DEPARTMENT OF ECOLOGY
State of Washington

Water Quality Program Policy

Chapter I ***WQP Policy I-II***

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 2012

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

Purpose: This policy describes how waterbody segments will generally be assessed to determine attainment with Chapter 173-201A-WAC (surface water quality standards) and Chapter 173-204-WAC (sediment management standards) and then placed in various categories based on this determination. These categories identify the status of the waterbody segment and denote future regulatory actions. This policy also provides specification 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 Department of Ecology (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 (State) based on the review of available monitoring data for compliance with water quality and sediment management standards (Chapter 173-201A WAC and Chapter 173-204 WAC). The State is required, under Section 303(d) of the CWA 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 state's water quality standards. In Washington, this list is prepared by 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 apps.leg.wa.gov/WAC/default.aspx?cite=173-201A and the federal National Toxic Rule (NTR) 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.

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.

The information and guidance in this policy have been developed to guide the assignment of waters into one of five categories. All waters in the State, where water quality data or information are available, will be assessed and 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 listed in Category 5 because a TMDL is not required (see Category 4). As part of the listing process, 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 the State, and to inform the public about the known condition of the State's waters. A summary of the 5 categories is shown in Table 1.

Table 1. The Water Quality Assessment Categories.

Category 1. Segment Meets Tested Criteria	Not known to be impaired
Category 2. Segment is a Waters of Concern	
Category 3. Segment Lacks Sufficient Data	
Category 4. Segment Impaired But Does Not Require A TMDL because 4a. Segment Has a TMDL Approved by EPA 4b. Segment Has a Pollution Control Program 4c. Segment Impaired by a Non-Pollutant	Impaired
Category 5. Segment is on 303(d) List	

The draft results of all five water quality assessment categories will be made available for public review and submitted to EPA, but only Category 5, submitted as the candidate 303(d) list, is subject to EPA approval. EPA has authority to disapprove the Category 5 list and to propose the addition and removal of waters to and from Category 5. These subsequent actions are also subject to public review. TMDLs are also approved by EPA through a separate action, thus listings on Category 5 that are part of an approved TMDL will be moved to Category 4a.

2. Waterbody Segments and GIS Layers

Water bodies 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 water body based on the data assessed. The State's history of reporting waterbody segments has varied in past reporting cycles. In the 1998 through 2008 assessments, Ecology reported the majority of waterbody segments of rivers, streams, and lakes as the portion of the water body 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 3,660 feet). Contaminated sediment site listings are assigned to the appropriate quarter grid section of a full size 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 rivers and streams. Starting with the 2012 Water Quality Assessment for freshwater, Ecology is moving to a segmentation system based on the NHD at the 1:24,000 scale. The conversion to the NHD segments may cause different assessment results for a given water body.

3. Coordination with Tribes and Other States

In accordance with the Centennial Accord, this policy supports intergovernmental cooperation between the State and adjacent federally recognized tribes during 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 CWA. The 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 it intended to 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 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 (Assessment) and 303(d) list:

- Policy development and revisions.
- Preparation of draft and final 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 their respective 303(d) programs.

4. Public Participation and Submitting Information

Individuals and organizations can participate in the Assessment, 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 changes, then review and comment on EPA's actions.

Listing cycles and call for data

In accordance with the CWA requirements for sections 303(d) and 305(b), Ecology will conduct biennial assessments of readily available water quality data to the maximum degree feasible. Any deviation from the statewide biennial Assessment, such as focusing on a specific part of the state, will be done with adequate public notice.

Each biennial assessment will have a public "call for data" to ensure that Ecology obtains all readily available data. The "call for data" for each listing cycle will be announced through the program website and email listservs, and will be open between February 1- April 1 of the calendar year corresponding to the listing cycle. Thus, starting in 2014 a call for water quality data will occur between February 1 and April 1, 2014. This timing will allow data and information that was collected through the 2013 calendar year to be submitted for use in the 2014 Assessment. If a submitter's data should be assessed on the water year (October through September), data should only be submitted through September. Results of the Assessment will then be announced for public review and comment prior to submitting to EPA as the Integrated Report and candidate 303(d) list.

Data collected in recent years within the 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 quality assurance (QA) concerns should not be resubmitted unless new QA information is submitted that enables Ecology to use the data.

