5 determination because either the median tissue value did not exceed 10x TECc or there weren't enough total samples for those species with a median value greater than 10x TECc.
Seattle – Fisher	86776	Are there previous PCB analyses from the watershed that were considered? If so, how do these earlier data compare with the results of the 2015 sampling?	Data were first collected in Ross Lake in 2007, which is within the data window (2006-2017) for the current assessment. The 2007 data were evaluated with the more recent data collected during 2012 and 2015 within the same assessment unit.
Seattle – Fisher	86776	In reviewing the PCB data from listing 86776 it appears that the majority of the 2015 sample concentrations reported are qualified with U, J, or UJ estimations. J qualified data represent detections below quantitation limits and reported results are estimates. U qualified data represent concentrations at or below the quantitation limit typically used only for background estimations, and UJ qualified data are reported data that may not accurately reflect the ability to actually detect the analyte below the method quantitation limit. Given these data limitations, how is Ecology using such qualified data in the current assessment,	Sample values that are qualified as non-detects are not used in the assessment if the reported detection limit is greater than a threshold or criterion. In cases where the reported detection limit is less than a threshold or criterion, the sample data are included in the assessment. Sample values that are qualified as estimates are included in the assessment at the reported numeric value according to Policy 1-11. The use of qualified data in the water quality assessment has not changed from previous assessment cycles.

Commenter	Listing ID(s)	Comment Received	Ecology Response
		and how has Ecology viewed such qualified data in the past to support 303(d) listings and TMDL implementation?	
Seattle – Fisher	86776	Ross Lake is the upper headwaters of the Skagit River in the U.S. Although a significant portion of the basin enters from Canada, the Canadian portion of the watershed, like Ross Lake, is a relatively pristine environment in protected habitats from which source attributions for PCBs are not readily intuitive. With this consideration, what does Ecology view as the potential source of the PCBs detected in Ross lake fish tissues. Considering the high recreational importance of the Ross lake fishery, lack of a readily recognizable source of the PCBs, and limited (if no) ability to control atmospheric deposition sources, the ability to control source loading through a TMDL is equivocal. Hence, if Ross lake were to be listed as Category 5 for PCBs, what would be the actionable measures Ecology would envision for implementation under a TMDL?	This comment is outside the scope of the draft WQA results. The WQA listing process is tasked with providing a report on water quality and identifying waters that are no meeting their designated uses based on readily available monitoring data. The WQA is independent of a source assessment or development of implementation activities. A source assessment would typically occur after a waterbody is identified as impaired, as part of a TMDL or other pollution control program. Implementation activities would be identified through the TMDL development process.
Seattle – Ivancevich	21563	This listing was moved from Category 1 to Category 5 based on revaluated data from WY2007. The basis table indicates that the average June 1-September 30 result in WY2007 exceeded the standard by 0.2 ug/L. During the	Category determination moved to Category 2. While the same data were used in the 2012 WQA and 2018 draft WQA, differences in rounding sample values resulted in slightly higher calculated mean this assessment cycle. This further resulted in a change from Category 1 to

Commenter	Listing ID(s)	Comment Received	Ecology Response
		previous assessment cycle, the basis statement indicated that the summer epilimnetic mean concentration of total phosphorus samples did not exceed 20 ug/L. This listing, therefore, should be moved to Category 2, a water of concern.	Category 5, due to the 2007 summer mean exceeding the 20 ug/L action value. However, the 2007 summer mean only exceeded the action value by 0.2 mg/L and the 2006 and 2008 summer values were both below the action value. Therefore, we have decided to move this Listing in Category 2, a water of concern, until more recent data can be collected to determine whether or not uses are being met
Seattle – Ivancevich	12204	This listing was moved from Category 3 to Category 5 in error. Last assessment cycle information provided with the Swimming Beach data suggested humans recreating on the shorelines of beaches were causing short-term spikes in bacteria levels. These are the same data that were looked at this cycle. Therefore, this listing should be moved back to Category 3.	Category changed back to 3 and remarks were updated to reflect the Swimming Beach information previously submitted by City of Seattle.
Seattle – Ivancevich	12187	This listing was moved from Category 3 to Category 5 in error. Last assessment cycle information provided with the Swimming Beach data suggested humans recreating on the shorelines of beaches were causing short-term spikes in bacteria levels. These are the same data that were looked at this cycle. Therefore, this listing should be moved back to Category 3.	Category changed back to 3 and remarks were updated to reflect the Swimming Beach information previously submitted by City of Seattle.

Commenter	Listing ID(s)	Comment Received	Ecology Response
Seattle – Ivancevich	48944 66124	There was one exceedance in the [current/past] assessment cycle that would normally put this listing in Category 2, a water of concern. This listing is placed in Category 5 solely based on the Salish Sea Model. The Salish Sea Model uncertainty has not been adequately quantified to understand potential error rates. Additionally, the model is not precise enough to document a 0.2 mg/L human-induced change in DO as required by the regulation. As already stated, field measurements do not indicate Category 5 impairment; therefore, this listing should remain as a Category 2, water of concern.	No dissolved oxygen category determinations were made based on the Salish Sea Model alone. The model was used to refine Category determinations only within portions of Puget Sound where observational dissolved oxygen data had been collected. Additionally, no waterbodies were placed into Category 2 or 5 without observational data demonstrating exceedances of the numeric criteria. Please refer to the supplemental methodology document of the 2018 WQA Supporting Information document for more information on how the model was applied in the WQA. Concerns regarding model precision and uncertainty are addressed in General Comments King[2] and Tacoma[6]. Please also refer to the Salish Sea Model and Nutrient Forum websites for model documentation.
Seattle – Ivancevich	94858 94859	The data used for this listing are all non-detects. The data in EIM is missing the data qualifier to indicate that every sample is a non-detect. The study documents listed in the Study Data in EIM do not include the document that contains the data used for this listing (Lower Duwamish Waterway Slip 4 Early Action Area - Water Quality Monitoring Report). The City of Seattle can provide this document if needed. According to Policy 1-11, "Non-detect values that have a detection limit greater than the numeric criteria or threshold will not be	Thank you for pointing out the data error. Ecology's EIM data coordinator worked with the data submitter to correct the qualifier information in EIM. The revised data were used to update the listing and resulted in a Category 3 determination.

Commenter	Listing ID(s)	Comment Received	Ecology Response
		used in the assessment, as it is unknown if the non-detect value shows compliance with the criteria or threshold." Therefore, the data used for this listing are not sufficient to result in a Category 5 listing, which means the appropriate category for this listing is Category 3.	
Seattle – Ivancevich	506474	Only one of the data points used for this listing is recent (2015). The other two data points are from 1991 and 1988. The date range specified in Ecology's 2018 Draft Water Quality Assessment Guidance for Public Review is 2006-2017, which means there is only one qualifying data point for this assessment unit. The single recent data point results in a ChemScore of 1, which means the appropriate category for this listing is Category 3.	There has never been a date range limit for WQA of sediment data. All Sediment Management Standards (SMS) chemical and bioassay data, that are in compliance with the SMS and Ecology's WQA requirements, are considered in an AU. Specifically, a sediment AU is evaluated based on up to three stations with the most recent and highest chemical concentrations or bioassay SMS exceedances. The Basis Statement identifies the applicable data used to categorize an AU. If the applicable data is considered not representative of near current conditions, submittal of new chemical and bioassay data to Ecology's Environmental Information Management (EIM) System will be considered in the next WQA.
Seattle – Ivancevich	805925	The data used for this listing are from 2018. The date range specified in Ecology's 2018 Draft Water Quality Assessment Guidance for Public Review is 2006-2017, which means the	See Ecology response to Ecology – Ivancevich comment on Listing ID 506474.

Commenter	Listing ID(s)	Comment Received	Ecology Response
		data used for this listing are outside of the data window and are not sufficient to result in a category 5 listing during this assessment cycle.	
Seattle – Ivancevich	806306 806324 806328 806334 806339	The data used for this listing are from 2005. The date range specified in Ecology's 2018 Draft Water Quality Assessment Guidance for Public Review is 2006-2017, which means the data used for this listing are outside of the data window and are not sufficient to result in a category 5 listing. The appropriate category for this listing is category 3.	See Ecology response to Ecology – Ivancevich comment on Listing ID 506474.
Seattle – Ivancevich	807590	This listing indicates the three sediment samples used for category determination exceeded the associated SMS SQS, but not the SMS SIZmax. As such, the ChemScore for this listing should be 3, rather than 4, which would place the listing in Category 2.	Ecology looked into the raw data and program files to figure out why the AU was given a ChemScore of 4 instead of the expected 3 for 3 locations with SQS exceedances. We discovered that LocationID T91-2017-SS-12 is linked to two SampleIDs T91-2017-SS-12 and T91-2017-SS-29 each of which exceeded SQS. Therefore, the program gave LocationID T91-2017-SS-12 2 ChemPoints. These 2 ChemPoints plus the 1 each for the other LocationIDs brings the AU ChemScore to 4. It is our understanding that LocationID was unique to the EIM database. However, that does not appear to be the case with how StudyID PST9117 was coded. We will confirm the concept of LocationID being unique to EIM,

Commenter	Listing ID(s)	Comment Received	Ecology Response
			look into how the StudyID is code, and our WQA programming to avoid a future occurrence of this issue. Meanwhile, Ecology will manually assess this AU as a Category 2 with a ChemScore of 3.
Seattle – Ivancevich	807561	The data used for this listing are from 2001 and 1992. The date range specified in Ecology's 2018 Draft Water Quality Assessment Guidance for Public Review is 2006-2017, which means the data used for this listing are outside of the data window and are not sufficient to result in a category 5 listing. The appropriate category for this listing is category 3. Ecology's use of data older than 10 years should be clarified in the listing. For example, did Ecology determine the old listing, in which it was based, did not meet quality assurance requirements in place at the time of its collection as presented in WQP 1-11?	See Ecology response to Ecology – Ivancevich comment on Listing ID 807590. In addition, the data used in the 2018 WQA would have met the SMS and WQA criteria described in July 2020 WQP Policy 1-11.
Seattle – Ivancevich	500019 500020	The data used for this listing are from 2002. The date range specified in Ecology's 2018 Draft Water Quality Assessment Guidance for Public Review is 2006-2017, which means the data used for this listing are outside of the data window and are not sufficient to result in a category change from the 2012 assessment. The appropriate category for this listing is	See Ecology response to Ecology – Ivancevich comment on Listing ID 807590. In addition, the data used in the 2018 WQA would have met the SMS and WQA criteria described in July 2020 WQP Policy 1-11. It is also possible that EIM StudyID RJAC005 was not in EIM when studies were pulled for the 2012 assessment.

