Water Quality Program Policy

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Chapter 1: ***WQP Policy 1-11***

~~*References:*~~	~~*Federal Clean Water Act, Section 303(d) [33 USC 1313(d)]*~~ ~~*40 CFR 25*~~ ~~*40 CFR 130*~~ ~~*40 CFR 131*~~ ~~*Chapter 173-201A WAC*~~ ~~*Chapter 173-204 WAC*~~	~~*Revised: September, 2006*~~
References:	*Federal Clean Water Act, Section 303(d) [33 USC 1313(d)]* *40 CFR 25* *40 CFR 130* *40 CFR 131* *Chapter 173-201A WAC* *Chapter 173-204 WAC*	*Revised: July 2011*

Assessment of Water Quality for the Clean Water Act Sections 303(d) and 305(b) Integrated Report

Purpose: This policy describes how waterbody segments will generally be assessed and placed in various categories according to water quality status and priority for further actions. This policy also provides specifications for data submittal and data quality necessary for inclusion in the assessment. This policy, in combination with the guidance documents referenced herein, constitute the "Listing Methodology" for the Integrated Report composed of the Section 303(d) list and 305(b) report as required by the federal Clean Water Act (CWA) and the U.S. Environmental Protection Agency (EPA).

Application: This policy applies to Ecology staff when conducting assessments for the Integrated Report to satisfy federal CWA requirements and to prioritize Total Maximum Daily Load (TMDL) efforts. It is also intended as guidance for all parties submitting data for the assessment process or developing data collection programs for use in future assessments.

Contents:

1. Introduction and Background

The purpose of the assessment is to determine the status of water quality in Washington State ~~water quality~~ based on the review of available monitoring data for compliance with water quality standards criteria ~~and available data.~~(WAC 173-201A). The state is required under Section 303(d) of the federal Clean Water Act and the EPA's implementing regulations (40 CFR 130.7) to periodically prepare a list of water quality limited segments, as determined through the use of the water quality standards. In Washington, this list is prepared by the Department of Ecology (Ecology). The state is also directed to periodically submit other information in accordance with Section 305(b) of the CWA. The process of issuing the call for data and then assessing the data in preparation of the list is called the "listing cycle."

The surface water quality standards to be used for the assessment process are in Chapter 173-201A WAC, *Water Quality Standards for Surface Waters of the State of Washington;* see ~~http://www.ecy~~apps.leg.wa.gov/~~programs/wq/swqs/rev_rule.html~~WAC/default.aspx?cite=173-201A and the federal National Toxic Rule and Human Health Criteria in 40 CFR Part 131 (Federal Register Vol. 57, No. 246, and as updated). For contaminated sediments, the standards are in Chapter 173-204 WAC, *Sediment Management Standards*~~.~~; see apps.leg.wa.gov/WAC/default.aspx?cite=173-204.

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The criteria and guidance in this policy have been developed to guide the assignment of waters into one of five categories. All sampled waters in the state will be placed into one of the categories.

Only one category, Category 5, represents the 303(d) listed waters. The criteria for the 303(d) list were developed to identify only those waters for which there is valid documentation of impairment. These waters require the preparation of water quality improvement projects, also known as TMDLs, in accordance with the CWA. Waters showing apparent exceedances of criteria due to documented natural background conditions, and with no significant human contribution will not be listed in Category 5~~.~~, but will be placed in Category 1. Some impaired waters will not be placed in Category 5 because~~, for various reasons, no~~ a TMDL is not required (see Category 4). As part of the listing process, the waters placed in Category 5 will be prioritized and scheduled for TMDL studies in accordance with the watershed schedule outlined in Section 9.

The remaining categories (Categories 1 through 4, including three subcategories of Category 4) are intended to inform other water quality efforts in Washington, and to inform the public about the known condition of the state's waters.

Table 1. The Water Quality Assessment Categories.

Category 1. Meets Tested Criteria	Not known to be impaired	~~EPA approval and TMDL not required~~
Category 2. Waters of Concern		
Category 3. Lack of Sufficient Data		

Category 4. Impaired But Does Not Require A TMDL because 4a. ~~Already has a~~ Has an approved TMDL 4b. Has ~~a~~an approved Pollution Control ~~Project~~Program 4c. Impaired but a TMDL is Inappropriate	Impaired	
Category 5. The 303(d) List		EPA approval and TMDL required

The draft results of the overall water quality assessment will be submitted to EPA and for public review, but only the 303(d) list (Category 5) is subject to EPA approval. EPA has authority to disapprove the Category 5 list and to propose ~~to add~~the addition and ~~remove~~removal of waters to and from Category 5 based on the information available to Ecology during the drafting of the assessment; these actions are also subject to public review.

Data submitted must include verification of appropriate Quality Assurance/Quality Control (QA/QC) to be considered in the assessment. See Section 4 and the "Water Quality Data Act Policy" for more information.

2. Waterbody Segments and GIS Layers

Waterbodies covered by this policy include rivers, streams, lakes, Puget Sound, the Strait of Juan de Fuca, coastal waters, waterways, and all other surface waters subject to the regulatory authority of Ecology according to RCW 90.48, "Water Pollution Control."

As part of the assessment process, a waterbody segmentation system must be identified for accurately reporting the extent or size of the waterbody based on the data assessed. Washington State's history of reporting waterbody segments has varied in past reporting cycles. ~~As in~~In the 1998 ~~and 2004~~through 2008 assessments, Ecology ~~will again report~~reported the majority of waterbody segments of rivers, streams, and lakes as the portion of the waterbody lying within a given section of a township and range. In open waters – including marine waters, lakes of more than 1,500 acres, and estuarine areas (the lower end) of some large rivers – segments are defined by a rectangular grid sized at 45 seconds longitude by 45 seconds latitude (approximately 2,460 feet by ~~4,557~~3,660 feet). Contaminated sediment site listings are assigned to the appropriate quarter grid section of a full size ~~is defined by the mapped polygons in the SEDQUAL database~~rectangular grid.

When data are collected, they are reported as being taken from a specific location known as the sampling station. The best way to describe the location of a sampling station is by latitude and longitude. These coordinates allow Ecology to apply the collected data to future and past water segmentation schemes.

To promote national consistency in accurate measurement and reporting, EPA has recommended that states use the National Hydrography Dataset (NHD) for segmentation of waterbodies. ~~Additional information on~~Starting with the ~~NHD is available at www.epa.gov/owow/monitoring/georef/nhd.htm. Recognizing the benefits of reporting segments based on hydrologic features~~2012 Water Quality Assessment for freshwater, Ecology ~~intends~~is moving to ~~move towards application of the NHD for future listing cycles when it~~

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~~becomes available for use~~ a segmentation system based on the NHD at the 1:24,000 scale. ~~Changes from one segmentation system to another~~ The conversion to the NHD segments may cause different assessment results for a given waterbody. ~~The segmentation system for listing cycles for the year 2006 and beyond will be described in detail in the associated "call for data".~~

3. Coordination with Tribes and Other States

In accordance with the Centennial Accord, this policy supports intergovernmental cooperation between the state and the federally recognized tribes in Washington State in the development of the state's 303(d) list. The policy relies on the 1997 *Cooperative Management of the Clean Water Act 303(d) Program for the Tribes in Washington State, the Washington State Department of Ecology, and the U.S. Environmental Protection Agency Region 10*.

Tribes have independent authority for setting water quality standards and implementing regulations for waters on reservation lands under the Clean Water Act. Washington State is bound under the Supremacy Clause of the United States Constitution, article VI; c1.2, to carry out the provisions of the United States Treaties and relevant federal court rulings. Thus, Ecology's 303(d) list will not address on-reservation waters. This policy does not nor is ~~not~~it intended to ~~and does not~~ enlarge, diminish, or define the jurisdiction of the state or the tribes, nor does this policy limit the right of the state or any tribe to act in other forums to protect ~~its~~their rights.

The states of Oregon and Idaho also share jurisdiction over water quality in waters that flow through or are located between neighbor states. Although water quality standards and criteria may differ, coordination of listing decisions for shared waters will be evaluated during the assessment for the report.

Ecology staff will provide an opportunity to confer on a government-to-government basis with each interested tribe with affected natural resources and also with neighboring states during the following steps in the development of the state's Water Quality Assessment and 303(d) list:

- Policy development and revisions
- Preparation of draft and final Water Quality Assessments
- Responsiveness summaries

Occasionally, data are submitted to Ecology about water quality of waters on reservation lands and waters of neighboring states. Ecology will receive this information, but will not make listing decisions for such waters. Ecology's intent is to make listing decisions by mutual agreement through timely sharing of information, clarification, and discussion. The state and each individual tribe are responsible for making their own final listing recommendations to EPA within ~~its~~their respective 303(d) ~~program~~programs.

4. Public Participation and Submitting Information for the Water Quality Assessment

Individuals and organizations can participate in the assessment of Washington's waters, 303(d) listing, and TMDL process in any of the following ways:

- Review and comment on this listing policy and methodology

- Submit water quality data for the assessment at any time and during the "call for data" period
- Review and comment on Ecology's proposed 303(d) list and other assessment categories
- If EPA disapproves of the proposed 303(d) list or proposes ~~additional waters for listing~~changes, then review and comment on EPA's actions
- ~~Review and comment on the proposed TMDL priority list~~

The "call for data" will be announced and will be open for a minimum of 30 days. Data and other information received are then assessed for the update of the Water Quality Assessment, and results are then announced for public review and comment.

Data collected in recent years within the ~~dates~~time frames specified in the "call for data" may be submitted for consideration in the assessment. Data submitted previously that Ecology did not use because of QA concerns should not be resubmitted unless new QA information is submitted that enables Ecology to use the data.

Data which are less than five years old and meet the other requirements outlined in this policy will be consolidated and assessed with other data of the same waterbody segment and parameter. Data older than five years must meet all current data requirements and will only be considered by Ecology on a case-specific basis in the following cases:

- No newer data exist for the given waterbody segment and parameter or the existing data do not meet the requirements of this policy;
- The data are part of a larger dataset or long-term monitoring which include data younger than five years old for the same waterbody and parameter; or
- Information or rationale is provided to show that the data reflect current conditions.

Older data may be used when necessary to determine historical natural conditions if the data meet the QA requirements in place at the time of its collection.

Numeric data must be submitted to Ecology's Environmental Information Management (EIM) database to be used for the assessment. Exceptions to this requirement may be made if the data submitter has made alternate arrangements with Ecology, or data are retrieved from other state and federal databases that meet the same level of quality. Information on electronic data submittals to EIM can be found at the following website, www.ecy.wa.gov/eim/. Sample values from continuous datasets such as ~~dissolved oxygen seven-day average daily minimum (7DADMin) and~~ the temperature seven-day average daily maximum (7DADMax) should be reported as ~~derived~~calculated values. ~~EIM only accepts these derived~~. Sample values~~; however~~ from continuous datasets such as daily minimum dissolved oxygen concentration, daily maximum and minimum pH, or daily maximum temperature should be s with the proper EIM parameter label (e.g. Dissolved Oxygen (daily minimum); pH (daily maximum) or pH (daily minimum); Temperature, water (daily maximum). EIM does not accept continuous data . However, on a case-specific basis Ecology may accept ~~raw~~ continuous ~~datasets~~data in electronic form ~~if the data submitter is unable to calculate these values~~for purposes of the Assessment.

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Data in EIM are available to the public on Ecology's website and are accessible for independent review of listing decisions. Information other than numeric data, such as narrative information, may be submitted directly to the Water Quality Assessment coordinator.

Quality assurance requirements must be met by all data used for this assessment. Sampling and analyses must be conducted under a documented Quality Assurance (QA) Project Plan or other quality assurance procedures that Ecology determines to be equivalent in providing for high quality data. Data sets must be complete, that is, not censored to include only part of the data results from the project.

Occasionally, Ecology receives unusable data that cannot be relied upon to determine the status of water quality. Data that is considered unusable will not used for the Assessment or maintained in Water Quality Assessment database. These data may still be available in EIM. The following are examples of unusable data:

- Adequate quality control efforts are not documented.
- There are problems regarding quality assurance, sampling, laboratory procedure, or similar issues that do not meet the minimum requirements for a QA Project Plan.
- Data quality control documentation is available, but Ecology has significant concerns about its reliability.
- The sample location information is not provided or is insufficient to apply the data to the appropriate waterbody segment.
- The data do not contain the required elements necessary for assessing compliance with water quality standards described in General Requirements of Section 4.

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Guidance for preparing a QA Project Plan and for assessing data is available from several sources.

Ecology

- *Guidelines for Preparing Quality Assurance Plans for Environmental Studies* (2004), Publication No. 04-03-030 (~~www.ecy.wa.gov/biblio/0403030.html~~www.ecy.wa.gov/biblio/0403030.html).

- *Sediment Sampling and Analysis Plan Appendix: Guidance on the Development of Sediment Sampling and Analysis Plans Meeting the Requirements of the Sediment Management Standards* (~~April 2003~~*Chapter 173-204 WAC*), Publication No. 03-09-043. February 2008 (~~www.ecy.wa.gov/programs/tcp/smu/sediment.html~~www.ecy.wa.gov/biblio/0309043.html).

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Department of Natural Resources

- TFW-AM9-99-005, DNR publication 107

EPA

- *Requirements for Quality Assurance Project Plans* (~~www.epa.gov/quality/qs-docs/r5-final.pdf~~www.epa.gov/quality/qs-docs/r5-final.pdf)
- *EPA Guidance for Quality Assurance Project Plans* (www.epa.gov/quality/qs-docs/g5-final.pdf)

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- *The Volunteer Monitor's Guide To Quality Assurance Project Plans,* EPA 841-B-96-003, (~~www.epa.gov/owow/monitoring/volunteer/qapp/vol_qapp.pdf~~)
- *EPA Guidance on Environmental Data Verification and Data Validation* (~~www.epa.gov/quality/qs-docs/g8-final.pdf~~www.epa.gov/quality/qs-docs/g8-final.pdf)
- *EPA Data Quality Assessment: A Reviewer's Guide* (www.epa.gov/quality/qs-docs/g9r-final.pdf)
- *EPA Data Quality Assessment: Statistical Tools for Practitioners* (~~*www.epa.gov/quality/qs-docs/g9s-final.pdf*~~*www.epa.gov/quality/qs-docs/g9s-final.pdf)*

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General Requirements

The data submitter should provide Ecology with the following information either before or accompanying data submission.