Commenter	Listing ID(s)	Comment Received	Ecology Response
		category 3. Ecology's use of data older than 10 years should be clarified in the listing. For example, did Ecology determine the old listing, in which it was based, did not meet quality assurance requirements in place at the time of its collection as presented in WQP 1-11?	
Snohomish	40735 40912 73911	It's unclear whether a hypergeometric mean test failure resulted in listing. Please confirm.	These Category 5 determinations are based on continuous monitoring data, which is not subject to the hypergeometric test. Policy 1-11 describes when timeseries data are available, "Ecology will place an AU in Category 5 when there are two or more exceedances of an applicable 7-DADMax criterion or 1-DMax criterion..." (See Policy 1-11 Section 2.F. Temperature).
Snohomish	14640 48964 48967	Salish Sea Model (SSM) outputs have been used to generate new Category 5 listings for dissolved oxygen in both fresh and marine waters. WQP 1-11 does not list the SSM as approved for any listing purpose. Further, Ecology's SSM QAPP (Publication No. 18-03-111) indicates the model is only to be used to estimate water quality outcomes. While the SSM may be predicting water quality impairment in particular areas, whether using that or any other model for prediction, Ecology must conduct monitoring and collect sufficient field data to establish actual impairment before assigning Category 5 for any pollutant	WQP Policy 1-11 Chapter 1 Section IE. Data and Information Submittals states that Ecology may use modeled outputs that meet credible data requirements. The 2018 Salish Sea Model Quality Assurance Project Plan describes how the model satisfies data quality objectives and does not deviate from policy or Credible Data Act requirements for using models for Ecology's regulatory decisions to help address dissolved oxygen impairments in Puget Sound. The model was used to refine category determinations only within portions of Puget Sound where observational dissolved oxygen data has been collected. While the general WQA process for dissolved oxygen

Commenter	Listing ID(s)	Comment Received	Ecology Response
		to any waterbody segment. Recommend Ecology clarify how Ecology determined that outputs from the SSM meet conditions of WQP 1-11 for dissolved oxygen listings.	simply identifies exceedances of the numeric biological criteria (See Policy 1-11 Section 2C. Dissolved Oxygen), the dissolved oxygen model is actually calculating the potential that human activities are exceeding the 0.2 mg/L natural conditions pieces of the criteria. The application of the model allows Ecology to assess for both components of the criteria and produce a more accurate reflection of water quality conditions. Dissolved oxygen category determinations were only made for waterbodies with field data. No water quality determinations were produced based on model results only. Additionally, no waterbodies were placed into Category 2 or 5 without observational data demonstrating exceedances of the numeric criteria. Please visit the Salish Sea Model's website and the Puget Sound Nutrient Forum website to access additional resources on the model. For more detailed information on how the model was used in the WQA, see the supplemental methodology document of the 2018 WQA Supporting Information document.
Snohomish	74170	Big Ditch is controlled by a tide gate which close during high tides, creating stagnant waters which prohibit sampling representative of flowing surface waters. Encourage checking	The Quality Assurance Project Plan (QAPP) and final technical report for the Study ID JKAR0002 details that samples were collected during low tide (Ecology Publication No. 12-03-035[35]). The report also details no

[35] https://apps.ecology.wa.gov/publications/documents/1203035.pdf

Commenter	Listing ID(s)	Comment Received	Ecology Response
		timing of data collection against high tide events likely to have created sampling of stagnant waters - biasing fecal coliform higher than it would be under flowing conditions and potentially in conflict with standard operating procedures for sample collection. Recommend checking day/time sample collection vs tidal regime to ensure samples were collected on outgoing tide.	samples at this Location ID 03BIG were collected from stagnant water. Additionally, the presence of stagnant water in the channel due to closing of a constructed tide gate could still be considered ambient conditions of that waterbody, if the closing the gate consistently occurs. The recreational use criteria and downstream shellfish criteria still apply in this waterbody.
Snohomish	73568	Big Ditch is controlled by a tide gate which close during high tides, creating stagnant waters which prohibit sampling representative of flowing surface waters. Encourage checking timing of data collection against high tide events likely to have created sampling of stagnant waters - biasing temperature higher than it would be under flowing conditions and potentially in conflict with standard operating procedures for sample collection. Recommend checking day/time sample collection vs tidal regime to ensure samples were collected on outgoing tide.	The Category 5 determination for temperature at this location is based on data collected at LocationID 03BIG under StudyID JKAR0002. The Quality Assurance Project Plan (QAPP) and final technical report for the StudyID JKAR0002 details that samples were collected during low tide (Ecology Publication No. 12-03-035). The report also details no samples at this LocationID 03BIG were collected from stagnant water. Additionally, the presence of stagnant water in the channel due to closing of a constructed tide gate could still be considered ambient conditions of that waterbody, if the closing the gate consistently occurs. The aquatic life criteria would still apply in this waterbody.
Snohomish	73957	Irvine Slough is controlled by a pump station operated by the City of Stanwood. When the pump station is not discharging, waters behind it become stagnant and warmer than they would be under flowing conditions. This causes	Monitoring Location 05IRVINE was located upstream of the City of Stanwood pump station. Therefore, the monitoring location is not impacted by discharges from the station.

Commenter	Listing ID(s)	Comment Received	Ecology Response
		water temperatures to be biased higher than they would be under flowing conditions. Encourage Ecology to check timing of sample collection against City of Stanwood records to determine lack of pump station flow created sampling of stagnant waters - biasing temperature higher and potentially in conflict with standard operating procedures for sample collection.	
Snohomish	47607 47610	Twin City Foods drains are controlled by tide gate. which close during high tides, creating stagnant waters which prohibit sampling representative of flowing surface waters. Encourage checking timing of data collection against high tide events likely to have created sampling of stagnant waters - biasing dissolved oxygen lower than it would be under flowing conditions and potentially in conflict with standard operating procedures for sample collection. Recommend checking day/time sample collection vs tidal regime to ensure samples were collected on outgoing tide.	The Category 5 determination for temperature at these locations are based on data collected at Location IDs 05TTCF5, 05TTCF2 under StudyID JKAR0002. The Quality Assurance Project Plan (QAPP) and final technical report for the StudyID JKAR0002 details that samples were collected during low tide (Ecology Publication No. 12-03-035). Additionally, the presence of stagnant water in the channel due to closing of a constructed tide gate could still be considered ambient conditions of that waterbody, if the closing the gate consistently occurs. The aquatic life criteria would still apply in this waterbody.
SRK	36440, 36441, 78928, 78929, 78930,	We support the following listings for waterbodies to Category 5 for the following parameters: (see Listing ID(s))	Commented noted. Thank you for your support.

Commenter	Listing ID(s)	Comment Received	Ecology Response
	78931, 78932, 78933, 80237, 88489, 88490, 88493, 88494, 88495, 88497, 97872, 97874, 97877, 97880, 97882, 801985, 801988		
SRK	15529, 17550, 97872, 97873, 97874, 97875, 17547, 72390, 72387, 17548	Additionally, (in some cases as stated above) we specifically support the listings for: (see Listing ID(s))	Comments noted. Thank you for your support.

Commenter	Listing ID(s)	Comment Received	Ecology Response
Tacoma – Thompson	52998	This AU is listed as a 5 but the remarks say that in shall remain in category 2 until the TMDL is approved. Is the TMDL approved?	This Listing ID is proposed Category 2. The remark indicating development of a TMDL is a historic remark from a previous water quality assessment that is no longer applicable to this listing and has since been removed. This listing is part of the broader Puget Sound Nutrient Source Reduction Project, which was launched in the Spring of 2017, and is aimed at reducing sources of nutrient loads that are contributing to decreased dissolved oxygen (DO) in Puget Sound, using the Salish Sea Model. The goal of the project is to develop a nutrient source reduction strategy, a roadmap for how to achieve the desired source reduction goals. This project is a multi-year undertaking, and involves collaboration with federal, state and local governments, tribes and communities to both understand the impacts on nutrients on Puget Sound and develop strategies to manage the problem. Given the size and magnitude of the project, a decision was made not to immediately conduct a TMDL, but rather to use the Nutrient Reduction Project efforts to achieve nutrient reductions at the broader scale. In time, TMDLs may need to be conducted in areas that are not successful, or need the more formal load and wasteload allocations to achieve compliance with the standards. For more information on this important project, visit Ecology's Puget Sound Nutrient Source Reduce Project website.

Commenter	Listing ID(s)	Comment Received	Ecology Response
Tacoma – Thompson	38840	The history shows that this AU was a category 1 in 2004 after which there were no further excursion according to the data. Why then did this become a category 5 in 2008?	The data collected from 2002-2005 documented in the Basis Statement field were not available at the time of the 2004 assessment. These data were first analyzed in the 2008 WQA. There were several exceedances of the criteria in 2002 and one in 2003, which resulted in the AU moving to Category 5 in the 2008 assessment.
Tacoma – Thompson	10175	What data or criteria did Ecology staff use to conclude that Anthropogenic sources appear to contribute to D.O exceedances?	In 2004 this listing was reviewed by Coastal and Estuarine Assessment Unit staff to determine if natural conditions were causing the low DO exceedances. Staff concluded that this listing was within an area with physical characteristics or circulation patterns that may increase its susceptibility to anthropogenic effects relative to other parts of Puget Sound. With this consideration, it was the staffs' best professional judgment that the observed dissolved oxygen concentrations at these locations may reflect human influences and therefore should remain in Category 5 until further study and model evaluations were done to resolve the relative influence of human activity. In 2018 WQA, the listing was again reviewed by Ecology staff using the results of the Salish Sea Dissolved Oxygen Model as a basis. Analysis found this listing lies within or adjacent to predicted human-impacted segments of the model, suggesting human activities are likely contributing to dissolved oxygen exceedance(s) in this area. For more information on the Salish Sea Dissolved

Commenter	Listing ID(s)	Comment Received	Ecology Response
			Oxygen Model, reference Puget Sound Nutrient Source Reduce Project. Volume 1: Model Updates and Bounding Scenarios (Ecology Publication No. 19-03-001), Salish Sea Model website, and the Puget Sound Nutrient Forum website. For detailed information on how SSM outputs were incorporated into the WQA, refer to supplemental methodology document of the 2018 WQA Supporting Information document.
Tacoma – Thompson	10101	There appears to be a conflict in the remarks regarding the determination of anthropogenic effects. Are these from different time periods? Also, Ecology's "Determination for Data and Information Submitted for Use in the Water Quality Assessment" expressly excludes the use of modeled results for determining if standards are being met in specific waters. Does this prohibit the use of SSM results for determining if standards are being met?	Historic remarks have been removed from the listing for clarity. Conflicting statements in the remarks were due to inclusion of remarks from previous assessment determinations. For questions about use of SSM in the WQA, see response to general comment Tacoma [1].
Wireman	8861	Was there a tissue assessmet in 2014? Has ECY worked with DOH on fish advisories for this reach (I don't fish)	Fish tissue data have not been collected more recently within this specific assessment unit (AU). However, there were fish tissue data collected in 2006 at Location ID HORN RAPIDS-F in the upstream adjacent AU 17030003000089_001_001. These data were first assessed in the previous assessment cycle (2012) and reassessed this cycle. There are 7 different Category 5 listings for toxics in tissue. The most recent sampling for fish tissue in the Yakima River was conducted in 2014 at

Commenter	Listing ID(s)	Comment Received	Ecology Response
			KIONA-F (AU 17030003000101_001_001) and PROSSER-F (AU 17030003000143_001_001), located several miles upstream from Listing ID 8861. The 2014 data were assessed for the first time in this assessment cycle. DOH often uses the fish tissue data collected by Ecology in their analyses for developing fish consumption advisories. The data collected from the Yakima River in 2006 were used by DOH to set the current Yakima River fish consumption advisories for PCBs and mercury.
WSL	49044, 49047	We respectfully sign this letter to show our strong support to affirm the change in status of the Columbia River from a Category 5 status to a Category 1 status for dissolved oxygen under Listing No. 49044 and Listing No. 49047.	Comment noted. Thank you for your support.

References

Agency for Toxic Substances and Disease Registry. 2010. Risk. https://www.atsdr.cdc.gov/risk/index.html

Agency for Toxic Substances and Disease Registry. 2018. Interaction Profiles. https://www.atsdr.cdc.gov/interactionprofiles/ipga.html

Code of Federal Regulations. CFR 130.7. Total Maximum Daily Loads (TMDL) and Individual water quality based effluent limitations. https://www.govinfo.gov/content/pkg/CFR-2011-title40-vol22/pdf/CFR-2011-title40-vol22-sec130-7.pdf

Environmental Protection Agency. 2020. EPA Guidance for Developing Fish Advisories. https://www.epa.gov/fish-tech/epa-guidance-developing-fish-advisories

Environmental Protection Agency. 2021. Integrated Risk Information System webpage. https://www.epa.gov/iris

Environmental Protection Agency. 2005. Memorandum: Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b), and 314 of the Clean Water Act. https://www.epa.gov/sites/default/files/2015-10/documents/2006irg-report.pdf

Revised Code of Washington. Chapter 34.05 RCW. Administrative Procedure Act. https://app.leg.wa.gov/RCW/default.aspx?cite=34.05

Revised Code of Washington. Chapter 90.48 RCW. Water Pollution Control. https://app.leg.wa.gov/RCW/default.aspx?cite=90.48

U.S. Geological Survey. Statistical Methods in Water Resources. Techniques and Methods 4-A3. https://pubs.usgs.gov/tm/04/a03/tm4a3.pdf

Washington Administrative Code. WAC 173-201A. Water Quality Standards for Surface Waters of the State of Washington. https://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A

Washington Department of Ecology. 2015. 2014 Proposed Water Quality Assessment Public Review-Response to General Comments, Revised October 13, 2015. *Available upon request.*

Washington Department of Ecology. 2009. The Department of Ecology's Response to Public Comments for the 2008 Water Quality Assessment. *Available upon request.*

Washington Department of Ecology. EIM submit data. https://ecology.wa.gov/Research-Data/Data-resources/Environmental-Information-Management-database/EIM-submit-data

Washington Department of Ecology. Eyes over Puget Sound. https://ecology.wa.gov/Research-Data/Monitoring-assessment/Puget-Sound-and-marine-monitoring/Eyes-over-Puget-Sound

Washington Department of Ecology. 2021. Eyes Over Puget Sound Surface Conditions Report: June 17, 2021. Ecology Publication No. 21-03-074. https://apps.ecology.wa.gov/publications/documents/2103074.pdf

Washington Department of Ecology. 2014. Freshwater Fish Contaminant Monitoring Program. Ecology Publication No. 14-03-020. https://apps.ecology.wa.gov/publications/publications/1403020.pdf

Washington Department of Ecology. Marine water and sediment monitoring. https://ecology.wa.gov/Research-Data/Monitoring-assessment/Puget-Sound-and-marine-monitoring

Washington Department of Ecology. Marine water quality long-term trends. https://ecology.wa.gov/Research-Data/Monitoring-assessment/Puget-Sound-and-marine-monitoring/Long-term-changes-in-marine-water

Washington Department of Ecology. 2021. Puget Sound Nutrient Source Reduction Project. https://www.ezview.wa.gov/DesktopDefault.aspx?alias=1962&pageid=37106

Washington Department of Ecology. 2019. Puget Sound Nutrient Source Reduction Project Volume 1: Model Updates and Bounding Scenarios. Ecology Publication No. 19-03-001. https://apps.ecology.wa.gov/publications/documents/1903001.pdf

Washington Department of Ecology. 2018. Quality Assurance Project Plan Salish Sea Model Applications. Ecology Publication No. 18-03-111. https://apps.ecology.wa.gov/publications/documents/1803111.pdf

Washington Department of Ecology. 2012. Response to Comments, Revisions to Policy 1-11. *Available upon request.*

Washington Department of Ecology. Salish Sea Model. https://ecology.wa.gov/Research-Data/Data-resources/Models-spreadsheets/Modeling-the-environment/Salish-Sea-modeling

Washington Department of Ecology. 2012. Skagit Bay Fecal Coliform Bacteria Loading Assessment. Ecology Publication No. 12-03-035. https://apps.ecology.wa.gov/publications/documents/1203035.pdf

Washington Department of Ecology. 2010. Spokane River and Lake Spokane Dissolved Oxygen Total Maximum Daily Load Water Quality Improvement Report. Ecology Publication No. 07-10-073. https://apps.ecology.wa.gov/publications/documents/0710073.pdf

Washington Department of Ecology. 2021. Supporting Information for 2018 Water Quality Assessment Supplemental Methods, Citations, and Data Sources. Ecology Publication No. 21-10-043. https://apps.ecology.wa.gov/publications/summarypages/2210018.html

Washington Department of Ecology. 2018. Water Quality Program Policy 1-11 Chapter 1 October 2018 Public Review Response to Comments. Ecology Publication No. 18-10-036. https://apps.ecology.wa.gov/publications/documents/1810036.pdf

Washington Department of Ecology. 2020. Water Quality Program Policy 1-11 Chapter 1 Washington's Water Quality Assessment Listing Methodology to Meet Clean Water Act Requirements. Ecology Publication No. 18-10-035. https://apps.ecology.wa.gov/publications/documents/1810035.pdf

Washington Department of Ecology. 2021. Water Quality Program Policy 1-11 Chapter 2 Ensuring Credible Data for Water Quality Management. Ecology Publication No. 21-10-032. https://apps.ecology.wa.gov/publications/documents/2110032.pdf

Washington Department of Health. Drinking Water. https://www.doh.wa.gov/communityandenvironment/drinkingwater

Washington Department of Health. 2007. Evaluation of PCBs, PBDEs and Selected Metals in the Spokane River, Including Long Lake Spokane, Washington. Publication No. DOH 334-147. https://www.doh.wa.gov/portals/1/Documents/Pubs/334-147.pdf

Washington Department of Health. 2011. Potential Cumulative Health Effects Associated with Eating Spokane River Fish Spokane, Spokane County, Washington. Publication No. DOH 334-275. https://www.doh.wa.gov/Portals/1/Documents/Pubs/334-275.pdf

Washington State Register. 2016. Call for Data and Scoping Process for the Water Quality Assessment and Water Quality Policy 1-11. WSR 16-03-088. http://lawfilesext.leg.wa.gov/law/wsr/2016/03/16-03-088.htm

Washington State Register. 2018. Public Input on the 2018 Water Quality Assessment: Proposed Changes to Water Quality Policy 1-11 and Additional Call-For-Data. WSR 18-05-036. http://lawfilesext.leg.wa.gov/law/wsr/2018/05/18-05-036.htm

Appendix A. Meal Limits for Effects of PBDEs and PCBs on Human Health

Table A-1. Meal Limits Calculated Separately and Cumulatively for Effects of PBDEs and PCBs on Human Health.