A. An electronic copy of the QA Project Plan (or the equivalent document), or revisions to a previously submitted QA Project Plan, and any other information necessary for Ecology to evaluate the data for exceptions according to the guidance.

B. The applicable dates of the QA Project Plan, including any revisions.

C. Written assurance that the methods and procedures specified in the QA Project Plan were followed.

D. The information that satisfies the required fields in the EIM database including the name of the laboratory(s) used for sample analyses and its Laboratory ID number, along with a report of results and a data verification report provided by the laboratory. Field data must be accompanied by a data verification report which includes the name of the organization that performed the measurements.

E. ~~Any~~All field notes, laboratory comments, or laboratory notations concerning a deviation from standard procedures, quality control, or quality assurance that affects data reliability, data interpretation, or data validity.

F. The quality assurance/quality control documentation, including the analytical methods used by the laboratory, method number, detection limits, quantitation or minimum levels, if available, and ~~any~~all quality control samples and standards necessary to properly interpret data different from that stated in the QA Project Plan.

G. The QA/QC documentation requirement includes a summary of data assessment documentation including report(s) of data verification and data validation if available, and assessment of data for usability in meeting the objectives expressed in the QA Project Plan.

H. If requested by Ecology for interpreting or validating data, any other information, such as complete field notes, photographs, climate, or other information related to flow, field conditions, or documented sources of pollutants in the watershed.

I. The following information must be retained for at least five years (ten years for records associated with data from grant and loan projects) and provided to Ecology if requested:

   i. Other information, such as complete field notes, photographs, weather, or other information related to flow, field conditions, or documented sources of pollutants in the watershed for interpreting or validating data.

   ii. All records associated with the generation and interpretation of sample results including documentation related to adherence to the QA Project Plan, or coordinate with Ecology to ensure that adequate records are maintained.

J. Field instruments, such as multi-parameter devices (Hydrolabs™), must be operated and calibrated according to the manufacturer's recommendations, or other acceptable demonstrated method. Calibration information and any other appropriate documentation of accuracy must be submitted if requested by Ecology.

This documentation requirement does not apply to data submitted for water quality assessments prior to the 2006 water quality assessment.

~~Documentation~~Any additional requests by Ecology for further documentation must be made available ~~for review upon Ecology's request~~in order to assess the data received. If Ecology determines there are flaws in quality assurance planning or implementation that reduce confidence in any submitted data, including data provided during earlier assessment cycles, then those data will not be used as a basis for ~~placing~~categorizing a waterbody segment ~~in Category 1, 2, or 5~~.

Verification of adherence to QA requirements may be examined by Ecology through the use of a selected sampling of projects entered into EIM. The results of the limited audit will be used to determine if additional investigation is warranted. Corrective action may include the censoring of QA levels entered into EIM, rejection of data, or other actions deemed appropriate.

The data submitter must ensure that chemical, microbiological, physical, radiological, and toxicological samples (excluding data generated by field methods) are analyzed in a laboratory accredited by Ecology or obtain a waiver to this requirement in accordance with Ecology Executive Policy 1-22. Use of laboratories not accredited by Ecology must be approved prior to initiating of monitoring by the monitoring entity seeking and obtaining a waiver to the Executive Policy 1-22 requirement. A list of laboratories and the methods for which they are accredited can be found at www.ecy.wa.gov/programs/eap/labs/~~labs_main~~lab-accreditation.html. Policy 1-22 does not apply to data obtained in the field or to benthic analyses.

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The minimum information required in submittals includes:

- The location of each sample station in latitude and longitude in decimal degrees to an accuracy of seven decimal places for each
- Waterbody name and sampling location description, (for example, Colony Creek; near mouth, just before tide gate)
- The date ~~(~~and time~~, for dissolved oxygen and temperature)~~ the sample was taken
- The pollutant or condition measured
- The measured value
- The unit of measurement
- For non-detect or non-quantifiable data, the "less than" value associated with the method detection limits or practical quantitation limits
- The method used to measure the pollutant or establish the condition (ie. EPA method number)
- The name of the individual submitting the information
- The source of the information, (for example, Dept. of Ecology, Cowlitz Conservation District, or Snohomish County~~)~~).

Submittals may include additional information, including (1) documentation of associated field conditions such as adjacent land uses, weather during sampling, and suspected and likely sources of water quality problems, and (2) identification of the persons conducting the sampling and analysis. Examples of adjacent land uses include residential, industrial (specify the industry, if possible), municipal, and agricultural (dairy, cropping, forage crops, horse or cow pasture). Identification of the suspected or likely source of a water quality problem should be accompanied by an explanation of how that identification was made.

Data submittals must include precise, sufficient information on the name of the waterbody and location of the sample station to allow for accurate mapping. The longitude and latitude of each sample station and associated reference datum is required (e.g., North American Datum 1983 or North American Datum 1927). For rivers, streams, and lakes less than 1,500 acres, the township, range, and section is also required.

For more guidance on sampling issues and environmental study design, see Ecology's *Technical Guidance for Assessing the Quality of Aquatic Environments*, Publication No. 91-78 (www.ecy.wa.gov/biblio/9178.html); and EPA's Document QA/G-5S, *Guidance for Choosing a Sampling Design for Environmental Data Collection* (EPA, 2001).

Water and sediment testing should be by an approved method with a quantitation limit that yields reliable results at concentrations that are less than the criterion. (For guidance on quantitation limits, refer to Tables VI-2 and VI-3 as updated in the Ecology Permit Writer's Manual, Publication No. 92-109 (www.ecy.wa.gov/biblio/92109.html~~) and the *Sediment Sampling and Analysis Plan Appendix* for sediment analyses.~~) and Table 5 in the *Sediment Sampling and Analysis Plan Appendix* (www.ecy.wa.gov/biblio/0309043.html) for sediment analyses.)

Documentation of data verification and data validation must be provided with all data submitted for this assessment process, indicating that the objectives of the QA Project Plan or equivalent QA procedures were met. A usability determination may substitute for data validation. The assessment of the data must also consider whether the data, in total, fairly characterize the quality of the waterbody at that location at the time of sampling.

~~Data and~~ Submittals of information ~~collected~~ by ~~other entities and submitted by a~~ third ~~party~~parties must include documentation addressing the accuracy and completeness of the information submitted to Ecology, including documentation that the required QA objectives were met. ~~If this documentation of data verification and data validation (or other equivalent assurance) is not provided, the~~ The use of third party data will ~~not~~ be ~~used in the assessment.~~at the discretion of Ecology based on the acceptability of the accompanying documentation.

Specific Requirements

In addition to the general requirements above, parameter-specific requirements can be found in Section 8.

Ecology Contacts for Submittal

For more information on how to submit data, see the Ecology 303(d) website at: www.ecy.wa.gov/programs/wq/303d/index.html.

Or contact Ecology staff at: 303d@ecy.wa.gov, (360) 407-6400.

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To submit data, see the EIM website at: www.ecy.wa.gov/eim/.

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5. Categories

Waters in Washington State (except on reservation lands) will be assigned to one of the five categories described below. These five categories are based on, though not identical to, the categories recommended in EPA's *Guidance for 2006 Assessment, Listing, and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act* (July, 2005).

Only one category, Category 5, constitutes the 303(d) list of impaired waters. All the categories together represent the statewide assessment of Washington's water quality and will be submitted to EPA and the public as the "Water Quality Assessment," referred to as the "Integrated Report" in EPA guidance.

When data are available for more than one water quality parameter in the same ~~water~~waterbody segment, Ecology will do a separate assessment for each parameter. For example, a waterbody segment that is placed in a category due to one pollutant may also be placed in a different category based on another pollutant.

Category 1. Meets Tested Criteria

Where recent, available data are of sufficient quality and quantity to show attainment of the water quality standard for a parameter within a segment, the segment will be placed in the *Meets Tested Criteria* category. To qualify for this category, some data must be available for a waterbody segment which shows attainment of the applicable water quality ~~standard~~criteria during a critical period. It is not sufficient merely to have a lack of evidence of impairment.

Placement of a ~~water~~waterbody segment in ~~a category~~Category 1 does not constitute a determination of compliance or noncompliance with water quality standards for any other purpose~~.~~ (such as for permitting).

~~Recent data are an important consideration when evaluating a waterbody that has been listed in categories 2, 4, or 5. A water that was at one time a concern and placed in Category 2, or a water that showed impairment but has been the subject of a cleanup action or TMDL implementation, may be moved to Category 1. If the most recent data show that the water is now attaining the criteria for that parameter as expressed in the parameter specific guidance, the waterbody may be moved to Category 1. Modification of hydrology, such as dam bypass or revised management of controlled flows, may also justify reevaluation of a listing if supported by data.~~

~~The placement in Category 1 does not necessarily mean that all is well in that segment because the segment may still be contributing to an impairment at a downstream location. A TMDL study will evaluate contributions of pollutants from all waterbody segments within the watershed and may assign pollutant reduction targets or loading limitations so that water quality standards can be met at all locations.~~

~~Placement in this category does not necessarily mean that all standards have been tested for~~Where a TMDL has been approved, data results for a monitoring location within the TMDL footprint may indicate that the listing should be placed in Category 1. However, in certain cases

the waterbody listing will be placed, or remain, in Category 4a (Has a TMDL) until the TMDL is completely implemented or data provides conclusive evidence that sources in the vicinity of the monitoring location are not contributing to further water quality criteria impairment in the rest of the basin. See the section on "Assessment of Waterbodies Within a TMDL" for more details.

Placement in Category 1 does not necessarily mean that all criteria have been assessed or studied in the waterbody segment. A waterbody may be placed in this category for certain parameters while also being listed in another category due to a different pollutant.

Category 2. Waters of Concern

Sometimes data that are not sufficient for listing a waterbody segment in Category 5 may still raise a concern about water quality. Examples of this include:

- Data show some ~~exceedance~~excursions of an applicable water quality ~~standard~~criteria, but there are fewer ~~exceedances~~excursions than are necessary to sufficiently determine that the severity of the problem ~~according to this policy.~~
- ~~Data show exceedances, but there are too few samples to gain confidence that it is not~~warrants a ~~sampling or analysis error.~~
- ~~The data suggest impairment, but there is substantial contradictory information~~Category 5 listing.
- Narrative information raises concerns, but it is not sufficient for listing in Category 5.

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In these and similar cases, the waterbody segment will be placed in the *Waters of Concern* category. Some specific situations when segments should be included in this category are described in Section 8. Situations not specifically described will be assessed by Ecology on a case-specific basis.

~~This category~~Category 2 applies when some credible data create concerns of possible impact to designated uses, but fall short of demonstrating that there is a persistent problem. To place a water in this category first requires a decision that the water should not be in Category 5. Once that decision is made, segments will be placed in the *Waters of Concern* category when there are remaining concerns that reduce confidence that the tested criteria are in fact met.

The *Waters of Concern* category is intended to help Ecology and the public be aware of, track, and investigate these water quality concerns. Ecology and others should pursue as many opportunities as possible to conduct additional monitoring and sampling, incorporate the waterbody into existing studies, or find other means to confirm (and correct) or refute the suspected problem.

Category 3. Lack of Sufficient Data

When there ~~are no data,~~is insufficient ~~data, or unusable data, regarding any~~ water quality ~~standard~~data available to make a determination on the status of a water quality criteria or designated use, the waterbody segment will be placed in the *Lack of Sufficient Data* category. Listings from data placed in this category still must meet data quality standards. This category will include all waters in Washington (except on tribal reservation lands) that lack sufficient

information for placement in any other category. Waterbodys segments that have no data associated with the segment location are considered to be in Category 3 but are not given listing identification numbers until some data is available to assess. This category is not part of the 303(d) list.

Category 3 listing information will be maintained in Ecology's assessment database for potential future use. Data and information~~,~~ which supplements a Category 3 listing~~,~~ may become available in a future assessment. In this case, Ecology will ~~again~~reassess both the current and new listing information to determine if all available data are sufficient to make a new category determination according to this policy.

Occasionally, Ecology receives unusable data that cannot be relied upon to determine the status of water quality. ~~Examples of unusable data include:~~

- ~~Quality~~ control efforts are not documented.
- There are problems regarding quality assurance, sampling, laboratory procedure, or similar issues that do not meet the minimum requirements for a QA Project Plan.
- ~~Data show that water is meeting criteria, but there are not enough data to confidently place the waterbody in Category 1.~~
- ~~Data quality control documentation is available, but Ecology has concerns about its reliability.~~
- ~~The sample location information is not provided or is insufficient to apply the data to the appropriate waterbody.~~
- The data do not contain the required elements necessary for assessing compliance with water quality standards described in General Requirements of Section 4.

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Category 4. Impaired but Does Not Require a TMDL

This category acknowledges those waterbody segments which are impaired but are not appropriate for listing in Category 5 because:

- EPA has approved the respective TMDL for the specified pollutant(s) (Category 4a);
- An effective clean-up ~~project~~program other than a TMDL is already in place~~;~~ (Category 4b); or
- The impairment is not known to be caused by a pollutant, and therefore a TMDL is not appropriate to address the impairment~~.~~ (Category 4c).

~~This category~~Category 4 has three subcategories.