Cumulative Effects - Calculated Meal Limits						
PCB sampling data			PBDE sampling data		Combined	Recommendations *
Species	Mean PCB Conc. (ug/kg ww)	PCB Meals/Month	Mean PBDE Conc. (ug/kg ww)	PBDE Meals/Month	Meals/Month	Recommendation for both PCBs & PBDEs
Lake Spokane (Upper and Lower Long Lake)						
Largescale sucker (whole)	290	0.6	385	2.1	0.4	1
Brown Trout (fillet)	130	1.2	159	5.1	1.0	1
Smallmouth Bass (fillet)	52	3.1	50	16.1	2.6	2
Mt Whitefish (fillet)	59	2.7	149	5.4	1.8	4
Ninemile Dam to Upriver Dam						
Bridgelip Sucker (whole)	69	2.3	522	1.5	0.9	1
Rainbow Trout (fillet)	113	1.4	418 *	1.9	0.8	1
Rainbow Trout (whole)	NA	NA	2,043	0.4	0.4	1
Largescale sucker (whole)	1,823	0.1	95	8.5	0.1	0
Mt whitefish (fillet)	186	0.9	714	1.1	0.5	1
Mt Whitefish (whole)	NA	NA	4,720	0.2	0.2	1
Upriver Dam to Idaho Border						
Rainbow Trout (fillet)	55	2.9	90	8.9	2.2	0
Largescale Sucker (whole)	89	1.8	176	4.6	1.3	0
source: DOH 2007 tables 2a,b & table 4						
* Takes into consideration reductions from cleaning & cooking						

Appendix B. Memo King County CSOs and West Point WWTP

DEPARTMENT OF ECOLOGY
Toxics Cleanup Program

July 20, 2014

TO: Alison Evans, P.E., NWRO/WQP

FROM: Sharon R. Brown, TCP/Aquatic Lands Cleanup Unit

SUBJECT: King County CSOs and West Point WWTP: Permit Renewal; Data Review
NPDES Permit WA00029181 (FSID #24954381)

General Comments

West Point WWTP

Given the amount of discharge, sediment sampling should occur in every permit cycle. With a history of disconnect between chemical and bioassay exceedances, TCP proposes that bioassay be performed before chemistry. And, if there are bioassay exceedances, then chemistry should be performed. Enough top 10 cm of sediment should be collected to allow for bioassay, and if necessary, chemistry testing at each station.

Stations. The stations should be in the same location as previous sampling events. However, the predominant current direction in the vicinity of the outfall needs to be identified on all figures. This will help in deciding if any additional stations should be added. For example, per KC, the July 2011 station WP430S still had a *Sediment Management Standards* (SMS) marine SIZmax \ CSL bioassay exceedance even after retesting the larval echinoderm bioassays.[1] If the predominant current direction is North-to-South, then maybe another station should be added south of WP430S.

Bioassay. In addition to the usual 2 acute 1 chronic bioassay tests, as in July 2011, run parallel larval echinoderm tests, using standard protocols and screen tube manipulation in order to see if *a physical influence from turbidity in the overlying test water continues to lead to failed bioassays*.

Chemistry. In support of the bioassay tests, conventionals are to be obtained for all stations. And, the full suite of 47 SMS marine chemicals are to be analyzed at all stations with bioassay failures.

King County (KC) CSOs

There should always be pre-construction (i.e., baseline) sampling in areas where there is not current sediment quality data.

Hanford. In a 1May email, you stated that there has not been pre-construction sampling at Hanford. Why not?

Post-Construction Monitoring should occur in the area where the discharge is predicted to potentially impact the sediment. Post-construction monitoring will be in the same area as pre-construction monitoring, unless the actual areal extent of the discharge is in an area different than where pre-construction sampling has occurred.

CSO Treatment Plants

In a 30Jan email you asked if KC CSO Treatment Plants could be sampled in the next permit cycle, because of *intermittent discharges*. I am fine with your decision.

[1] Ecology 2013. *Sediment Management Standards Chapter 173-204 WAC*. Revised Feb2013. Effective Sep2013. Ecology Publication No. 13-09-055. http://www.ecy.wa.gov/biblio/wac173204.html

Documents for Review

If you can, please state in the permit, that TCP will need a minimum of 6 months for document review and approval.

Data Review: West Point WWTP (EIM Study ID: West_Point_2011)

April 2011 Sediment Sampling Event[2]

In April 2011 King County collected and analyzed sediment in the vicinity of the West Point WWTP. Sediment at a depth of 10 cm underwent chemical and bioassay testing. Sediment at a depth of 2 cm underwent chemical testing to continue KC's *recently deposited material* monitoring history and to compare results between the two depths.

Since my 8Jul draft memo, I have found a 22Sep2011 KC email with a revised EIM data submittal that addressed the 27Aug2011 TCP memo (blue text).[3,4] Therefore, the TCP EIM Sediment Database Manager will be updating EIM to reflect these changes. Once entered I will use MyEIM to evaluate and compare the 2 cm chemistry results to KC's findings.

8Jul2014 TCP Memo

I do not have a record of KC's response in writing or in action to a 27Aug2011 TCP memo (blue text) responding to KC's 12Jul2011 letter describing the April 2011 sampling event.[2] And, detailing TCP's review of the study's raw EIM data.

- *By action, I mean, making the stated changes and resubmitting the study results to EIM.*

Summary

Please resubmit the West_Point_2011 EIM study to Ecology with:

- *shorten StudyLocationName values;*
- *the removal of total chemical concentrations; and*
- *the addition of the 2 cm chemistry results.*

Subsequent KC correspondence[5,6] still did not provide applicable EIM Study IDs; and the misstating of the distinction between EIM and MyEIM continued. KC repeatedly refers to EIM instead of MyEIM when describing performing chemical and bioassay analyses.

EIM Study ID (West_Point_2011)

I was able to identify the applicable EIM Study ID for the April 2011 results by using the EIM Map Viewer. But for future documentation, please provide the EIM Study ID to which you are referring.

Terminology Clarification

EIM and MyEIM are separate entities:

- *The EIM database contains chemical and bioassay (as well as other environmental) data.*
- *MyEIM contains search, analytical, and mapping tools as well as the chemical and bioassay criteria values / equations.*

---

[2] King County 2011a. Scott Mickelson (KC) to Mark Henley, P.E. (NWRO) letter. 12Jul2011. EIM StudyID: West_Point_2011.
[3] King County 2011b. Scott Mickelson (KC) to SRBrown (TCP) email *Resubmittal of West Point April 2011 Sampling Data for EIM*. 22Sep2011.
[4] Ecology 2011. SRBrown (TCP) to Mark Henley, P.E. (NWRO) memo: *West Point WWTP – April 2011 Sediment* Results. 27Aug2011.
[5] King County 2012a. Scott Mickelson (KC) to Mark Henley, P.E. (NWRO) letter. 16Feb2012. EIM StudyID: West_Point_2011. NOTE: Letter was erroneously dated 2011.
[6] King County 2012b. *King County Sediment Management Plan Update, CSO Sediment Characterization, 2011 Sediment Sampling Event.* Draft. Dec2012. EIM StudyID: KC_CSO_2011.

I used the MyEIM Search and Analytical tools to obtain the following results. For chemical analysis, because of the site's low %TOC, I compared the results to the SMS dry weight criteria.[7]

2011 Sampling	%TOC		MyEIM Criteria Name
April	0.08 - 0.92		R 1988 Marine SQS / SCO Dry
July	0.05 - 0.92		R 1988 Marine CSL / SIZmax Dry

April 2011 10 cm Chemistry
I agree with KC's findings, that in Apr2011 three stations with detected concentrations exceeded the SQS dry weight criteria.

Depth (cm)	Station	Sample	Chemical	Chem Conc (ppb dry)	Criteria Conc (ppb dry)	%TOC
8	WP215N	L52805-10	Dimethyl phthalate	75	71	0.265
6	WP230P	L52805-9	Total PCBs	190	130	0.541
6	WP420NW	L52805-16	Total PCBs	150	130	0.854

April 2011 2 cm Chemistry
As previously stated, once a revised data submittal is entered to EIM, I will use MyEIM to evaluate and compare the 2 cm chemistry results to KC's findings.

Per KC, the 2 cm samples were analyzed for the suite of 47 SMS marine chemicals. And, *there were no exceedances of SMS chemical criteria in any* [2 cm] *sample*.[2]

April 2011 Bioassay
All 8 stations underwent bioassay testing for amphipod *Rhepoxynius abronius*, larval echinoderm *Strongylocentrotus purpuratus* (purple sea urchin), and juvenile polychaete *Neanthes arenaceodentata*. I agree with KC's findings, that in Apr2011 all stations exceeded the SMS marine SIZmax \ CSL bioassay criteria for the larval echinoderm test.

During the larval echinoderm tests, the overlying water was noted to remain quite turbid throughout the exposure period. Based on the chemistry and bioassay results, KC initiated a sediment TIE (toxicity Identification Evaluation) *process … to attempt to identify and evaluate the source of the test response observed during the larval echinoderm bioassay*.[2]

July 2011 Sediment Sampling Event[5]

In July 2011, KC collected 10 cm sediment and ran parallel larval echinoderm (*Dendraster excentricus*; sand dollar) tests, using standard protocols and screen tube manipulation. The purpose was to see if (and it appears that) *a physical influence from turbidity in the overlying test water lead to failed bioassays*.

MyEIM Jul2014 vs Feb2012 KC Letter
KC reported that all July 2011 screen tube manipulation echinoderm tests passed; except at station WP430S which had a SMS marine SIZmax \ CSL bioassay exceedance. However,

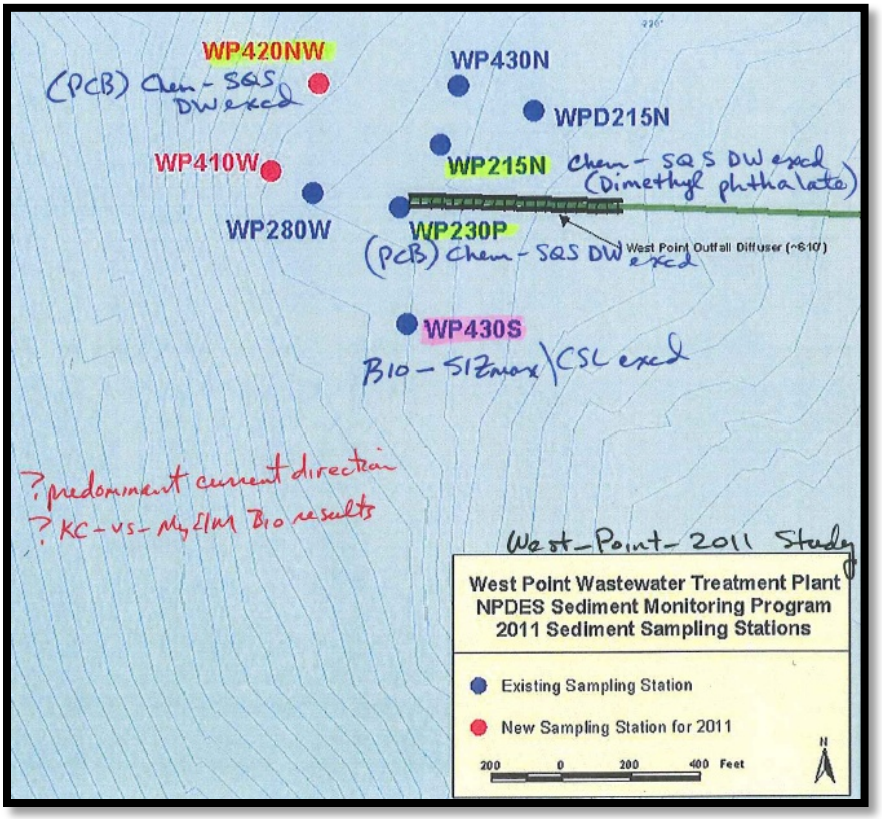
[7] MyEIM: http://www.ecy.wa.gov/eim/MyEIM.htm

current MyEIM calculations show that all tests (standard and screen tube) failed the SMS marine SIZmax \ CSL bioassay criteria.

I met with Peter Adolphson (TCP) to see if we could manually evaluate the Jul2011 bioassay data based on the information that is currently available to us. The purpose will be to see if the current MyEIM is correctly calculating bioassay data. Or, if the version used by KC correctly calculated the bioassay tests.

As stated in my 11Jul email (and your subsequent email to KC), we request that King County submit the laboratory bench sheets and reference toxicant tests with control charts for the EIM Study ID West_Point_2011.[8,9] These items appear as appendices in sediment sampling Data Reports. KC choose to submit letters instead of the NPDES permit required Data Report that follows the *Sediment Sampling and Analysis Plan Appendix* (SAPA) guidance.[10]

Not having this information does not change my next permit requirements, but we definitely need to get to the bottom of these discrepancies.



These letters[2,5] are not approved to meet the NPDES permit Data Report requirements.

[8] Ecology 2014a. SRBrown (TCP) to Alison Evans, P.E. (NWRO) email: *EIM StudyID West_Point_2011: Bioassay Lab Sheets*. 11Jul2014.
[9] Ecology 2014b. Alison Evans, P.E. (NWRO) to Betsy Cooper (KC) email: *West Pt Outfall Sediments - Bioassay data request - EIM StudyID West_Point_2011*. 11Jul2014.
[10] Ecology 2008. *Sediment Sampling and Analysis Plan Appendix* [SAPA], *Guidance on the Development of Sediment Sampling and Analysis Plans Meeting the Requirements of the Sediment Management Standards (Chapter 173-204 WAC)*. Ecology Publication No. 03-09-043. February 2008.

Data Review: King County CSOs (EIM Study ID: KC_CSO_2011)[6]

In August and October 2011, KC attempted to collect the top 10 cm of sediment in the vicinity of 10 marine, estuarine, and freshwater CSO outfalls.

- Stations. There were 45 marine \ estuarine stations at 7 CSOs. And, 22 freshwater stations at 3 CSOs. In addition, there were marine (2) and freshwater (1) *background* stations. Two stations were required to be relocated (outside the 20 feet sampling and analysis plan[11] requirements) due to unacceptable bottom substrate and rip-rap (p. 5).
- Sampling. Sediment quality data was collected at all CSOs. But the data collected at North Beach, South Magnolia, Murray Avenue SW, and SW Barton Street CSOs will be considered pre-construction baseline sampling data.
- Sampling Depth. There were 5 of 67 stations where a depth of 10 cm could not be obtained (p. 5). For those stations, the analyzed sediment depth ranged from 4 to 9 cm.
- Chemicals. Each station was analyzed for conventionals (percent solids, total organic carbon [TOC], particle size) and the suite of SMS marine or freshwater chemicals.

The Dec2012 draft report summarizes but does not interpret the chemical results. That is, other than compiling chemical exceedances there is no discussion as to the potential source of these chemicals. There are also no maps that indicate which stations have exceeded SMS criteria.[12]

This document is not approved to meet the NPDES permit Data Report requirements.

General Comments

The following comments may apply to more than one location in the document.

- Though it is stated that the 2011 sampling results will be used to *populate, calibrate, and verify the County's near-field sediment recontamination model*; there is no discussion of this in this document. Nor is another document referenced where such details exist.

- There is no discussion of the marine and freshwater *background* stations chemical results. Or their relationship to various CSOs.

- Figures should include the predominant current direction.

- Tables
  - ⇒ Each table should be able to standalone and include:
    - conventional results;
    - the nature of the receiving environment (i.e., marine, estuarine, freshwater); and
    - concentration at which a chemical was undetected.
  - ⇒ The tables summarizing which chemicals have exceeded criteria are incomplete \ misleading without including undetected chemicals that exceeded criteria.
  - ⇒ p. 20, Table 4-1 (%TOC). Nice to see %TOC in relation to all the CSO sites, but this information (as well as other conventional results) should appear on each individual site chemical analytical results table.
  - ⇒ The codes used to distinguish each CSO should be identified.

[11] King County 2011c. *King County Sediment Management Plan Update, CSO Sediment Quality Characterization, Final Sampling and Analysis Plan.* Aug2011. EIM StudyID: KC_CSO_2011.
[12] SAPA Section 8.0 *Data Analysis, Record Keeping, and Reporting Requirements*.

⇒ Tables should appear after they are referenced in the text. For example, Tables 4-5 and 4-6 (p. 25-26) should appear after the text on p. 27. This table misplacement trend continues with the remaining Section 4 tables.

⇒ I noticed that *butyl benzyl phthalate* was misspelled on the chemistry results tables and text.

- The misstating of the distinction between EIM and MyEIM continues. KC repeatedly refers to EIM instead of MyEIM when describing performing chemical analyses (p. 2, 2nd bullet).

- Provide the specific EIM Study ID when referring to an EIM study (p. 4, last para.).

- References mentioned in the text are not included in the Section 5 References. For example, *Ecology 2003* referenced in Section 4.3 is not in Section 5. Please ensure that all references are included in Section 5's list of references.

- Table of Contents should include a list of tables and figures.

Specific Comments

Section 1.0 Introduction
The concept of developing a nearfield sediment model to evaluate recontamination potential for CSOs, following control and sediment remediation projects is mentioned, but not discussed. The model output would provide *one line of evidence in determining which areas in front of* [KC] *CSOs require remedial action. Sediment quality data collected during this project* [and presumably also the KC_CSO_2013 study] *will be used to populate and validate the model output.*

The specific goals of the 2011 CSO sediment quality sampling event were to:
- *populate, calibrate, and verify the County's near-field sediment recontamination model;*
- *determine if sediment chemical concentrations in the vicinity of 10 CSO outfalls meet or exceed Washington State Sediment Management Standards (SMS) chemical criteria;*
- *create a pre-construction sediment quality baseline at four locations, for which CSO control projects are currently underway.*

Section 4.0 Sediment Chemistry Analytical Results
p. 19, 5th para. *For comparative purposes between stations at a particular site, analytical results for non-ionic organic compounds have been normalized to either dry weight or organic carbon, depending on whether the majority of stations exhibited a TOC concentration greater or less than 0.5%.*

TCP: When a marine or estuarine station's %TOC was less than 0.5% or greater than 3.5%, the chemistry results were compared to the SMS dry weight criteria (*1988 Puget Sound Estuary Program Marine*) which can be found in MyEIM.[7]

Comparison of MyEIM to KC Chemistry Results

The MyEIM Search and Analytical tools were used to obtain chemistry results. The results were compared to marine \ estuarine or freshwater OC-normalized or dry weight criteria in the Feb2013 *Sediment Management Standards* (SMS).[1]

There are some differences in what chemicals are listed as exceedances, because:

- TCP compared chemical results to the current (2013) SMS freshwater criteria. And, KC used the *draft freshwater reference values based on the 2003 Floating Percentile Guidelines*.[13]
- KC did not include 'U' (undetected) qualified chemicals. TCP considers 'U' qualified chemicals with SMS exceedances to be exceedances. KC commented that the data is qualified as < MDL (method detection limit), but if a sample is not analyzed at a level below the SMS criteria it is considered to be an exceedance [SMS WAC 173-204-320(2)(a)].
  - ⇒ The recommended practical quantitation limits (PQL) in SAPA Table 5[10] were established through collaboration between Ecology and King County Environmental Laboratory (KCEL) staff; thus, KCEL believed the PQLs could be met by their and other laboratories.
  - ⇒ This is an ongoing occurrence of KCEL not analyzing to levels below SMS criteria yet stating that the chemical is undetected. Per TCP, if a chemical is undetected at a concentration that is above the criteria it is an exceedance.
- KC did not provide a discussion about the marine or freshwater background stations (i.e., their purpose, relation to CSO stations, etc.)