4a. Has ~~a~~an Approved TMDL

When data show that a designated use is impaired by a pollutant, but a TMDL addressing that impairment has already been developed and been approved by EPA, the waterbody segment/ parameter combination will be placed in ~~the~~ *Category 4a: Has a TMDL* ~~category~~. A Category 5 listing is not required because the primary purpose of a Category 5 listing – to lead to preparation and implementation of a TMDL – has already been achieved. This category is not part of the 303(d) list. This will not include cases when EPA has disapproved the TMDL and not yet

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adopted a federal TMDL, nor when Ecology determines that the TMDL is not being successfully implemented~~. This category is not part of the 303(d) list.~~, and the impaired listing(s) should be placed back in Category 5.

If sufficient data ~~indicate~~within a Category 4a listing indicates that the ~~water~~ specific waterbody segment is no longer contributing to impairment within its watershed, then the segment ~~will~~may be placed in Category 1. ~~(This will not necessarily end further implementation~~See the section below on "Assessment of ~~the~~ Waterbodies Within a TMDL~~. That will be determined by the terms~~" for more details on when waterbody segments move in or out of ~~the TMDL.)~~Category 4a. If a TMDL has been declared completed and implementation has ended, but at that time or later the ~~water~~waterbody segment is again shown to be impaired, then the segment will be returned to Category 5.

~~If a TMDL has been approved to address the impairment of one waterbody segment, and a subsequent segment within the TMDL footprint is found to be impaired from the same sources, the second segment will also be placed in the *Has a TMDL* category if Ecology determines that the TMDL for the first segment will also fully address impairment of the second.~~

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4b. Has ~~a~~an Approved Pollution Control ~~Project~~Program

When data show that a waterbody segment is impaired by a pollutant, but a local, state, or federal authority ~~has approved~~is implementing a pollution control ~~project~~program (or sediment clean up plan), and Ecology determines that the ~~project~~program or strategy is expected to result in the waterbody meeting water quality ~~standards~~criteria, the segment will be placed in the *Has a Pollution Control ~~Project~~Program* category~~.~~ for consideration by EPA. A 303(d) listing is not required because the pollution control ~~project~~program is designed to improve and attain water quality in a manner comparable to a TMDL~~.~~ and is in the process of being implemented. This will not include cases when Ecology determines that the ~~project~~program is not being successfully implemented. Progress on water quality improvements is an essential element of a successful pollution control strategy. Similar to TMDLs in Category 4a, any Category 5 listings that are proposed by Ecology to move to Category 4b will need to be approved by EPA. This category is not part of the 303(d) list.

The mere existence of pollution controls, such as permit requirements or water quality regulations, is not sufficient to qualify a waterbody segment for this category. To be placed in the *Has a Pollution Control Project* category, the pollution control ~~project~~program must meet all of the following criteria:

- Be problem-specific and waterbody-specific.
- Have reasonable time limits established for correcting the specific problem, including load reduction or interim targets when appropriate.
- Have a monitoring component to evaluate effectiveness.
- Have adaptive management built into the plan to allow for course corrections if necessary.
- Have enforceable pollution controls or actions stringent enough to attain compliance with the water quality ~~standard or standards~~criteria.
- Be feasible, with enforceable legal or financial guarantees that implementation will occur.
- Be actively and successfully implemented and show progress on water quality improvements in accordance with the plan.

In addition to the conditions above, the ~~project~~program is more likely to gain approval if the following elements are included:

- A description of management measures.
- An implementation schedule and measurable milestones.
- A description of criteria that are used to determine loading reductions achieved over time.
- An information/education component.

Ecology will review each pollution control ~~project~~program that is submitted to determine if it meets these criteria. The timeframe for correcting the impairment will be considered reasonable if it is as fast as practical, given full cooperation of all parties involved, and if it is similar to the timeframe that would likely be developed under a TMDL.

Modeling may be required to show that attainment of water quality ~~standards~~criteria is likely. Documentation must be provided to clearly explain and support how the pollution control project meets the criteria for each specific pollutant and waterbody.

Any project may qualify if Ecology determines that it meets all of the requirements above. Examples that may qualify for this category include:

- Comprehensive Environmental Response Compensation Liability Act (CERCLA), Model Toxics Control Act (MTCA), or Resource Conservation and Recovery Act (RCRA) sites with signed legal agreements (e.g., Records of Decision) and source control measures to prevent future contamination.
- Habitat Conservation Plans with specific plans to address water quality.
- Wastewater discharge permits or 401 Certifications with conditions or limitations that adequately address the pollutant(s) causing the impairment.
- Local program developed to improve water quality that adequately addresses the pollutant(s) causing the impairment.

If two or more pollution control projects apply to the same pollutant in the same impaired waterbody segment, and neither project is sufficient alone but their combined effect meets the requirements for this category, then the segment would qualify for this category.

4c. Impaired but a TMDL is Inappropriate

Segments are placed in this category when the failure to meet the applicable water quality ~~standard~~criteria is caused by a type of pollution that is not appropriately addressed through the TMDL process.

Some designated uses of a waterbody segment may be impaired due to aquatic habitat degradation that does not cause an exceedance of a pollutant criterion. When data show that a waterbody segment is impaired for such reasons, it will be placed in this category. A Category 5 listing is not required because a TMDL would be ineffective in addressing this type of water quality problem.

Under federal statute, pollution is defined as the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water (CWA sec. 502(19)). Most pollution is caused by pollutants such as toxic chemicals, waste material, nutrients, sediments, and heat. However, pollution can also be caused by factors that are not pollutants. Some examples of non-pollutants that nonetheless cause impairment are:

- Physical habitat alterations
- Physical barriers to fish migration, such as dams and culverts
- Loss of habitat due to invasive exotic species
- Flow alterations, including low flows and flashier systems
- Impaired biologic communities, when the impairment is not linked to a specific pollutant

TMDLs are designed to allocate the input of pollutants among sources. In the case of non-pollutants, the cause of the impairment cannot be allocated, so the TMDL process is not appropriate. Other state and federal requirements, including other applications of the state water quality standards and other requirements to satisfy those standards, may apply.

A determination of impairment can be based on either numeric or narrative information. If the source of impairment is unidentified but is suspected to be from pollution, instead of a pollutant,

the segment will be placed in this category. For example, if bioassessment data indicate an impaired biological community, and pollutant monitoring of suspected pollutants does not show impairment by a pollutant, the waterbody segment will be placed in Category 4c indicating that habitat-related impairment is suspected.

Waterbodies will be placed in Category 4c when data and information are submitted that demonstrate a use is not being protected and the impairment cannot be fixed by a TMDL. Because the impairment is not being caused by a pollutant, narrative information must be submitted in accordance with this policy (see "Assessment of Information using Narrative Criteria" starting on page 16). Waters will be removed from Category 4c when information is submitted that demonstrates the impairment has been corrected, or that the listing was made in error.

Category 5. 303(d) List Impaired by a Pollutant and a TMDL is Needed

Waterbody segments impaired by a pollutant as determined by the methodology described in this policy, or by well-documented narrative evidence of impairment, will be placed in Category 5. This category will be submitted to EPA as the 303(d) list.

~~For waters~~A waterbody segment will be placed in Category 5 if it is currently meeting standards, but credible trend information and data exists to determine that the waterbody is not expected not to meet applicable water quality standards~~, listing will need to be based on trend information showing that, while they currently meet standards, they are likely to be impaired~~ by the next assessment cycle.

6. Assessment Methodology

The purpose of the assessment is to determine the status of Washington State water quality based on water quality standards criteria and available data. The results will be used to meet Clean Water Act reporting requirements for Section 305(b) and to develop the Section 303(d) list. The 303(d) list helps determine priorities for TMDL scheduling and development. The assessment will be based on available data and information that meets the requirements of this policy. Generally numeric and narrative data will be used for assessment purposes. Modeled data that meet quality assurance procedures will be allowed when the status of water quality is being determined in relation to natural conditions.

Newly submitted data will be added to previously assessed data that are less than ten years old. Data older than ten years will be used only if no more recent data exists to conduct the assessment. Older data must also meet all QA requirements at the time of submittal, and will be compared against the current policy to make the assessment decision. Data older than ten years will be used whenever necessary to determine historical natural conditions.

Listings from previous assessment cycles will not be reassessed according to this policy unless more recent information associated with the parameter and waterbody segment is made available.

Only one parameter value per day per segment will be used in the assessment. Replicate samples taken at the same time and location will be averaged. Otherwise, the highest measurement per day will be used, except for dissolved oxygen for which the lowest measurement will be used, and except for pH for which the highest or lowest measurement will be used as applicable.

Measurements of instantaneous concentrations will be assumed to represent the averaging periods specified in the state surface water quality standards for both acute and chronic criteria unless additional measurements are available to calculate averages.

Assessment of Data and Information Using Numeric Criteria

Assessment decision requirements for specific pollutant parameters are described in Section 8. Section 8 includes decision criteria based on data requirements, general assessment information, and the category determination process for each parameter listed below.

- Bacteria
- Bioassessment
- Contaminated Sediments
- Dissolved Oxygen
- pH
- Total Phosphorus in Lakes
- Temperature
- Total Dissolved Gas
- Toxic Substances
- Turbidity

Assessment of Information using Narrative Criteria

The assessment of water quality can be based on narrative information. A segment will be placed in Category 5 on the basis of violating narrative criteria relating to pollutants when the information regarding that waterbody segment includes all of the following:

- Documentation of environmental alteration related to deleterious chemical or physical alterations, such as nutrients or sediment deposition, is measured by indices of resource condition or resource characteristic or other appropriate measure~~.~~, and
- Documentation of impairment of an existing or designated use is related to the environmental alteration on the same waterbody segment or grid.

Narrative information regarding non-pollutant impairments will be assessed in the same manner for possible placement in Category 4C *(Impaired but a TMDL is Inappropriate)*.

7. Other Assessment Considerations

Natural Conditions

Waterbody segments with data indicating impairment will be placed in Category 5 unless Ecology determines that the exceedance of water quality criteria is due to natural conditions or

processes. Segments will be placed in Category 5 when human activities cause, or have a strong potential to cause, significant impacts in addition to natural conditions.

A determination regarding natural conditions will require information and data to validate the condition, with no presumption either way. A decision to place a waterbody segment in Category 1 because the impairment is from natural conditions will require, at a minimum, identification of a likely natural source or process sufficient to produce the impairment and information to support that there are no human impacts or none in excess of the allowable limits. The assessment may include well-reasoned best professional judgment, but this must be accompanied by information that supports the determination. ~~Wilderness~~Pristine wilderness areas or other areas with no significant human impact will be assumed to represent natural conditions. ~~Decisions about impairment are made with the data that are readily available and are not deferred or delayed because of data gaps.~~

State water quality standards for temperature and dissolved oxygen allow a small increment for human actions when the measurements exceed the criteria due to natural conditions. See WAC 173-201A-~~030~~200(1)(~~c~~)(~~ii~~)(~~B~~d)(i) and 173-201A-~~030~~210(1)(~~c~~)(~~iv~~d)(i). The designation of a waterbody as impaired or as exceeding a water quality criterion for these two parameters due to natural conditions requires a systematic review of available data and the application of best professional judgment of Ecology staff. Reviews involve the examination of all available data from the site in question, comparison to the most appropriate reference site (if available), and the application of professional judgment based on experience working in the field of freshwater and marine monitoring.

If data or information is available to determine that the human increment is below the threshold, the exceedance will not be considered a violation, and a case will be made that it is due to natural conditions, qualifying the waterbody segment for Category 1. The presence of common large-scale physical processes in marine waters, such as upwelling, circulation, and thermal heating effects, presents naturally occurring situations that would override the ability of sufficient human influences to produce exceedances. In these cases, Ecology staff will use historic data and best professional judgment to determine that the human influences are significant or not. For marine waterbodies that are clearly due to natural conditions, the waterbody segment will be placed in Category 1. For waterbodies that appear to have natural conditions sufficient to override human influences, but the information is not conclusive, the waterbody segment will be placed in Category 2. In the absence of ~~any~~specific data to determine whether the exceedance is above or below the threshold allowance, the waterbody segment ~~will~~may be placed in Category 5 or Category 2, depending on available historic data and the best professional judgment of Ecology staff. The subsequent TMDL or other analysis will further determine the extent of human influences.

Assessment of Waterbodies ~~,~~ The subsequent TMDL or other analysis will further determine the extent of human influences.

Assessment of Waterbodies ~~during~~within a TMDL ~~Development~~Area

When a TMDL is developed because one or more Category 5 ~~listing results in a TMDL study, the study~~listings within the watershed area indicate impairment, the TMDL applies to all ~~the~~ waterbodies within the study area or footprint of the TMDL. The TMDL ~~study~~ is ~~a more~~an in-depth study that addresses which waters are violating ~~standards~~criteria, which waters are contributing to downstream violations, and what needs to be done so that all waters ~~will meet standards. After the TMDL study is initiated, but before the study~~within the TMDL footprint will be brought back into compliance with the criteria, natural conditions, or other objectives. Data generated during the development of a TMDL should be used for the Assessment. However, Assessment staff need to consult with TMDL staff regarding the adequacy of the dataset to make a category determination. If the dataset is ~~completed,~~determined to be inadequate, the data will not be used until the next assessment ~~of data within the study area for purposes of categorization is unnecessary, and in some cases may give incomplete results~~cycle. Once the TMDL is completed and approved by EPA, all monitored waters in the study area that have a load allocation associated with them are placed in Category ~~4A. After~~4a.

During implementation of the approved TMDL, monitoring data will continue to be collected to help determine if the TMDL is effectively bringing the waterbodies back into compliance with the water quality criteria or TMDL objectives. The completion of a TMDL provides additional information on what is needed to bring a waterbody or watershed back into compliance with the standards, and listing decisions within the TMDL may trump category determinations based on data alone. Assessment of monitoring data within an approved TMDL footprint needs to be done by Assessment staff in consultation with the TMDL staff to ascertain whether a new or changed assessment category is appropriate. The following should be considered when moving waterbody segments in or out of Category 4a during implementation of a TMDL (this assumes the TMDL has been ~~fully~~approved):

- Moving a proposed Category 1, 2, 3, or 5 listing to Category 4a. A TMDL study evaluates contributions of pollutants from all waterbody segments within the watershed and may assign pollutant reduction targets or loading limitations so that water quality criteria can be met at all locations. When new data is assessed for a waterbody segment within an approved TMDL footprint, Assessment staff will consult with TMDL staff responsible for the TMDL to determine that a load or wasteload allocation and/or appropriate TMDL implementation strategies exist for that segment. If the segment has a load or wasteload allocation associated with it and the TMDL is being implemented, ~~if all the waters in the study area are meeting standards, all of the waters will be~~ the segment will be placed in Category 4a (*Has a TMDL)*. If not, the segment will be placed in the appropriate category based on data results.

- **M**oving an exisitng Category 4a listing to a Category 1. If new data is assessed for a waterbody segment within an approved TMDL footprint that is currently in Category 4a, the segment will not be moved from Category ~~4A to Category 1.~~4a to Category 1 without first consulting with the TMDL Lead to determine that sources in the vicinity of the monitoring location are not contributing to further impairment. TMDL Leads may need to further consult with permitting staff responsible for discharges to the specific location to determine if the a potential source continues to contribute or not. Waterbody segments will only be moved to Category 1 if evidence exists to demonstrate that TMDL

implementation has successfully resulted in compliance with water quality criteria at that waterbody segment location, and that the segment will not contribute to an impairment at a downstream location. Moving waterbody segments from Category 4a to Category 1 will not necessarily end further implementation of the TMDL. That will be determined by the terms of the TMDL.

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Listing Challenges and Other Situations

Ecology reserves the right to make assessment decisions on matters not addressed by this policy, or in a manner not in accordance with this policy, as needed to address unusual or unforeseen situations. The assessment decisions will be based on available information used in accordance with the water quality standards and the relevant state and federal laws and regulations.

An objective of the listing policy is to establish which waterbodies need TMDLs. The decision to place a waterbody in a given category must be based on data that are representative of the water segment at the time of sampling. Water quality monitoring projects are usually based on objectives to determine the overall quality of the water but not always. There are some projects in which objectives are to study a localized or specific sub area of the surface water, such as at the location of a discharge pipe prior to complete mixing, or within a swimming beach during times of peak recreation use. The objective of the project must either match the objective of the listing policy or the project data may be pooled with other data that overall describes the condition accurately.

~~At any time, interested parties may contact Ecology in writing to request that an existing waterbody segment listing be reassessed under the listing factors of this policy. The request must (1) state the reason(s) the listing is inappropriate and how the policy would lead to a different outcome and (2) provide the data and information necessary to enable Ecology to conduct the review. The results of assessment reviews which occur between scheduled assessment cycles will become part of the next scheduled draft report to EPA.~~

Ecology will, in consultation with EPA, correct any errors identified in the 303(d) list or the overall water quality assessment as soon as Ecology is aware of the error, without waiting for the next assessment cycle. Errors may include misidentified segments, misreading of the data, and similar errors. This does not apply to requests to change an assessment decision based on new data prior to the next assessment cycle nor to disagreements with Ecology's judgment in making an assessment decision. Changes made between listing cycles, may not be available until the next public review of the assessment.

8. Specific Submittal and Assessment Criteria

In addition to the general requirements in Section 7, specific requirements are described in the following sub-sections that apply to data addressing: bacteria, bioassessment, contaminated sediments, dissolved oxygen, pH, phosphorus, temperature, total dissolved gas, toxic substances, and turbidity.

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a. Bacteria

~~Designated Uses:~~	~~Recreational~~ ~~Shellfish harvesting~~
~~Numeric Criteria:~~	~~WAC 173-201A-030~~
~~Narrative Criteria:~~	~~Not applicable~~
~~Unit of Measure:~~	~~Number of colony forming units per 100mL~~
Designated Uses:	Water contact recreation Shellfish harvesting
Numeric Criteria:	WAC 173-201-200 (2); WAC 173-201-210 (3)
Narrative Criteria:	Not applicable
Unit of Measure:	Number of colony forming units per 100mL

Assessment Information and Specific Data Requirements

Fecal coliform ~~samples~~and *Enterococcus spp*.data will be assessed by Ecology staff in the manner described below unless the assessment is conducted by the state Department of Health (DOH) as part of its requirements under the National Shellfish Sanitation Program for approving shellfish beds.

Sample data for bacteria may be collected in 12-month reporting periods or in reporting periods that represent distinct climatic regime of less than a year. A distinct climatic regime may be a certain season or certain months, in whatever manner is relevant to bacteria and to the waterbody. Ecology will determine the assessment periods case-specific based on local circumstances; otherwise the assessment period will be the calendar year.

A mean value will be calculated from multiple data points collected in the same day and waterbody segment to reduce the effects of sample variability inherent in bacteria sampling. To reduce concerns of low bias when the data are later used to calculate a geometric mean, the daily mean will be calculated as an arithmetic mean. The resulting single representative data point for the sampling event will be used in the assessment.

In some cases, Ecology will allow alternate indicators of bacteria in freshwater when the data submitter is able to demonstrate that the indicator can be used as a surrogate. For example, a strong correlation can be shown between fecal coliform and E. coli values. If this is demonstrated, Ecology will use the alternate indicator for assessment purposes.

When collecting data in or around small sensitive areas such as swimming beaches, it is recommended that multiple samples be collected throughout the waterbody during each visit. ~~Bacteria sample values collected to determine localized conditions of a swimming area during peak primary contact recreation are not representative of ambient conditions of the waterbody segment. Data collected for this purpose must be supplemented by sample values collected outside the localized area of use or during periods when the area is not being used for primary~~

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~~contact recreation. This allows the assessment to determine when a pollutant source other than the protected use activity is the cause of impairment and a TMDL is necessary.~~

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Bacteria criteria may vary depending on salinity concentrations in brackish waters of estuaries. In these cases, the method to determine ~~salinity as described in WAC 173-201A-060 (2) will apply. If salinity values from a sampling event are not available, the freshwater criterion will apply.~~what standards apply is described in WAC 173-201A-260(3)(e) will apply. Salinity data should be collected in order to determine the appropriate criteria. When information is not available to determine the delineation between marine and freshwater criteria, then the more stringent of the two criteria will apply as described in WAC 173-201A-260(3)(c).

The state water quality standards include provisions for determining violations based on either a mean of bacteria values of a set of samples (geometric mean criteria) or the highest levels among the individual samples within that set (percent criteria). The assessment decisions for bacteria are based on both of these provisions.

Agency Advisories

Fish ~~and~~, shellfish, and swimming advisories issued by DOH or local health departments, or similar advisories from other agencies based on credible monitoring programs under the federal Food and Drug Administration rules or the EPA BEACH Act, will be used to directly assess the protection of designated uses.

~~Segments~~Waterbody segments covered in whole or in part by a fish ~~or~~, shellfish, or swimming advisory will be categorized as follows:

- If the risk assessment parameters or other assumptions used by the agency issuing the advisory are cumulatively less or no more protective than those incorporated into the state standards, the segment will be placed in Category 5 for the specific parameter.
- If the parameters or assumptions used in issuing the advisory were based on more protective standards (that is, the advisory would be triggered by a less severe water quality problem), the segment will be placed in Category 2.
- Closure or downgrades of approved shellfish beds by DOH that are based on assessment of actual fecal coliform data will be sufficient to place all marine grids overlapping the affected shellfish beds in Category 5 for fecal coliform.

Swimming Closures or Advisories that last longer than 30 cumulative days in a one year period will be placed in Category 5.

The advisory must be based on fish, shellfish, swimming, sediment, or water column data specific to the waterbody segment. Ecology will defer to ~~DOH's~~the issuing agency's assessment prompting the advisory. Listings will not be based on shellfish closure zones around wastewater treatment plant outfalls, marinas, port facilities, or similar facilities unless the ambient bacteriological water quality standard is exceeded, nor on advisories for marine biotoxins, nor on geoduck bed closures by the state Department of Natural Resources. Listings will be based on advisories for short-term conditions, such as storm events, if the conditions apply to 30 or more days in a year.

Use of Beach Environmental Assessment, Communication, and Health (BEACH) Program *Enterococcus spp*. Data

Washington State water quality standards include bacteria criteria for Enterococci for secondary water contact recreation in marine waters. However, most swimming beaches fall into the primary contact recreation category defined by the Water Quality Standards for Surface Waters of Washington State as "activities where a person would have direct contact with water to the point of complete submergence including, but not limited to, skin diving, swimming, and water skiing." *Enterococcus spp*. data from the State's BEACH Program can be included in the water quality assessment for marine waters because primary contact recreation waters should at least meet the secondary contact recreation bacteria criteria.

Category 1 Determination
A waterbody segment is placed in Category 1 when (1) at least ten samples meeting the criteria are available from a critical period or other reporting period as defined above, and (2) the waterbody segment is not otherwise included in an impaired category. A waterbody segment will be placed in Category 1 when these data show no exceedances beyond the criteria~~.~~ for the most recent data collection year. Data collection and reporting must meet the specific data requirements described above.

Waterbody segments that are well within the classification standards as described in the DOH Annual Shellfish Growing Area Review will be placed in Category 1 unless there is more recent data indicating that the use of water contact recreation is impaired.

Category 1 determination based solely on *Enterococcus spp*. data, can only be applied to marine waters designated for secondary contact recreation. Fecal coliform data must be used to make a category 1 determination in primary contact recreation waters.

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Category 2 Determination
A segment will be placed in Category 2 when at least one sample value exceeds the percent criterion based on either primary or secondary contact recreation criteria and the segment is not otherwise placed in Category 5. A minimum number of samples ~~is~~are not required for a Category 2 determination.

Waterbody segments that are threatened with a downgrade classification or that fail to meet classification standards for less than 30 days in a calendar year as described in the DOH Annual Shellfish Growing Area Review will be placed in Category 2.

~~When data showing exceedances are not representative of the waterbody segment, such as data collected only in localized swimming areas, the segment will be placed in Category 2.~~

Category 3 Determination
A waterbody segment will be placed in Category 3 when the available data are insufficient for making any other category determination. This information will be maintained in Ecology's assessment database for future use. In primary contact recreation marine waters, if the available *Enterococcus spp*. data indicates no excursions beyond the criteria, but is lacking sufficient Fecal coliform data to be placed in Category 1, the segment will be placed in Category 3. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

Category 4 Determination
A waterbody segment will be placed in Category 4a when EPA has approved a TMDL for bacteria. Waterbody segments will be placed in Category 4b when ~~an approved~~a pollution control ~~project~~program for bacteria is in place and is approved by EPA. Category 4c does not apply to pollutant parameters.

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Category 5 Determination

A minimum of five samples is required to support placement in Category 5 based on geometric mean criteria. Fewer than five samples may support placement in Category 5 based on the percent criterion.

When five or more sample values from a given waterbody segment (within the assessment period described above) are available, the segment will be placed in Category 5 if either of the following two assessment methods result in an exceedance of ~~the criterion~~primary or secondary contact recreation criteria. For BEACH Enterococcus spp. data, the seasonal geometric mean will be calculated for the entire season and compared to the secondary contact recreation criteria in marine waters.

1. The calculated geometric mean of all samples[1] from a waterbody segment exceeds the geometric mean criterion ~~for~~applicable to that waterbody as described in the state water quality standards.
2. A minimum of two sample values from a waterbody segment exceed the percent criterion ~~and more than ten percent of all sample values[1] exceed the percent criterion.~~for primary or secondary contact recreation
   AND
3. More than ten percent of all sample values[1] exceed the percent criterion for primary or secondary contact recreation.

When fewer than five sample values from a given waterbody segment are available, the segment will be placed in Category 5 only if assessment method 2 (above) results in an exceedance. (The calculated geometric mean assessment method does not apply to datasets of fewer than five sample values.)

Waterbody segments that fail to meet classification standards for more than 30 days in a calendar year as described in the DOH Annual Shellfish Growing Area Review will be placed in Category 5.

[1] Only one value per day is used in the assessment

Waterbody segments can be placed in Category 5 based on Agency Advisories as described in that section.

Change From a Previous Category 5 Listing

Data from the more recent reporting period available may allow a previous Category 5 listing to be moved to another category. Data eligible to result in a change from Category 5 ~~change~~ must include a sampling effort comparable to that used in the previous Category 5 determination or a sampling effort designed to target the critical period(s) in which exceedances of the criterion are more likely to occur in the waterbody segment.

Waterbody segments that have a closure response plan in effect and that have been listed in Category 5 based on DOH advisories will be reviewed for a possible 4b determination.

To ensure that improvements in water quality have been achieved, Ecology may also require narrative information on investigative and/or remedial activities that have occurred, such as; septic system repairs, the formation of shellfish protective districts, construction of pet waste containers, or other appropriate activities.

If a primary contact marine waterbody was placed in Category 5 based on *Enterococcus spp.* data, *fecal coliform* data is required to move the waterbody to Category 1.

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b. Bioassessment

~~Beneficial Uses: Aquatic life~~

~~Narrative Criterion: WAC 173-201A-070 (1)~~

Designated Uses: Aquatic life

Narrative Criteria: WAC 173-201A-300

Assessment Information and Specific Data Requirements

Water column measurements of chemical and physical components for rivers and streams may not provide sufficient information to detect or resolve all surface water problems. Biological evaluations may detect physical habitat-related impairments for which there are no criteria. For this reason, bioassessment methods are being used more frequently to identify the biological health of the waterbody. In the past, biological data has been accepted regardless of collection methods. In 2012, Ecology will prefer data collected in accordance with SOP #EAP073, but may also accept data collected using other protocols. After 2012, all biological data submitted for review must be collected using the protocols outlined in the Environmental Assessment SOP for collecting freshwater macroinvertebrates. Although the state water quality standards do not have numeric biocriteria limits, Ecology endorses and uses the River Invertebrate Prediction and Classification System (RIVPACS) multivariate model to help identify impairments of the biologic community.