Marine and Estuarine Sediment Chemistry Results

The Feb2013 revised SMS did not change chemical criteria values for marine or estuarine sediment.[1] Therefore, the chemical sampling results were compared to the SMS marine chemical criteria. If a station's total organic carbon (TOC) was less than 0.5% or greater than 3.5% the SMS dry weight (DW) chemical criteria was used for comparison.[7]

North Beach CSO (Puget Sound [north of Meadow Point]; 9 - 10 cm depth; Subtidal)

- Pre-construction baseline sampling.
- TOC: 0.17 - 0.24%
- I agree with KC, that there are no SMS DW exceedances at any of the six stations.

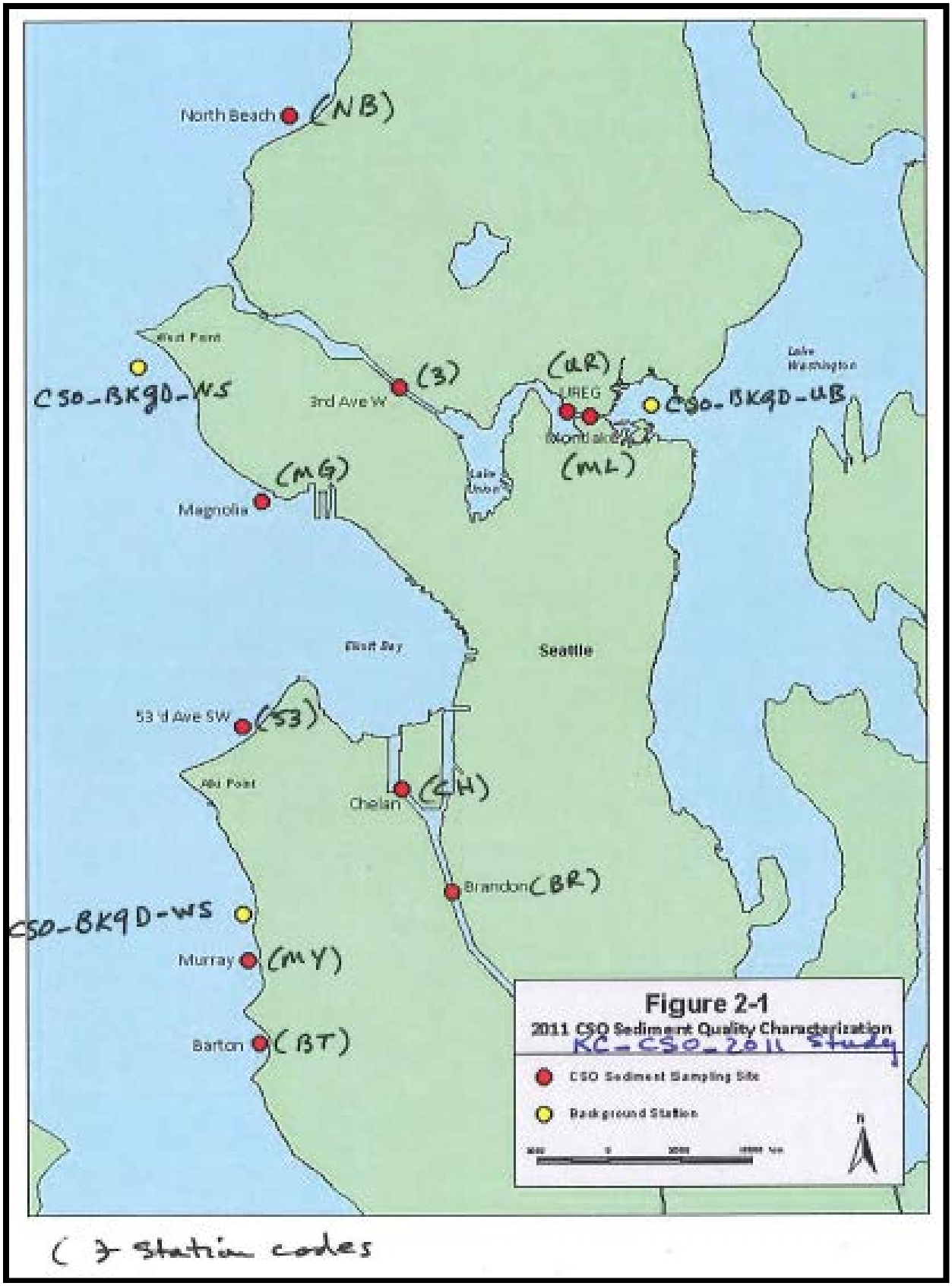
South Magnolia CSO (Puget Sound [NW Elliott Bay]; 5.5 - 8 cm depth; Subtidal)

- Pre-construction baseline sampling.
- TOC: 0.15 - 0.38%; 0.53% (CSO-MG-2)
- I agree with KC, that there are no SMS DW exceedances at any of the six stations. Or, SMS OC normalized exceedances at the CSO-MG-2 station.

53rd Avenue SW CSO (Puget Sound [between Duwamish Head and Alki Point]; 7 - 10 cm depth; Subtidal)

- TOC: 0.07 - 0.29%; 1.23% (CSO-53-6)
- I agree with KC, that there are no SMS DW exceedances at six stations. Or, SMS OC normalized exceedances at the CSO-53-6 station.

[13] Ecology 2003. *Development of Freshwater Sediment Quality Values for Use in Washington State*. Ecology Publication No. 03-09-088. Sep2003. https://fortress.wa.gov/ecy/publications/summarypages/0309088.html


North Beach
(NB)
CSO-BKGD-WS
3rd Ave W
(3)
(UR)
UREG
CSO-BKGD-UB
(ML)
(MG)
Magnolia
Seattle
53rd Ave SW
(53)
Chelan
(CH)
Brandon (BR)
CSO-BKGD-WS
Murray
(MY)
Barton
(BT)
Figure 2-1
2011 CSO Sediment Quality Characterization
KC-CSO-2011 Study
CSO Sediment Sampling Site
Background Station
( ) station codes

Murray Avenue SW CSO (Puget Sound [north of Williams Point]; 6 - 10 cm depth; Subtidal)

- Pre-construction baseline sampling.
- TOC: 0.10 - 0.23%; 0.68% (CSO-MY-1); 0.60% (CSO-MY-3)
- I agree with KC, that there are SMS DW and OC SQS exceedances at one of seven stations.

Station	SQS DW	SQS OC
CSO-MY-1	butyl benzyl phthalate	butyl benzyl phthalate

SW Barton Street CSO (Puget Sound [Fauntleroy Cove]; 10 cm depth; Subtidal)

- Pre-construction baseline sampling.
- TOC: 0.48 - 0.49%; 4.51%; 0.68 - 2.03%
- All six stations had DW or OC SMS SQS and CSL exceedances. There are differences in MyEIM vs KC's findings.
  - ⇒ Green text indicates those chemicals that KC and MyEIM agree upon. The blue text indicates chemicals with 'U' data qualifiers that KC did not include in their list of exceedances (p. 22).
    Note: I only did this with stations CSO-BT-3 and -6; there are other chemical mismatches due to KC not including undetected chemicals that exceeded criteria. TCP will rely on MyEIM findings for chemical exceedances.
  - ⇒ For unknown reasons, KC did not compare station CSO-BT-1 with a %TOC of 4.51% to DW SMS (App C Table C-2).

Station	%TOC	SQS DW	SQS OC	CSL DW	CSL OC
BT-1	4.51	n-nitrosodiphenylamine	–	2-methylnaphthalene acenaphthene anthracene Benz(a)anthracene benzo(a)pyrene benzo(g,h,i)perylene chrysene Dibenzo(a,h)anthracene dibenzofuran fluoranthene fluorene HPAH Indeno(1,2,3-c,d)pyrene LPAH Phenanthrene pyrene Total Benzofluoranthenes	–
BT-2	1.41	–	–	–	butyl benzyl phthalate
BT-3	0.49	bis(2-ethylhexyl) phthalate butyl benzyl phthalate hexachlorobutadiene	–	1,2-dichlorobenzene 2,4-dimethylphenol 2-methylphenol acenaphthene anthracene Benz(a)anthracene benzo(a)pyrene benzo(g,h,i)perylene benzoic acid benzyl alcohol	–

				chrysene Dibenzo(a,h)anthracene dimethyl phthalate fluoranthene fluorene HPAH Indeno(1,2,3-c,d)pyrene LPAH n-nitrosodiphenylamine pentachlorophenol phenanthrene pyrene Total Benzofluoranthenes	
BT-4	0.68	–	1,2,4-trichlorobenzene benzo(a)pyrene butyl benzyl phthalate chrysene hexachlorobenzene hexachlorobutadiene HPAH Total Benzofluoranthenes	–	1,2-dichlorobenzene 1,4-dichlorobenzene 2,4-dimethylphenol 2-methylphenol benzo(g,h,i)perylene benzoic acid benzyl alcohol bis(2-ethylhexyl) phthalate Dibenzo(a,h)anthracene Indeno(1,2,3-c,d)pyrene n-nitrosodiphenylamine pentachlorophenol
BT-5	2.03	–	1,4-dichlorobenzene butyl benzyl phthalate fluoranthene hexachlorobenzene HPAH LPAH phenanthrene phenol	–	1,2-dichlorobenzene 2,4-dimethylphenol 2-methylphenol Benz(a)anthracene benzo(a)pyrene benzo(g,h,i)perylene benzoic acid benzyl alcohol bis(2-ethylhexyl) phthalate chrysene Dibenzo(a,h)anthracene Indeno(1,2,3-c,d)pyrene pentachlorophenol Total Benzofluoranthenes
BT-6	0.48	butyl benzyl phthalate dimethyl phthalate hexachlorobutadiene HPAH	–	1,2-dichlorobenzene 2,4-dimethylphenol 2-methylphenol benzo(g,h,i)perylene benzoic acid benzyl alcohol bis(2-ethylhexyl) phthalate Dibenzo(a,h)anthracene fluoranthene Indeno(1,2,3-	–

				c,d)pyrene n-nitrosodiphenylamine pentachlorophenol	

South Brandon Street CSO (Lower Duwamish Waterway [LDW]; 5-10 cm depth; location)

- TOC: 0.94 - 2.29%
- I agree with KC, that there are SMS OC SQS and CSL exceedances at five of six stations. There are chemical differences due to KC not including U qualified data.