Assessment Methodology for RIVPACS Model Information

Ecology prefers RIVPACS over other bioassessment models because it uses established reference site information to determine a score from the presence of taxa relative to taxa expected to occur. These expectations are based on a set of "predictor variables" that are not affected by human activities. This value identifies, with a specified level-of-confidence, impairment beyond that which can be attributed to natural conditions~~. This biological assessment method supplements water column data as a direct measure for a beneficial use and to arbitrate in assessments where water chemical information does not provide a definitive conclusion or criteria are not available. The use of biological assessments can be used effectively in TMDL studies to directly assess attainment of the aquatic life use in a waterbody segment.~~

Ecology ~~strongly~~ encourages the collection of supplemental data during biological sampling events, especially conventional and chemical pollutant parameters that may be associated with sources present in the waterbody. This information is important in determining what may be causing an impaired biological community~~, and is important for confirming the appropriate category determination.~~ .

Ecology has compiled the following information, including field collection protocols, taxonomic reference, and data analysis protocols for using RIVPACS models and interpreting scores:

~~*Field Protocols and Laboratory Specifications:* Plotnikoff, R. and C. Wiseman. Benthic Macroinvertebrate Biological Monitoring Protocols for Rivers and Streams: 2001 Revision.~~

www.ecy.wa.gov/biblio/0103028.html

Field collection and Lab Specifications for collecting freshwater macroinvertebrates: Adams, K.C. 2011 Standard Operating Procedures and Minimum Requirements for the Collection of Freshwater Benthic Macroinvertebrate Data in Wadeable Streams and Rivers. EAP073. http://www.ecy.wa.gov/programs/eap/qa/docs/ECY_EAP_SOP_073BenthicMacroinvertebrateDataCollection_v1_0.pdf

The Pacific Northwest Aquatic Monitoring Partnership (PNAMP) protocol may be used as an example for the variety of 8 ft^2 sampling strategies that can be used in Pacific Northwest rivers and streams for collecting benthic macroinvertebrates. The RIVPACS model for Western Washington can be used with any of the permutations for sampling. The PNAMP protocol document may be found at the following web page:
~~http://www.pnamp.org//web/workgroups/General/documents/General/2006_0518PNAMPmacroinvertdraft.doc~~www.monitoringmethods.org/

Taxonomic Effort: PNW Standard Effort is located on Xerces Society web page:
www.xerces.org/aquatic~~/standard.htm~~ invertebrates

Data Analysis: The Utah State University's Western Center for Monitoring and Assessment of Freshwater Ecosystems provides publicly available tools for calculating RIVPACS scores at the following website:
~~http://129.123.10.240/WMCPortal/DesktopDefault.aspx?tabindex=0&tabid=1~~www.cnr.usu.edu/wmc

Data submittals should include the RIVPACS model score, the raw macroinvertebrate assemblage counts, an environmental matrix reporting data for predictor variables, and any other applicable information detailed in section 4 of this policy.

Assessment Methodology for Other Bioassessment Model Information
Benthic Index of Biological Integrity (B-IBI) or other multimetric models will be evaluated to determine their reliability as an indicator of biological impairment prior to using the information for assessment purposes. If the methodology does not include established reference sites that allow a level of confidence in the taxa results, Ecology will require a minimum of ~~three~~two years of monitoring at the site to ensure that consistent results are being achieved. Detailed information is required at the time of data submittal that describes how the data are assessed to determine whether a waterbody segment is impaired, degraded, or unimpaired. This is especially important if the methodology does not have numeric scores associated with the impairment status (similar to RIVPACS).

Category 1 Determination

RIVPACS Model
A waterbody segment will be placed in Category 1 based on a bioassessment when the RIVPACS score from the most recent year of available macroinvertebrate assemblage data is equal to or greater than 0.86.

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Other Models
A waterbody segment will be placed in Category 1 when at least ~~three~~two years in the most recent five years of bioassessment monitoring using the methodology show no impairment.

Category 2 Determination

RIVPACS Model
A waterbody segment will be placed in Category 2 based on bioassessment of the benthic macroinvertebrate community when a RIVPACS score from the most recent year of available data results in a score less than 0.86 and at least 0.73.

Other Models
A waterbody segment will be placed in Category 2 when at least ~~three~~two years in the most recent five years of bioassessment monitoring using the methodology show a level of degradation that indicates the uses in the waterbody are not impaired but starting to be degraded.

Category 3 Determination
A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology's assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

Category 4 Determination
A segment will be placed in Category 4a when EPA has approved a TMDL for pollutants identified as stressors to the macroinvertebrate community. A segment will be placed in Category 4b when ~~EPA~~Ecology approves use of a pollution control ~~project~~program for pollutants identified as stressors to the macroinvertebrate community. Placement of a waterbody segment in Category 4c for either RIVPACS or another model will be based on pollutant data and information that show the impairment is likely not the result of pollutant sources but from ~~pollution.~~other factors as defined in the section explaining Category 4C.

Category 5 Determination

RIVPACS Model
A waterbody segment will be placed in Category 5 as biologically impaired when the RIVPACS score calculated for the most recent year of available macroinvertebrate assemblage data results in a score less than 0.73 ~~(two standard deviations in the reference distribution of scores).~~.

Other Models
A waterbody segment will be placed in Category 5 as biologically impaired when at least ~~three~~two years in the most recent five years of bioassessment monitoring using the methodology show a level of degradation that indicates the uses in the waterbody are impaired.

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c. Contaminated Sediments

~~Designated Uses: Aquatic life~~

~~Numeric Criterion: WAC 173-204 - Sediment Management Standards~~

~~Unit Of Measure: Depending on chemical constituent:~~
~~mg/kg dry weight (ppm dry) *OR*~~
~~µg/kg dry weight (ppb dry) *OR*~~
~~mg/kg organic carbon (ppm carbon) *OR*~~
~~Biological data~~

Designated Uses: Aquatic life

Numeric Criteria: WAC 173-204 - *Sediment Management Standards*

Narrative Criteria: Not applicable

Unit of Measure: Depending on chemical constituent:
-mg/kg dry weight (ppm dry) *OR*
-µg/kg dry weight (ppb dry) *OR*
-mg/kg organic carbon (ppm carbon) *OR*
Biological data

Assessment Information and Specific Data Requirements

The *Sediment Management Standards* (SMS), WAC 173-204 (www.ecy.wa.gov/programs/tcp/smu/sed_standards.htm) administered by Ecology's Toxics Cleanup Program (TCP), are promulgated under the authority of Chapter 90.48 RCW, *Water Pollution Control Act*, and Chapter 70.105D RCW, *Model Toxics Control Act* (MTCA), to establish marine, low salinity, and freshwater surface sediment management standards for the state of Washington.

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Data submitted on sediment contamination may be based on either chemical or biological data. The samples must be taken from surface sediments 0 – 15 centimeters in depth (the biologically active zone). Any depth interval from 0 – 15 centimeters required to be sampled by Ecology can be used to determine compliance with sediment criteria. Sediment data must be verified as being error free ~~on SEDQUAL templates and then submitted for entry into the SEDQUAL database to be considered. See~~ in EIM. See www.ecy.wa.gov/programs/tcp/data_submittal/Data_Requirements.htm for information on the ~~SEDQUAL database and~~sediment data submission requirements.

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The most recent chemical and biological data will be used and can override older data on a station-by-station basis if it is in compliance with the SMS and Ecology requirements. Confirmatory biological testing, in compliance with the SMS and Ecology requirements, may override chemical data.

Data submitted for toxic pollutants must be for the specific isomer or chemical fraction addressed in the criteria. Marine biological sediment tests must conform to WAC 173-204-315.

The definitions Ecology uses for sediment analytical limits are taken from the MTCA (WAC 173-340-200).

- Method Detection Limit (MDL): Minimum concentration of a compound that can be measured and reported with 99% confidence that the value is greater than zero.
- Practical Quantitation Limit (PQL): The lowest concentration that can be reliably measured within specified limits of precision, accuracy, representativeness, completeness, and comparability during routine laboratory operating conditions, using department approved methods.

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The SMS [WAC 173-204-320(2)(a)] requires that, when laboratory results indicate an undetected chemical, the detection limit shall be reported to be at or below the Marine Sediment Quality Standards (SQS) chemical criteria. The Chapter 7 Quality Assurance and Quality Control Requirements of the *Sediment Sampling and Analysis Plan Appendix* (Ecology Publication No. 03-09-043 www.ecy.wa.gov/biblio/0309043.html) note that the PQL shall not be greater than the SQS of the SMS. ~~Therefore the PQL must be at or below the SQS chemical criteria. When the PQL is above the SQS chemical criteria, it is considered an exceedance of the SMS and will be used to determine Category 5 listings in accordance with this listing policy.~~

The *Sediment Sampling and Analysis Plan Appendix* Table 5 lists the recommended PQL limits for each SMS chemical. If a chemical concentration is reported as undetected or an estimate between PQL and MDL, then the PQL should also be provided.

Category 1 Determination

A site can be placed in Category 1 if it has been determined by the Toxics Cleanup Program to meet the *Sediment Management Standards*.

Category 2 Determination

Sites showing exceedances of the SQS, as identified in the SMS (WAC 173-204-320 and 173-204-410), will be included in this category. ~~For details in the SMS see www.ecy.wa.gov/programs/tcp/smu/sediment.html~~

This generally includes sites where:

- The mean of < 3 chemical samples exceed CSL.
- The mean of ≥ 3 chemical samples exceed SQS.
- There are biological exceedances equating to 1 - 2 biological points.

These sites have been determined to exceed the SQS and will require further investigation and monitoring to determine if the exceedances are a result of an ongoing source, historic source, or a combination of both. If the exceedances are determined to be partially or completely caused by an ongoing source, then further source control efforts, pollution control actions, or other regulatory actions will be required and specified on a case-by-case basis by the Toxics Cleanup Program. If the exceedance is determined to be caused solely by an historic source then further monitoring may be required to determine if a cleanup action is needed (WAC 173-204-400 through 590).

There are no numeric SQS in WACs for chemical effects in freshwater or low salinity sediments. However, information on chemical effects in these areas can be used to place a segment in Category 2. (See Ecology, *Creation and Analysis of Freshwater Sediment Quality Values in Washington State*, Publication No. 97-323a (1997), ~~www.ecy.wa.gov/biblio/97323a.html~~www.ecy.wa.gov/biblio/97323a.html and *Development of Freshwater Sediment Quality Values For Use in Washington State*, Publication No. 03-09-088 (2003), ~~www.ecy.wa.gov/biblio/0309088.html~~www.ecy.wa.gov/biblio/0309088.html

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Category 3 Determination
A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. For example, this could include sites where the mean of < 3 chemistry samples exceed the SQS. This information will be maintained in Ecology's assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

Category 4 Determination
A waterbody segment will be placed in Category 4a when EPA has approved a TMDL for contaminated sediments. Contaminated sites identified in the Sediment Cleanup Status Report that have an active cleanup in process that is documented through a Cleanup Action Plan (CAP), Record of Decision (ROD), Corrective Measure (CM), or other approved legally enforceable cleanup plan will be placed in Category 4b. Various authorities are used to accomplish cleanup of contaminated sediment sites. Which authority is applied depends on the site, sources of contaminants, and sometimes even the liable parties. Cleanup of sediment sites is primarily conducted using either CERCLA authority under the EPA "Superfund" program or the state cleanup laws and rules discussed in the *Introduction* section of this report. Those state cleanup authorities are the *Model Toxics Control Act* cleanup regulation, Chapter 173-340 WAC, and the *Sediment Management Standards*, Chapter 173-204 WAC. Other supporting authorities are not exempted from cleanup consideration.

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Category 5 Determination
Cleanup sites identified in accordance with WAC 173-204-500 through 173-204-590 which do not currently have an approved ROD, CAP, CM, or other approved, legally enforceable cleanup plan will be included in Category 5 and managed under the authority of the Toxics Cleanup Program. These sites will include those identified in the most recent Sediment Cleanup Status Report as well as identified new areas, not yet included in the report, that exceed the Cleanup Screening Level (CSL) levels. See the appendix to this document for further details on category determinations*, Category Determination for Contaminated Sediments*.

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For freshwater or low salinity sediments, assessment for potential listing of segments in Category 5 will be based on biological tests in accordance with WAC 173-204-330 and 173-204-340, and will be done on a case-specific basis.

The chemical criterion for a Category 5 listing requires that the mean concentration of each SMS chemical measured at three spatially distinct and chemically similar stations must exceed the CSL within a given grid and meet the assessment criteria in WAC 173-204-510 through 520.

The biological point system is in compliance with the SMS WAC 173-204-520(3)(d). Whereas, when any two of the biological tests exceed the SQS (two "hits") at any one given station, it is a CSL biological exceedance for that station and that station is assigned 2 points. When only one biological test exceeds the SQS (one "hit") at any one given station, it is an SQS exceedance for that station and that station is assigned 1 point. Each station can have a maximum of 2 points, and there can be multiple spatially distinct and chemically similar stations per grid. A total of 3 points or greater within a given grid would be required for a Category 5 biological listing. For

example, this would equate to three spatially distinct and chemically similar stations exceeding the biological SQS criteria (3 points); or two spatially distinct and chemically similar stations, one exceeding the CSL and one exceeding the SQS (3 points); or two spatially distinct and chemically similar stations each of which exceed the CSL (4 points); or any combination of SQS and CSL station designations which result in 3 points or greater.

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d. Dissolved Oxygen

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Designated Uses:	Aquatic life
Numeric Criteria:	WAC 173-201A-200(1)(d); WAC 173-201A-210(1)(d)
Narrative Criteria:	Not applicable
Unit of Measure:	mg/l or parts per million (ppm)

Assessment Information and Specific Data Requirements

~~Designated Uses:~~	~~Aquatic Life~~
~~Numeric Criteria:~~	~~WAC 173-201A-030~~
~~Narrative Criteria:~~	~~WAC 173-201A-070 (1)~~
~~Unit of Measure:~~	~~mg/l or parts per million (ppm)~~ ~~Continuous: 7-Day Average of the Daily Minimum (7DADMin)~~

~~Assessment Information and Specific Data Requirements~~

The water quality standards for dissolved oxygen set ~~lower~~minimum criteria limits that are designed to protect the most sensitive aquatic life uses (e.g. salmon spawning and rearing). Dissolved oxygen concentrations are not permitted to fall below a criterion at an average frequency greater than once in ten years. The standards also allow a measurable decrease (0.2 mg/l) in water below natural conditions due to human actions.

The assessment of dissolved oxygen data is based on either continuous monitoring data or single sample event (grab sample) data. Continuous monitoring is preferred, as it provides a better representation of the waterbody condition~~.~~ throughout the day since dissolved oxygen typically has a diurnal variation. The use of continuous data in this assessment also reduces the concern that a single sample may result in an erroneous impairment determination. However, until improved technology leads to easy and cost effective continuous dissolved oxygen measurements, Ecology recognizes that most dissolved oxygen monitoring is performed as single sample events. Single sample data and continuous monitoring data are assessed differently to determine impairment.

Data sample values collected infrequently or less frequently than one sample value per day for ~~at least~~ seven consecutive days will be considered "single sample data." Data sets that include at least one sample value per day for ~~at least~~ seven or more consecutive days and data sets from continuous monitoring will be considered "multiple sampling events."

In freshwater, where a detailed vertical profile of dissolved oxygen data is collected, Ecology will average the data values within each stratified layer when stratification exists. Naturally occurring conditions will be considered.

In marine waters, where a detailed vertical profile of dissolved oxygen data is collected, dissolved oxygen data should be averaged into increments that are consistent with accepted scientific practices. Naturally occurring conditions such as incoming ocean water will be considered.

Category 1 Determination
Dissolved oxygen varies on annual and often daily cycles, and impairment occurs when the water does not contain enough dissolved oxygen to protect aquatic uses. The lowest dissolved oxygen levels of the year generally occur in the early morning during a critical season which is typically the summer and early fall (June through September).

Continuous monitoring datasets with values collected at least once an hour to capture possible seasonal and diurnal excursions of the criteria will be used to place a waterbody segment in Category 1. Data collection schedules must ~~cover~~occur throughout the seasonal duration in which dissolved oxygen concentrations are expected to be lowest. A waterbody segment will ~~result in~~be categorized as a Category 1~~ determination~~ when data from the latest five years show no excursions below the criteria.

Single sample ~~data~~events (grab samples) will not be used to determine a Category 1 listing because this sampling method is insufficient ~~information~~ to show that the waterbody meets the dissolved oxygen criteria during the critical periods.

Category 2 Determination
A segment will be placed in Category 2 when there are fewer excursions beyond the criteria than are necessary to place in Category 5 but at least one excursion of the water quality standard is determined. A minimum number of samples is not required for a Category 2 determination.

Category 3 Determination
A waterbody segment will be place in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology's assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

Category 4 Determination
A waterbody segment will be placed in Category 4a when EPA has approved a TMDL for dissolved oxygen. A segment will be placed in Category 4b when EPA approves use of a pollution control ~~project~~program for dissolved oxygen. Category 4c does not apply to ~~pollutant parameters.~~pollutants.

Category 5 Determination
Category 5 determinations are dependent on whether the sampling ~~is~~consisted of single grab or multiple sampling events. Dissolved oxygen excursions at flow rates greater than the 7Q10 low-flow rate within the latest ten years may be used to place a segment in Category 5 unless other information indicates that the excursions are primarily natural or a significant amount of ~~compliant~~ data exists for the segment during the critical summer period that is in compliance with the criteria. Flow rate and 7Q10 low-flow rate need not be reported, but if available the

flow rate at time of sampling and the calculated 7Q10 low-flow rate will factor into the Category 5 determination.

A waterbody segment will be placed in Category 5 using single sample data when (1) a minimum of three excursions exist from all data considered, and (2) at least ten percent of single grab sample values in a given year do not meet the criterion.

Ecology will review the last five years in which data exist for the waterbody segment. Ecology will review up to ten years of data until data from five years are represented. If fewer than five years of data are available, the assessment will be performed with the data available.

A waterbody segment may also be placed in Category 5 for dissolved oxygen when ~~at least one 7-day average~~three daily minimum ~~value~~values from ~~multiple sampling events is~~continuous monitoring are below the criterion.

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e. pH

Designated Uses:	Aquatic life
Numeric Criteria:	WAC 173-201A-200(1)(g); WAC 173-201A-210(1)(f)
Narrative Criteria:	Not applicable
Unit of Measure:	pH units

Assessment Information and Specific Data Requirements

~~Designated Uses:~~	~~Recreational Aquatic Life~~
~~Numeric Criteria:~~	~~WAC 173-201A-030~~
~~Narrative Criteria:~~	~~WAC 173-201A-070 (1)~~
~~Unit Of Measure:~~	~~pH units~~

Assessment Information and Specific Data Requirements

The acceptable range of pH values and the allowable human-caused variation varies with the designated use classification of a waterbody. If more than one sample value is available for the same location and day, the extreme sample value (largest excursion from the criteria) for that day will be used in the assessment. Naturally occurring conditions will also be considered.

The assessment of pH data is based on either continuous monitoring data or single sample event (grab sample) data. Continuous monitoring is preferred, as it provides a better representation of the waterbody condition throughout the day since pH typically has a diurnal variation. However, until improved technology leads to more projects incorporating continuous pH measurements, Ecology recognizes that most pH monitoring is performed as single sample events. Single sample data and continuous monitoring data are assessed differently to determine impairment.

Data sample values collected infrequently or less frequently than one sample value per day for seven consecutive days will be considered "single sample data." Data sets that include at least one sample value per day for seven or more consecutive days and data sets from continuous monitoring will be considered "multiple sampling events."

Concerns about declining pH in oceans have raised issues regarding whether pH in Washington's coastal waters are being impacted by absorption of anthropogenic carbon dioxide pollution. For water quality assessment purposes, Ecology will consider pH data submitted for specific waterbody segments that show a measurable declining trend in pH. These data will need to meet all requirements outlined in chapters 1 and 2 of Policy 1-11 to be considered. This approach is consistent with the EPA memorandum of 11/15/2010 issued by Denise Keehner, Director of Oceans and Watersheds, regarding "Integrated Reporting and Listing Decisions Related to Ocean Acidification."

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Category 1 Determination
A waterbody segment will be placed in Category 1 if five percent or fewer sample values in the latest ten years exceed the applicable criterion. ~~A minimum of ten samples collected during separate weeks~~Data from multiple sampling events (consecutive days) or continuous monitoring, are necessary for a Category 1 determination. Data collection schedules must also occur throughout the diurnal cycle and seasonal duration in which pH values are expected to be most extreme.

Category 2 Determination
A waterbody segment will be placed in Category 2 if the threshold for placement in Category 5 is not achieved but there are sample values demonstrating exceedance. A minimum number of samples is not required for a Category 2 determination.

Category 3 Determination
A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology's assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

Category 4 Determination
A waterbody segment will be placed in Category 4a when EPA has approved a TMDL for pH. A segment will be placed in Category 4b when EPA approves use of a pollution control ~~project~~program for pH. Category 4c does not apply to pollutant parameters.

Category 5 Determination
A waterbody segment will be placed in Category 5 ~~using single sample data~~ when~~,~~; (1) a minimum of three excursions exist from all data considered, and (2) at least ten percent of ~~single grab sample~~ values in a given year do not meet the criterion.

Ecology will review the last five years in which pH data exist for the waterbody segment. Ecology will review up to ten years of data until data from five years are represented. If fewer than five years of data are available, the assessment will be performed with the data available.

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f. Total Phosphorus in Lakes

~~Designated Uses:~~	~~Recreational Aquatic Life~~
~~Numeric Criteria:~~	~~WAC 173-201A-030 (6)~~
~~Narrative Criteria:~~	~~WAC 173-201A-070 (1)~~
~~Unit Of Measure:~~	~~mg/L in congruence with the Ecology Environment Information Management (EIM) system. (Units for total phosphorus criteria are calculated in µg/L)~~
Designated Uses:	Recreational; Aquatic life
Numeric Criteria:	WAC 173-201A-230
Narrative Criteria:	WAC 173-201A-300
Unit of Measure:	mg/L in congruence with the Ecology Environment Information Management (EIM) system. (Units for total phosphorus criteria are calculated in µg/L)

Assessment Information and Specific Data Requirements

Assessment Information and Specific Data Requirements

If available, the phosphorus criterion established by a lake-specific study as described in WAC 201A-~~030~~230 will be used. If a phosphorus criterion has not been established by a lake-specific study, Ecology will apply the action values designated by ecoregion in WAC 173-201A~~,~~-230 Table (1), to determine impairment. In the absence of available numeric criteria based on a lake-specific study or ecoregion action value, narrative criteria will be assessed as described in section 6 of this policy. If a phosphorus assessment for a waterbody segment includes both numeric and narrative information, the assessment will be based on the narrative criteria unless more recent numeric total phosphorus data indicate that the quality of the waterbody has changed.

The collection of phosphorus data must not be grouped nor spread out over time so as to mask periods of noncompliance. For example, if there is evidence of problems with phosphorus concentrations during a season or critical period, data collection must not be limited to or primarily conducted during other times. The assessment period for total phosphorus in lakes is June 1 through September 30 as noted in WAC 173-201A-230. Ecology may define a different assessment period for certain lakes where available lake-specific data show the critical period to be other than June 1 through September 30.

The assessment is based on the calculated arithmetic mean of four or more total phosphorus samples collected from the epilimnion during the critical period or season. When temperature profile data are available, the depth of the epilimnion will be determined by the depth of the seasonal thermocline. When temperature profile data are not available, the epilimnion will be

defined as the upper three meters of the water column. If more than one epilimnion sample value is available for the same waterbody segment and day, only the maximum sample value will be used in the mean phosphorus concentration calculation.

Category 1 Determination
A lake or lake grid segment will be placed in Category 1 under the following conditions:

- Four or more sample values are available in each of two or more consecutive years.
- Total phosphorus sample values are available at a frequency no less than every 15 days throughout the critical period or season.
- The arithmetic mean of the sample values for each critical period or season from each year is equal to or less than the numeric criteria for that waterbody.

- **Category 2 Determination**

A lake or lake grid segment~~ or grid~~ will be placed in Category 2 when fewer than four sample values are available from a single season or critical period, and at least one value is greater than the ~~criteria~~criterion or action value for that waterbody.

Category 3 Determination
A lake or lake grid segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology's assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

Category 4 Determination
A lake or lake grid segment will be placed in Category 4a when EPA has approved a TMDL for phosphorus. ~~A~~A lake or lake grid segment will be placed in Category 4b when EPA approves use of a pollution control project for phosphorus. Category 4c does not apply to pollutant parameters.

Category 5 Determination
A lake or lake grid segment will be placed in Category 5 when the calculated mean phosphorus concentration of a single season or critical period exceeds the ~~criteria~~criterion or action value for that ~~waterbody~~lake or lake grid segment. A Category 5 determination may also result from narrative criteria as described in section 6 of this policy.

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g. Temperature

~~Designated Uses:~~	~~Aquatic life~~
~~Numeric Criteria~~	~~WAC 173-201A-030~~
~~Narrative Criterion:~~	~~WAC 173-201A-070 (1)~~
~~Unit of Measure:~~	~~Degrees Celsius (C) or Degrees Fahrenheit (F) Continuous: 7-Day Average of the Daily Maximum (7DADMax)~~

Assessment Information and Specific Data Requirements

Designated Uses:	Aquatic life
Numeric Criteria:	WAC 173-201A-200(1)(c); Including spawning and incubation protection in Ecology publication 06-10-038 WAC 173-201A-210(1)(c)
Narrative Criteria:	WAC 173-201A-300
Unit of Measure:	Degrees Celsius (C) or Degrees Fahrenheit (F) Continuous: 7-Day Average of the Daily Maximum (7DADMax)

Assessment Information and Specific Data Requirements

The water quality standards ~~for~~set maximum temperature ~~set upper~~ criteria ~~limits due to human actions, and~~for waterbodies that are designed to protect the most sensitive aquatic life uses (salmon spawning and rearing). The standards also allow a measurable increase (0.3 degrees C) in water temperature ~~above natural conditions~~ due to human actions.

To make a listing ~~decision~~determination for temperature, Ecology will first assess numeric water temperature monitoring data to determine if there are exceedances. The warmest ~~water~~ temperatures of the year and the potential for criteria exceedances (values greater than the criteria) generally occur during a critical season which is the summer and early fall (June through September).

When continuous monitoring data (sampling intervals of 30 minutes or less) are available, Ecology will assess the seven-day average of daily maximum (7-DADMax) temperature measurements.

Category 1 Determination

Continuous monitoring for temperature during the critical season is required to place a waterbody segment in Category 1. ~~Recent sequential~~Sequential data from at least two years must demonstrate consistent compliance with the numeric criteria or established natural conditions. Single sample event (grab sample) data is not used to place a waterbody segment in Category 1.

Category 2 Determination
A waterbody segment will be placed in Category 2 when the monitoring data do not meet the requirements for a Category 5 determination but show at least one exceedance of the ~~water quality~~numeric criteria. A minimum number of samples is not required for a Category 2 determination.

Category 3 Determination
A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology's assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

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Category 4 Determination
A segment will be placed in Category 4a when EPA has approved a TMDL for temperature. A segment will be placed in Category 4b when EPA approves use of a pollution control ~~project~~program for temperature. Category 4c does not apply to pollutant parameters.