Station	Depth (cm)	SQS DW	SQS OC	CSL DW	CSL OC
CSO-BR-1	5	–	butyl benzyl phthalate Total PCBs	–	–
CSO-BR-2	9	–	butyl benzyl phthalate Total PCBs	–	–
CSO-BR-3	8	–	1,4-dichlorobenzene Benz(a)anthracene benzo(a)pyrene butyl benzyl phthalate chrysene fluoranthene hexachlorobenzene HPAH Phenanthrene Total Benzofluoranthenes	–	1,2-dichlorobenzene 2,4-dimethylphenol 2-methylphenol benzo(g,h,i)perylene benzoic acid benzyl alcohol bis(2-ethylhexyl) phthalate Dibenzo(a,h)anthracene Indeno(1,2,3-c,d)pyrene pentachlorophenol
CSO-BR-4	10	–	butyl benzyl phthalate	–	benzoic acid
CSO-BR-5	10	–	–	–	benzoic acid
CSO-BR-6	10	–	–	–	–

Chelan Avenue SW CSO (LDW West Waterway; 4 - 8 cm depth; location)

- TOC: 0.37 - 0.50%; 0.76 - 1.28%
- I agree with KC, that there are SMS DW or OC SQS and CSL exceedances at five of six stations. There are chemical differences due to KC not including U qualified data.

Station	Depth (cm)	SQS DW	SQS OC	CSL DW	CSL OC
CSO-CH-1	6	–	butyl benzyl phthalate Total PCBs	–	–
CSO-CH-2	4	butyl benzyl phthalate	–		–
CSO-CH-3	8	–	benzo(g,h,i)perylene butyl benzyl phthalate chrysene Total PCBs	–	–
CSO-CH-4	5	–	–	–	–
CSO-CH-5	5	butyl benzyl phthalate	–		–

CSO-CH-6	6	–	acenaphthene butyl benzyl phthalate Dibenzo(a,h)anthracene Dibenzofuran Hexachlorobenzene phenol	–	1,2,4-trichlorobenzene 1,2-dichlorobenzene 1,4-dichlorobenzene 2,4-dimethylphenol 2-methylphenol 4-methylphenol benzoic acid benzyl alcohol bis(2-ethylhexyl) phthalate hexachlorobutadiene n-nitrosodiphenylamine pentachlorophenol

Marine *Background* Stations

- There is no KC discussion about marine background stations (CSO-BKGD-NS; -WS). There are no DW SMS exceedances at either station.
  - ⇒ CSO-BKGD-NS
    - Puget Sound (SW West Point); 6.5 cm depth; Subtidal; TOC: 0.21%
  - ⇒ CSO-BKGD-WS
    - Puget Sound (west of High Point); 10 cm depth; Subtidal; TOC: 0.10%

Freshwater Sediment Chemistry Results

The Feb2013 revised *Sediment Management Standards* contain sediment cleanup objective (SCO) and chemical screening level (CSL) freshwater dry weight criteria.[1] Therefore, sediment chemical concentrations at freshwater CSOs were compared to the revised SMS criteria. Thus, there are differences between TCP's use of the revised 2013 SMS and KC's use of *draft freshwater reference values based on the 2003 Floating Percentile Guidelines*.[13]

3rd Avenue West CSO (Lake WA Ship Canal; 10 cm depth; Canal/Ditch)

- Six of seven stations had SCO or CSL DW exceedances.

Station	SCO DW	CSL DW
CSO-3W-1	bis(2-ethylhexyl) phthalate; Nickel; silver; Total PCB Aroclors	Mercury; Total PAHs
CSO-3W-2	bis(2-ethylhexyl) phthalate; di-n-butyl phthalate; silver; Total PAHs	—
CSO-3W-3	bis(2-ethylhexyl) phthalate; dibenzofuran; di-n-octyl phthalate; Nickel; phenol	Total PAHs
CSO-3W-4	bis(2-ethylhexyl) phthalate; Nickel; silver; Total PCB Aroclors	Total PAHs
CSO-3W-5	bis(2-ethylhexyl) phthalate; Nickel; silver; Total PCB Aroclors	Total PAHs
CSO-3W-6	—	Total PAHs
CSO-3W-7	—	—

- Station CSO-3W-3 had two 'U' qualified chemicals with SCO exceedances. KC commented that the data is qualified as < MDL, but if a sample is not analyzed below criteria it is considered to be an exceedance [SMS WAC 173-204-320(2)(a)].

Chemical Name	Chemical Concentration (ug/kg dry)	Criteria Concentration (ug/kg dry)	PQL	MDL
di-n-octyl phthalate	83	39	82.9	82.9
phenol	200	120	622	200

University Regulator CSO (Portage Bay; 10 cm depth; Lake/Pond/Reservoir)

- Six of seven stations had SCO or CSL DW exceedances.

Station	SCO DW	CSL DW
CSO-UR-1	bis(2-ethylhexyl) phthalate; silver; Total PCB Aroclors	mercury
CSO-UR-2	bis(2-ethylhexyl) phthalate; Nickel	—
CSO-UR-3	bis(2-ethylhexyl) phthalate; di-n-octyl phthalate; Nickel; silver; Total PCB Aroclors	phenol
CSO-UR-4	Nickel; Total PCB Aroclors	—
CSO-UR-5	Nickel	—
CSO-UR-6	—	—
CSO-UR-7	Nickel	—

- Station CSO-UR-3 had two 'U' qualified chemicals with SCO and CSL exceedances. KC commented that the data is qualified as < MDL, but if a sample is not analyzed below criteria it is considered to be an exceedance [SMS WAC 173-204-320(2)(a)].

Chemical Name	Chemical Concentration (ug/kg dry)	Criteria Concentration (ug/kg dry)	PQL	MDL
di-n-octyl phthalate	100	39 (SCO)	103	103
phenol	260	210 (CSL)	770	260

Montlake CSO (Montlake Cut; 10 cm depth; Canal/Ditch)

- Two of seven stations had SCO DW exceedances.

Station	SCO DW	CSL DW
CSO-ML-1	—	—
CSO-ML-2	—	—
CSO-ML-3	lead	—
CSO-ML-4	—	—
CSO-ML-5	—	—
CSO-ML-6	—	—
CSO-ML-7	arsenic	—

Freshwater *Background* Station (Union Bay; 10 cm depth; Lake/Pond/Reservoir)

- There is no KC discussion about freshwater background station CSO-BKGD-UB.

Station	SCO DW	CSL DW
CSO-BKGD-UB	bis(2-ethylhexyl) phthalate	—

Data Review: King County CSOs (EIM Study ID: KC_CSO_2013)

This study covers marine and freshwater sediment sampling from March to June 2013.

- Stations. There were 17 marine \ estuarine stations at 4 CSOs. One was also sampled in 2011; while the rest are additional samples collected in 2013.

  There were 12 freshwater stations. I identified 7 stations at 2 CSOs. And, I used EIM Map Search to find the other 5 stations in the Lake Union to Portage Bay area.

- Sampling. The data collected at North Beach, South Magnolia, and Murray Avenue SW are considered pre-construction baseline sampling data.

- Sampling Depth. It appears as with KC_CSO_2011, the top 10 cm was the goal, but 4 (3 marine; 1 freshwater) of 27 stations were less than 10 cm. And one freshwater station was sampled at depth (0-25 cm; 26-33 cm).

- Chemicals. Each station was analyzed for conventionals (percent solids, total organic carbon [TOC], particle size) and the suite of SMS marine or freshwater chemicals.

King County has not provided a draft Data Report discussing this sampling effort.

The following summarizes the marine \ estuarine CSOs station, sample, %TOC, depth, and what *Sediment Management Standards* criteria (OC normalized or dry weight) will be used to analyze each sample.

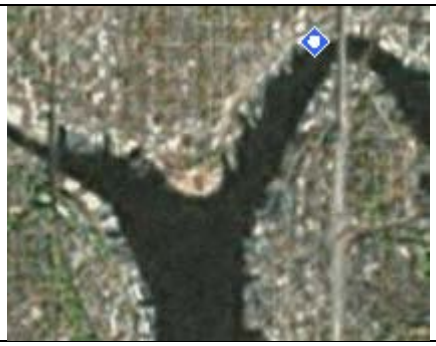
Marine \ Estuarine: Station, Sample, %TOC, Depth, SMS Criteria

	Station	Sample	%TOC	Depth	SMS
2013	**North Beach CSO (baseline)**				
	CSO-NB-7	L57636-1	0.181	10	DW
	CSO-NB-8	L57636-2	0.193	10	DW
	CSO-NB-9	L57636-3	0.212	10	DW
	CSO-NB-10	L57636-4	0.108	10	DW
	CSO-NB-11	L57636-5	0.1	10	DW
2013	**South Magnolia CSO (baseline)**				
	CSO-MG-7	L57636-12	0.894	10	OC
2013	**Murray Avenue SW CSO (baseline)**				
	CSO-MY-8	L57636-7	1.56	10	OC
	CSO-MY-9	L57636-8	0.665	10	OC
	CSO-MY-10	L57636-9	1.03	10	OC
	CSO-MY-11	L57636-10	0.45	10	DW
	CSO-MY-12	L57636-11	0.321	4	DW
	CSO-MY-13	L57636-6	0.406	10	DW

	Chelan Avenue SW CSO				
2011	CSO-CH-6	L57636-13	2.47	8	OC
2013	CSO-CH-7	L57636-14	0.462	7	DW
"	CSO-CH-8	L57636-15	0.198	10	DW
"	CH10S	L57636-46	6.85	10	DW
"	CH20S	L57636-16	1.66	10	OC

The following summarizes the freshwater CSOs station, sample, %TOC, depth, and location. The 2013 SMS freshwater dry weight criteria will be used to analyze each sample. I used the EIM Map Search to identify where 6 freshwater stations are located. And, based on the station code I assumed the rest were additional University Regulator CSO stations.