Category 5 Determination

Category 5 determinations are dependent on whether the sampling is single grab or multiple consecutive daily or continuous sampling ~~events~~. Temperature exceedances at flow rates greater than the 7Q10 low-flow rate within the latest ten years may be used to place a segment in Category 5 unless other information indicates that the exceedances are primarily natural or a significant amount of ~~compliant~~ data exists for the waterbody segment during the critical summer period~~.~~ that show compliance with the criteria. Flow rate and 7Q10 low-flow rate need not be reported, but if available the flow rate at time of sampling and the calculated 7Q10 low-flow rate will factor into the Category ~~5~~ determination.

A waterbody segment will be placed in Category 5 using single sample data when, (1) a minimum of three excursions exist from all data considered, and (2) at least ten percent of single grab sample values in a given year ~~do not meet~~exceed the criterion.

Ecology will review the last five years in which data exist for the waterbody segment. Ecology will review up to ten years of data until data from five years are represented. If fewer than five years of data are available, the assessment will be performed with the data available.

A segment will be placed in Category 5 for temperature if at least one 7-day average daily maximum value (7-DADMax) from ~~multiple~~seven consecutive daily sampling events exceeds the criterion.

Ecology lists ~~waters~~waterbody segments on the Category 5 list ~~for~~due to temperature impairment when the numeric criteria are exceeded. In most cases, insufficient information exists to determine the level of human influence on temperature for each listed site. This approach assumes that human influences have contributed to the exceedance over the numeric criteria and the increase is measurable over natural conditions. While this approach may list ~~waters~~waterbody segments as impaired for temperature without fully knowing the extent of the human influences, listings are based on existing and readily available information. In the absence of information, the waterbody segment will remain in Category 5 until further information or data are provided to ~~fully determine~~change the ~~status of the waterbody~~category determination.

After the data are assessed to determine waterbody segments that are exceeding temperature criteria, Ecology will take an additional step to determine if the water is impaired due to human influences. Any information provided through the public call for data that provide validation that human influences or natural conditions are contributing to the exceedances will be evaluated. In addition, Ecology will review land-use maps and work with appropriate regional field staff to make an initial determination that human actions could be influencing the temperature exceedances. If the determination is made that potential human influences exist that could impact temperature, the waterbody segment will be placed in Category 5. TMDL or other pollution control studies will determine the extent of human influences.

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h. Total Dissolved Gas

~~Designated Uses: Aquatic Life~~

~~Numeric Criterion: WAC 173-201A~~
~~WAC 173-201A~~

~~Unit of Measure Percent (%) Saturation~~

Designated Uses:	Aquatic life
Numeric Criteria:	WAC 173-201A-200(1)(f)
Narrative Criteria:	Not applicable
Unit of Measure:	Percent (%) Saturation

Assessment Information and Specific Data Requirements
The assessment of total dissolved gas data is based on either continuous monitoring data or single sample event data. Continuous monitoring is preferred, as it provides a better representation of the waterbody condition. The use of continuous data in this assessment also reduces the concern that a single sample may result in an erroneous impairment determination. Single sample data and continuous monitoring data are assessed differently to determine impairment.

Data sample values collected less frequently than at least one sample value per hour for at least seven days will be considered single sample data. Data sets that include at least one sample value per hour for at least seven days are considered to be continuous monitoring. Where a detailed vertical profile of total dissolved gas data is collected, Ecology will use the data value from the deepest location. Natural conditions will be considered.

Criteria exceedances (values greater than the criteria) generally occur during the highest flow rates of the year during the critical season, which is the spring and early summer (March through July). The criteria do not apply when flow rates exceed the 7Q10 high flow rates. Criteria exceedances may also occur below dams during critical operational conditions, such as powerhouse shut down or start up.

The criterion limit is 110% saturation statewide, except in the Snake and Columbia rivers during special fish passage exemptions.

Category 1 Determination
Continuous monitoring datasets with 12-hour average values of data collected at least once an hour, so as to capture possible seasonal and hourly excursions of the criteria, will be used to place a waterbody segment in Category 1. A minimum of three years of continuous monitoring during the peak runoff season, in years with peak flows reaching 7Q10 levels, is necessary for a Category 1 determination. Below a hydropower facility, seven days of continuous monitoring below the powerhouse while it shuts down and restarts (at least once each day) are necessary for

a Category 1 determination. If no 12-hour average exceeds the criterion, the waterbody segment may be placed in Category 1.

Single sample data will not be used to determine a Category 1 listing in ~~waterbodies~~waterbody segments where ~~total dissolved gas~~TDG concentrations are affected by hydromodifications.

Category 2 Determination
A waterbody segment will be placed in Category 2 if the threshold for placement in Category 5 or 1 is not achieved but there are events demonstrating exceedances in the latest ten years. ~~A segment or grid may also be placed in~~Placement into Category 2 may also occur if evidence shows that natural conditions are the cause of exceedances but data are insufficient to make a conclusive determination (e.g., the full range of flows has not been monitored).

Category 3 Determination
A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology's assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

Category 4 Determination

Category 3 Determination
A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology's assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

Category 4 Determination
A waterbody segment will be placed in Category 4a when EPA has approved a TMDL for total dissolved gas. A segment will be placed in Category 4b when EPA approves use of a pollution control ~~project~~program for total dissolved gas. Category 4c does not apply to pollutant parameters.

Category 5 Determination
For single sample data, a waterbody segment will be placed in Category 5 for ~~total dissolved gas~~TDG when ten percent or more sample values during the critical season or critical operational conditions in the latest five years exceed the applicable criterion. A minimum of three exceedances are required for an impairment determination.

For continuous monitoring data, the percent saturation criteria are applied as an average based on the 12 highest consecutive hourly readings in a 24-hour period. A waterbody segment will be placed in Category 5 for ~~total dissolved gas~~TDG when two or more 12-hour average values in the same year are above the criterion. The 12 highest consecutive hourly readings are not to be overlapping.

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i. Toxic Substances

~~Designated Uses:~~	~~Aquatic Life~~ ~~Shellfish Harvesting~~ ~~Recreational~~ ~~Water Supply~~
~~Numeric Criteria:~~	~~WAC 173-201A-040~~ ~~40 CFR Part 131~~
~~Narrative Criteria:~~	~~WAC 173-201A-040 (1)~~
~~Unit Of Measure:~~	~~Water column data: All substances must be reported in µg/L except for ammonia and chloride which must be reported in mg/L.~~ ~~Tissue data: All substances must be reported in µg/kg, wet weight, except dioxins/furans (ng/kg) and metals (mg/kg).~~

Designated Uses:	Aquatic life Fish and Shellfish harvesting Recreational Water supply
Numeric Criteria:	WAC 173-201A-240 40 CFR 131.36 - National Toxics Rule
Narrative Criteria:	WAC 173-201A-240(1); WAC 173-201A-260(2);
Unit of Measure:	Water column data: All substances must be reported in µg/L except for ammonia and chloride which must be reported in mg/L. Tissue data: All substances must be reported in µg/kg, wet weight, except dioxins/furans (ng/kg) and metals (mg/kg).

Assessment Information and Specific Data Requirements

Toxic pollutants have significant potential to adversely affect designated water uses, aquatic biota, and public health when present at levels above those defined in water quality standards. Therefore, assessment decisions for toxic pollutants are based on detection of these substances above defined safe levels. For water column and tissue data, non-detects are not used as a basis for exceeding WQS. When the criterion is less than the detection value, the parameter/segment combination ~~remains in Category 3~~will not be used for assessment purposes if no other data are available. A more sensitive analytical method should be used to determine in which category the parameter/segment combination belongs.

Measurements of instantaneous concentrations will be assumed to represent the averaging periods specified in Washington State surface water quality standards for both acute and chronic criteria unless additional measurements are available to calculate averages.

Data submitted for the assessment of toxic pollutants must be for the specific isomer, congener, chemical fraction, or compound group identified in the state water quality standards.

Fish and shellfish advisories issued by the state Department of Health (DOH) or by local health departments, or similar advisories from other agencies based on credible monitoring programs under the federal Food and Drug Administration rules, ~~will~~may be used to directly assess a waterbody if site specific information and data associated with the ~~protection of designated uses~~specific waterbody segment are provided to Ecology.

Segments covered in whole or in part by a fish or shellfish advisory, based on site specific information and data for that segment, will be categorized as follows:

- If the risk assessment pollutant parameters or other assumptions used by the agency issuing the advisory are cumulatively less or no more protective than those incorporated into the state standards or the national human health-based water quality criteria (e.g., toxics or pathogens), the segment will be placed in Category 5 for the specific pollutant parameter.
- If the pollutant parameters or other assumptions used in issuing the advisory were based on more protective standards (that is, the advisory would be triggered by a less severe water quality ~~problem~~criteria), then the segment will be placed in Category 2.

Parameter-specific data requirements and information
For further information about the following parameters see WAC 173-201A, Table 240(3).

- **Metals**

  The water quality criteria for ~~several~~ metals ~~are~~may be dependent on hardness~~-dependant.~~, pH, and/or the laboratory method used (e.g. dissolved or total). Hardness or pH values from the same sampling event are required for the assessment ~~of hardness dependant~~ metals dependant on these. Modeled or otherwise estimated hardness values are not acceptable for the purpose of this assessment.

  Metals must be sampled using clean sampling and analytical techniques, or appropriate alternate sampling procedures or techniques. For guidance, see EPA, *Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels,* 1996.

  - **Arsenic**

    Total arsenic is used for water data. Inorganic arsenic is used for tissue data. Inorganic arsenic can be naturally elevated in shellfish in certain areas of the Puget Sound and requires a Natural Conditions evaluation prior to a final listing determination.

- **Ammonia**

  The water quality criteria calculation for ammonia requires sample values for temperature and pH collected during the same sampling event. Modeled or otherwise estimated temperature and pH values are not acceptable for the purpose of this assessment.

- **Polychlorinated biphenyls (PCBs)**

  The sum of one or more PCB compounds may result in an exceedance of the criteria. Due to the number of these compounds and the varying levels of their toxicity, Ecology will review PCB analyte data to determine that the most common and most toxic PCB compounds have been included in the assessment value before placing a waterbody in Category 1 for this parameter.

- **Dichlorodiphenyltrichloroethane (DDT)**

  Criteria for both Total DDT and criteria for individual isomers of DDT will be considered in the assessment. The sum of one or more isomers may result in an exceedance of the Total DDT criteria. ~~To determine that a waterbody meets the criteria~~ For a Category 1

determination, a value must be calculated from the sum of 4,4' and 2,4' isomers of DDT, DDD, and DDE sample values.

- **2,3,7,8-TCDD Toxic Equivalents**
  The 17 PCDD/F congeners have different levels of toxicity compared to 2,3,7,8-TCDD, the most toxic form. To assess the cumulative risks to human and environmental health, the congener concentrations are expressed as toxic equivalents (TEQs). The TEQ is calculated by multiplying each congener result by its congener-specific toxicity equivalent factor (TEF) and then summing to obtain the overall TEQ. Calculated TEQ values will be assessed using the 2,3,7,8-TCDD criterion. An exceedance of the criterion will result in a Category 2 determination.

- **Chlordane**
  The sum of one or more of the following compounds may result in an exceedance of the criteria; cis- and trans-chlordane, cis- and trans-nonachlor, and oxychlordane. To determine that a waterbody meets the criteria ~~(~~and place in Category 1~~),~~ sample values for all compounds must be available. Assessment of chlordane can also be based on technical chlordane results. In cases where both sets of results are available (technical chlordane and the sum of the five compounds above) use the most protective value.

- **Endosulfans**
  For water, use the sum of endolfan I (alpha) and endosulfan II (beta) to compare to the criteria. For tissue, the recommended approach is to apply the criteria to the sum of alpha-endolfan, beta-endosulfane, and endosulfan-sulfate. However, the criteria may also be applied to the individual compounds.

The National Toxic Rule's human health criteria in 40 CFR Part 131 (Federal Register Vol. 57, No. 246, and as updated) apply to waters in Washington. These human health criteria are in addition to the aquatic life-based toxics criteria found in the state standards.

The assessment of a toxic pollutant is based on data from either of two media, water column and tissue. An assessment of data from either medium may result in ~~an impairment determination~~placement of the waterbody into the appropriate category.

Water column: Metals must be sampled using clean sampling and analytical techniques, or appropriate alternate sampling procedures or techniques. (For guidance, see EPA, *Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels,* 1996.)

Toxic substances criteria may vary depending on salinity concentrations in brackish waters of estuaries. In these cases, the method to determine salinity as described in WAC 173-201A-~~060 (2~~260(3)(e) will apply. If salinity data are not available, the more stringent criterion will apply.

Tissue: The toxic pollutant criteria for tissue are calculated using bioconcentration factors (BCF) that were used to derive the human health criteria in the National Toxics Rule. These values are from EPA 1980 Ambient Water Quality Criteria documents, (www.epa.gov/waterscience/criteria/1980docs.htm). Many of these BCFs are listed in the Human Health Criteria Calculation Matrix for EPA's 2002 National Recommended Ambient Water Quality Criteria list

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~~(www.epa.gov/waterscience/criteria/history.htm).~~(http://www.epa.gov/waterscience/criteria/history.htm).

Fin fish fillet tissue samples, whole shellfish tissue samples, and edible shellfish muscle samples must have at least three single-fish samples or a single composite sample made up of at least ~~five~~three separate fish of the same species. Fin fish fillet tissue samples may be analyzed with skin on or skin off. All fish samples must be from resident fish to be considered for Categories 1 or 5.

Where a study area of tissue samples spans multiple waterbody segments and the catch sites are identified, all waterbody segments containing a catch site will be categorized together. A valid rationale about why the pollutants in fish caught in different segments appear to be related must be included. Where a general area is identified, but with no specific catch sites, the lowest downstream segment (rivers) or the most probable centroid segment (open waters) will be placed in the appropriate category.

Category 1 Determination

Water column data: A segment will be placed in Category 1 for a toxic pollutant when all of the following apply.

- At least 10 sample values within a three year period are available.
- No exceedance of the applicable criteria has been detected in the ten years previous to the call-for-data date.
- All available data have been provided.
- Sample data represent any critical period that has been identified in the waterbody for that pollutant.

Tissue data: A waterbody segment will be placed in Category 1 for a specific pollutant when no exceedances are present in the most recent tissue data from resident species for that pollutant.

Category 2 Determination

Water column data: A segment will be placed in Category 2 for a toxic pollutant if any one sample value exceeds the applicable criteria and the waterbody segment is not otherwise listed in Category 5 for the pollutant. If two or more samples values exceed the applicable criteria but were not collected within a three-year period, the segment will be placed in Category 2.

Tissue data: A segment will be place in Category 2 when any one single-resident fish sample exceeds the applicable criteria and the segment is not otherwise listed in Category 5 for the pollutant.

For tissue samples from anadromous or other nonresident fish, the segment will be placed in Category 2 if either the average of the three single-fish samples with the highest concentration of a given pollutant, or one composite sample made up of at least ~~five~~three fish, exceeds the applicable criteria.

Category 3 Determination

A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology's assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

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~~**Category 4 Determination**~~

Category 3 Determination

A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology's assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

Category 4 Determination

A segment will be placed in Category 4a when EPA has approved a TMDL for toxic substances. A segment will be placed in Category 4b when EPA approves use of a pollution control ~~project~~program for toxic substances. Category 4c does not apply to pollutant parameters.

Category 5 Determination

Water column data: A segment will be placed in Category 5 due to a toxic pollutant in the water column when two or more samples within a three-year period exceed the applicable criteria.

Tissue data: A segment will be placed in Category 5 if either the mean of the three single-fish samples with the highest concentration of a given pollutant or one composite sample made up of at least ~~five~~three fish exceed the applicable criteria.

In addition to the above criteria, a segment will be placed in Category 5 if bioassay tests show adverse effects as measured by a statistically significant response relative to a reference or control (WAC 173-201A-~~040~~240(2)), and the source of impairment is known to be a pollutant. These tests will be evaluated by Ecology staff and documented on a case-specific basis consistent with WAC 173-201A-~~040~~240.

Category Change From A Previous Category 5 Listing

A Category 5 determination will be changed if a more recent assessment qualifies a waterbody segment for placement in another category.

A more recent toxic pollutant assessment that results in a Category 5 change must be based on data from the same medium (tissue or water column) as was assessed to determine initial impairment. The change of a Category 5 determination may also occur if information from a TMDL or verification study confirms that the impairment no longer exists.

Due to local migration of species, toxic pollutant tissue studies that collect samples near Category 5 waterbody segments may be sufficient to represent more recent water quality conditions of the local area. In this case, tissue data and rationale that the samples collected from an adjacent or nearby waterbody segment are comparable may be considered for change in category determination.

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j. Turbidity

~~Designated Uses: Recreational Aquatic Life~~

~~Numeric Criteria: WAC 173-201A~~

~~Narrative Criteria: WAC 173-201A-070 (1)~~

~~Unit Of Measure: Nephelometric Turbidity Units (NTUs)~~

Designated Uses:	Aquatic life
Numeric Criteria:	WAC 173-201A-200(1)(e) WAC 173-201A-210(1)(e)
Narrative Criteria:	WAC 173-201A-300
Unit of Measure:	Nephelometric Turbidity Units (NTUs)

Assessment Information and Specific Data Requirements

Turbidity criteria are expressed as the difference between an upstream or background value and the increased value derived at a location downstream of a source of turbidity. The background value for turbidity is gathered at a location upgradient from the activity that is being investigated. Depending on the use-class, the acceptable difference is either 5 or 10 NTUs over background when the background is 50 NTUs or less. When background is greater than 50 NTUs, the acceptable maximum increase is either 10 or 20 percent. If more than one sample value is available for the same location and day, the average sample value will be used in the assessment. The upstream and downstream values are averaged independently.

Category 1 Determination

A minimum of ten sample sets collected during separate storm runoff events is necessary for a Category 1 determination. If no more than 5 percent of all available data exceeds the criterion, the waterbody segment will be placed in Category 1.

Category 2 Determination

A waterbody segment will be placed in Category 2 if the threshold for placement in Category 5 is not achieved but there are events demonstrating exceedance in the latest ten years. A minimum number of samples is not required for a Category 2 determination.

Category 3 Determination

A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology's assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

Category 4 Determination

A segment will be placed in Category 4a when EPA has approved a TMDL for turbidity. A segment will be placed in Category 4b when EPA approves use of a pollution control ~~project~~program for turbidity. Category 4c does not apply to pollutant parameters.

Category 5 Determination
A waterbody segment will be placed in Category 5 if ten percent or more sample values in the latest ten years exceed the applicable criterion. A minimum of three exceedances is required for an impairment determination.

9. Prioritizing TMDLs

The waterbody segments placed in Category 5 will be prioritized by Ecology generally through the rotating basin scoping process for TMDLs. The prioritization will be based on the following primary criteria. These criteria are drawn from the Memorandum of Agreement between EPA and Ecology statute, regulation, and policy:

- Vulnerability of waterbodies to degradation
- Risks to public health, including drinking water
- Risk to aquatic life and other water-dependent wildlife, especially threatened and endangered species
- Severity of the pollution

If an impaired waterbody segment ranks high for any one of these criteria, the TMDL for that segment will be given a high priority. For example, if the pollution is severe enough to cause a high risk to public health, then the segment will be ranked as a high priority, even if there is no apparent vulnerability to further degradation or risk to other uses. If the segment ranks medium for any one of these criteria, and not high for any of them, the TMDL will be given a medium priority. Otherwise, the TMDL will be given a low priority.

For more information about TMDL planning, visit:
~~www.ecy.wa.gov/programs/wq/303d/2002/2004_documents/prioritization_cat5.pdf~~www.ecy.wa.gov/programs/wq/303d/2008/2008Prioritization-final.pdf

Priorities for TMDLs and cleanup activities related to sediment listings will be set by Ecology's Toxic Cleanup Program.

10. Abbreviations, Acronyms, and Definitions

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~~B-IBI~~	~~Benthic Index of Biological Integrity~~
~~CAP~~	~~Cleanup Action Plan~~
~~CERCLA~~	~~Comprehensive Environmental Response Compensation and Liability Act (also known as Superfund)~~
~~CFR~~	~~Code of Federal Regulations~~
~~CSL~~	~~Cleanup Screening Level (for sediments)~~
~~CWA~~	~~Clean Water Act~~
~~DOH~~	~~Washington State Department of Health~~
~~Ecology~~	~~Washington State Department of Ecology~~
~~EIM~~	~~Environmental Information Management (Ecology database)~~
~~EPA~~	~~U.S. Environmental Protection Agency~~
~~MTCA~~	~~Model Toxic Control Act~~
~~QA/QC~~	~~Quality Assurance/Quality Control~~
~~RCW~~	~~Revised Code of Washington~~
~~RIVPACS~~	~~River Invertebrate Prediction and Classification System~~
~~ROD~~	~~Record of Decision~~
~~SMS~~	~~Sediment Management Standards~~
~~SQS~~	~~Sediment Quality Standards~~
~~TMDL~~	~~Total Maximum Daily Load~~
~~WAC~~	~~Washington Administrative Code~~
B-IBI	Benthic Index of Biological Integrity
CAP	Cleanup Action Plan
CERCLA	Comprehensive Environmental Response Compensation and Liability Act (also known as Superfund)
CFR	Code of Federal Regulations
CSL	Cleanup Screening Level (for sediments)
CWA	Clean Water Act
DOH	Washington State Department of Health
Ecology	Washington State Department of Ecology
EIM	Environmental Information Management (Ecology database)
EPA	U.S. Environmental Protection Agency
MTCA	Model Toxic Control Act
QA/QC	Quality Assurance/Quality Control
RCW	Revised Code of Washington
RIVPACS	River Invertebrate Prediction and Classification System
ROD	Record of Decision
SMS	Sediment Management Standards

SQS	Sediment Quality Standards
TMDL	Total Maximum Daily Load
WAC	Washington Administrative Code

The following terms are defined to aid in the interpretation of the text:

~~Continuous monitoring –~~	~~Sampling regime that collects pollutant values at a defined frequency, as established in the parameter-specific sections~~
~~Exceedance –~~	~~A pollutant result value that is greater than a water quality standard criteria~~
~~Excursion~~	~~A pollutant result value that is above or below a water quality standard criteria that has an acceptable range, (e.g. pH criteria), or a set value not to be less than, (e.g. dissolved oxygen criteria).~~
~~7-DADMax –~~	~~Mean value of the maximum daily temperatures in a 7-day period~~
~~7-DADMin~~	~~Mean value of the minimum daily dissolved oxygen concentrations in a 7-day period~~
~~7Q10 High Flow –~~	~~Seven-day, consecutive high flow with a ten year return frequency; the highest stream flow for seven consecutive days that would be expected to occur once in ten years~~
~~7Q10 Low Flow~~	~~Seven-day, consecutive low flow with a ten year return frequency; the lowest stream flow for seven consecutive days that would be expected to occur once in ten years~~
Continuous monitoring –	Sampling regime that collects pollutant values at a defined frequency, as established in the parameter-specific sections
Exceedance –	A pollutant result value that is greater than a water quality standard criteria
Excursion –	A pollutant result value that is above or below a water quality standard criteria that has an acceptable range, (e.g. pH criteria), or a set value not to be less than, (e.g. dissolved oxygen criteria).
7-DADMax –	Mean value of the maximum daily temperatures in a consecutive 7-day period
7-DADMin –	Mean value of the minimum daily dissolved oxygen concentrations in a consecutive 7-day period
7Q10 High Flow –	Seven-day, consecutive high flow with a ten year return frequency; the highest stream flow for seven consecutive days that would be expected to occur once in ten years
7Q10 Low Flow –	Seven-day, consecutive low flow with a ten year return frequency; the lowest stream flow for seven consecutive days that would be expected to occur once in ten years

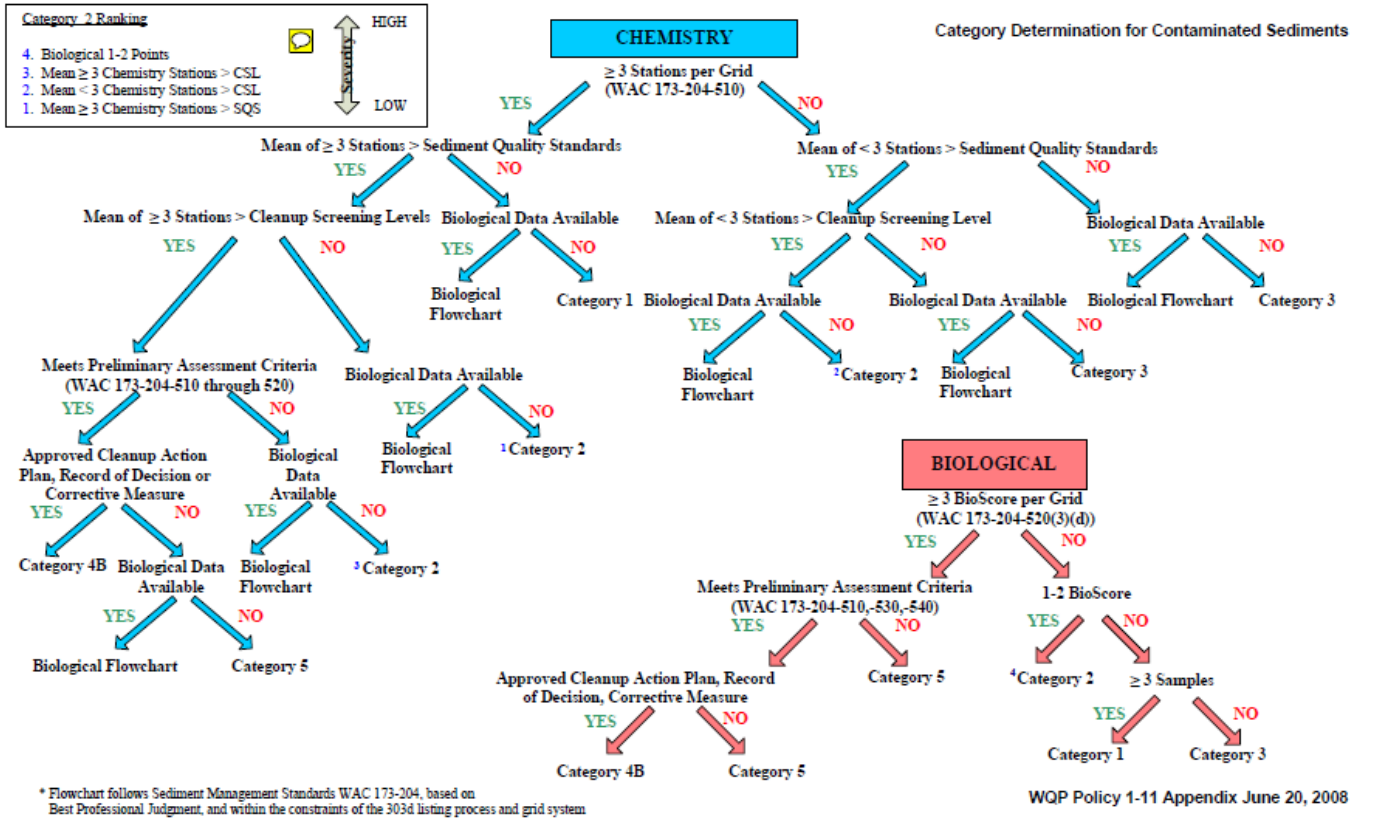
11. Approval

Approved: _____

~~David C. Peeler~~Kelly Susewind

Date

Program Manager
Water Quality Program
Department of Ecology



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