Freshwater: Station, Sample, %TOC, Depth, Location

	Station Location Description	**Sample**	**%TOC**	**Depth**	**EIM Map Search**
2013	535 SHIP CANAL / LAKE UNION / storm drain outfall / 20 ft straight off outfall	L57645-4	0.499	10	
2013	A535 SHIP CANA L/ LAKE UNION / Off storm drain near I-5 bridge.	L57645-5	7.66	10	
2013	B535 SHIP CANAL LAKE UNION / Near storm drain	L57645-7	8.73	10	

2013	A536 SHIP CANAL / West Side of I-5 bridge - Across from Ivars Salmon House	L57645-6	0.152	8	
2013	537 PORTAGE BAY / NORTH SHORE / Near University Regulator CSO	L57645-3	1.48	10	
2013	**Belvoir CSO** CSO-BV-1	L57645-8	8.29	10	
	University Regulator CSO				
2013	CSO-UR-8	L57645-1	0.747	10	
	CSO-UR-9	L57645-2	1.12	10	
	CSO-UR-10	L57797-1	7.31	10	
	CSO-UR-11	L57797-2	6.87	10	
	CSO-UR-12	L58172-1	0.072	26-33	
	CSO-UR-12	L58172-2	6.86	0-25	

Marine and Estuarine Sediment Chemistry Results

The Feb2013 revised SMS did not change chemical criteria values for marine or estuarine sediment.[1] Therefore, the chemical sampling results were compared to the SMS marine chemical criteria. If a station's total organic carbon (TOC) was less than 0.5% or greater than 3.5% the SMS dry weight (DW) chemical criteria was used for comparison.[7]

Blue text indicates chemicals with 'U' data qualifiers.

North Beach CSO (Puget Sound [north of Meadow Point]; 10 cm depth; Subtidal)

- Pre-construction baseline sampling.
- No SMS DW exceedances.

Station	Sample	%TOC	SMS	SQS	CSL
CSO-NB-7	L57636-1	0.181	DW	–	–
CSO-NB-8	L57636-2	0.193	DW	–	–
CSO-NB-9	L57636-3	0.212	DW	–	–
CSO-NB-10	L57636-4	0.108	DW	–	–
CSO-NB-11	L57636-5	0.1	DW	–	–

South Magnolia CSO (Puget Sound [NW Elliott Bay]; 10 cm depth; Subtidal)

- Pre-construction baseline sampling.
- No SMS OC exceedances.

Station	Sample	%TOC	SMS	SQS	CSL
CSO-MG-7	L57636-12	0.894	OC	–	–

Murray Avenue SW CSO (Puget Sound [north of Williams Point]; 4 - 10 cm depth; Subtidal)

- Pre-construction baseline sampling.

Station	Sample	%TOC	SMS	SQS	CSL
CSO-MY-8	L57636-7	1.56	OC	–	–
CSO-MY-9	L57636-8	0.665	OC	Acenaphthene Benz(a)anthracene benzo(a)pyrene benzo(g,h,i)perylene chrysene Dibenzo(a,h)anthracene Dibenzofuran fluoranthene fluorene Indeno(1,2,3-c,d)pyrene HPAH LPAH	phenanthrene Total Benzofluoranthenes
CSO-MY-10	L57636-9	1.03	OC	–	–
CSO-MY-11	L57636-10	0.45	DW	–	–
CSO-MY-12	L57636-11	0.321	DW	–	–
CSO-MY-13	L57636-6	0.406	DW	–	–

Chelan Avenue SW CSO (LDW West Waterway; 7 - 10 cm depth; Estuary-Channel)

- Station CH10S and CH20S are 'U' qualified chemicals with SQS and CSL exceedances. KC commented that the data is qualified as < MDL, but if a sample is not analyzed below criteria it is considered to be an exceedance [SMS WAC 173-204-320(2)(a)].

Station	Sample	%TOC	SMS	SQS	CSL
CSO-CH-6	L57636-13	2.47	OC	–	–
CSO-CH-7	L57636-14	0.462	DW	–	–
CSO-CH-8	L57636-15	0.198	DW	–	–
CH10S	L57636-46	6.85	DW	1,2-dichlorobenzene butyl benzyl phthalate dimethyl phthalate hexachlorobutadiene	2,4-dimethylphenol benzoic acid benzyl alcohol n-nitrosodiphenylamine pentachlorophenol
CH20S	L57636-16	1.66	OC	1,4-dichlorobenzene	1,2-dichlorobenzene 2,4-dimethylphenol benzoic acid benzyl alcohol pentachlorophenol

Freshwater Sediment Chemistry Results

The Feb2013 revised *Sediment Management Standards* contain sediment cleanup objective (SCO) and chemical screening level (CSL) freshwater dry weight criteria.[1] Therefore, sediment chemical concentrations at freshwater CSOs were compared to the revised SMS criteria.

Blue text indicates chemicals with 'U' data qualifiers.

Lake Union to Portage Bay Locations; 8 - 10 cm depth; Lake / Pond / Reservoir

- Di-n-octyl phthalate is 'U' qualified at stations 535, 537, A535, and B535. KC commented that the data is qualified as < MDL, but if a sample is not analyzed below criteria it is considered to be an exceedance [SMS WAC 173-204-320(2)(a)].

Station	Sample	%TOC	SCO	CSL
535	L57645-4	0.499	bis(2-ethylhexyl) phthalate di-n-octyl phthalate	–
A535	L57645-5	7.66	bis(2-ethylhexyl) phthalate di-n-octyl phthalate Nickel	–
B535	L57645-7	8.73	bis(2-ethylhexyl) phthalate di-n-octyl phthalate Nickel Total PAHs Total PCB Aroclors	–
A536	L57645-6	0.152	Nickel	–
537	L57645-3	1.48	bis(2-ethylhexyl) phthalate di-n-octyl phthalate Total PCB Aroclors	–

Belvoir CSO (10 cm depth; Lake / Pond / Reservoir)

- Di-n-octyl phthalate is 'U' qualified. KC commented that the data is qualified as < MDL, but if a sample is not analyzed below criteria it is considered to be an exceedance [SMS WAC 173-204-320(2)(a)].

Station	Sample	%TOC	SCO	CSL
CSO-BV-1	L57645-8	8.29	bis(2-ethylhexyl) phthalate di-n-octyl phthalate Total DDEs	–

University Regulator CSO (Portage Bay; surface and core depth; Lake/Pond/Reservoir)

- Three of six stations had SCO or CSL DW exceedances.
- Blue text indicates chemicals with 'U' data qualifiers. KC commented that the data is qualified as < MDL, but if a sample is not analyzed below criteria it is considered to be an exceedance [SMS WAC 173-204-320(2)(a)].

Station	Sample	%TOC	Depth	SCO	CSL
CSO-UR-8	L57645-1	0.747	10	–	–
CSO-UR-9	L57645-2	1.12	10	–	–
CSO-UR-10	L57797-1	7.31	10	4-methylphenol bis(2-ethylhexyl) phthalate di-n-octyl phthalate Nickel Total PCB Aroclors	benzoic acid phenol silver
CSO-UR-11	L57797-2	6.87	10	4-methylphenol bis(2-ethylhexyl) phthalate di-n-octyl phthalate lead Nickel	mercury phenol Total PCB Aroclors
CSO-UR-12	L58172-1	0.072	26-33	–	–
CSO-UR-12	L58172-2	6.86	0-25	phenol	–

Summary of 2012 - 2013 CSO Sampling Results

The following table summarizes the 2012 and 2013 CSO sediment sampling events by general chemical categories. King County mentioned, but did not elaborate, that the sampling results would be used to *populate, calibrate, and verify the County's near-field sediment recontamination model.*

	Stations 2011 2013	SQS	CSL
Marine			
North Beach CSO			
Pre-construction baseline sampling	6 5	No exceedances	No exceedances
South Magnolia CSO			
Pre-construction baseline sampling	6 1	No exceedances	No exceedances
53rd Avenue SW CSO	6	No exceedances	No exceedances

Murray Avenue SW CSO			
Pre-construction baseline sampling	1 of 7 **1 of 6**	Phthalate LPAHs HPAHs	LPAH HPAH
SW Barton Street CSO	6 of 6	HPAHs Phthalates Chlorinated Benzenes Misc Extractable Cmpds	HPAHs LPAHs Phthalates Phenols Chlorinated Benzenes
Background Stations	2	No exceedances	No exceedances
Estuarine			
South Brandon Street CSO	5 of 6	HPAHs LPAH PCBs Phthalate	Phthalate Phenols
Chelan Avenue SW CSO	5 of 6 **2 of 5**	HPAHs PCBs Phthalates Phenol Chlorinated Benzenes Misc Extractable Cmpds	Phthalate Phenols Chlorinated Benzenes Misc Extractable Cmpds
Freshwater			
3rd Avenue West CSO	6 of 7	Phthalates Metals (nickel; silver) PCBs Phenol	Total PAHs Metal (mercury)
University Regulator CSO	6 of 7 **3 of 6**	Phthalates Metals (lead; nickel; silver) PCBs Phenols	Metal (mercury; silver) Phenol PCBs
Montlake CSO	2 of 7	Metals (arsenic; lead)	—
Background Station	1	Phthalate	—
535	**1**	Phthalates	—

A535	**1**	Metal (nickel) Phthalates	—
B535	**1**	Metal (nickel) Total PAHs PCBs Phthalates	—
A536	**1**	Metal (nickel)	—
537	**1**	PCBs Phthalates	—
Belvoir CSO	**1**	Total DDEs Phthalates	—