Data collected within ten years of the published call-for-data end date for each Assessment will be consolidated and assessed with other data of the same waterbody segment and parameter. Data older than ten years will not be used in the Assessment but may be submitted to Ecology's Environmental Information Management (EIM) system for other purposes. These 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 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, http://www.ecy.wa.gov/eim/. Sample values from continuous datasets, such as the temperature seven-day average daily maximum (7DADMax), should be reported as calculated values. Sample values from continuous datasets should include 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 currently accept continuous data. However, on a case-specific basis Ecology may accept continuous data in electronic form for purposes of the Assessment.

Data in EIM are available to the public on Ecology's website and are accessible for independent review of listing decisions. EIM can also be used in a broader context to identify all data within specific geographic locations, or to identify areas that need further monitoring. Information other than numeric data, such as narrative information, may be submitted directly to the Assessment coordinator.

Quality assurance requirements must be met by all data used for this assessment. Sampling and analyses must be conducted under a documented 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 be used for the Assessment or maintained in the Assessment database. These data may still be available in EIM with the appropriate associated QA designation. 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.

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

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

General Requirements

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

- 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.
- The applicable dates of the QA Project Plan, including any revisions.
- Written assurance that the methods and procedures specified in the QA Project Plan were followed.
- 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.
- 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.
- 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 all quality control samples and standards necessary to properly interpret data different from that stated in the QA Project Plan.
- The QA 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.

- 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.
- 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.
- 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 Assessment.

Any additional requests by Ecology for further documentation must be made available in order to assess the data received. If Ecology determines there are flaws in QA planning or implementation that reduce confidence in any submitted data, including data provided during earlier assessment cycles, then that data will not be used as a basis for categorizing a waterbody segment.

Verification of adherence to QA requirements may be examined by Ecology through the use of 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 for the specific parameter needed, 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 by Ecology prior to the start of monitoring. The monitoring entity must seek and obtain 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/lab-accreditation.html. Executive Policy 1-22 does not apply to data obtained in the field or to benthic analyses.

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 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, such as: (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 must be conducted according to 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 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.

Trend information and associated data submitted for the Assessment will only be used if it has been collected through a valid statistical methodology (see USGS publication, *Statistical Methods in Water Resources*, September 2002).

Submittals of information by third parties must include documentation addressing the accuracy and completeness of the information submitted to Ecology, including documentation that the required QA objectives were met. The use of third party data will be at the sole discretion of Ecology based on the acceptability of the accompanying documentation.

Specific Requirements

In addition to the general requirements stated previously, 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.

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

5. Categories

Waters in the State (except on reservation lands) will be assigned to one of the five categories in the following descriptions. 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 the State's water quality and will be submitted to EPA and the public as the Assessment, referred to as the "Integrated Report" in EPA guidance.

When data are available for more than one water quality parameter in the same 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 for another pollutant.

Category 1. Segment 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 during a "critical condition" period. It is not sufficient merely to have a lack of evidence of impairment. This category is not part of the 303(d) list.

Placement of a waterbody segment in Category 1 does not constitute a determination of compliance or noncompliance with water quality standards for any other purpose (such as for permitting). Placement in Category 1 does not necessarily mean that all criteria have been assessed or studied in the waterbody segment. A water body may be placed in this category for certain parameters while also being listed in another category for a different pollutant.

Where a TMDL has been approved, data results for a monitoring location within the TMDL boundary may indicate that the listing should be placed in Category 1 based on data alone. 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 standards impairment in the rest of the basin. See the Section 7, "Assessment of Water bodies Within a TMDL" for more details.

Category 2. Segment is a Water 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 excursions of applicable water quality criteria, but there are fewer excursions than are necessary to sufficiently determine that the severity of the problem warrants a Category 5 listing.

- Narrative information raises concerns, but it is not sufficient for listing in Category 5.

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 the sub-sections under Section 8. Situations not specifically described will be assessed by Ecology on a case-specific basis. This category is not part of the 303(d) list.

Category 2 applies when credible data create concerns of possible impact to designated uses, but fall short of demonstrating that there is a persistent problem. To place a waterbody segment 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 *Water of Concern* category when there are remaining concerns that reduce confidence that the tested criteria are in fact met.

The *Water 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. Segment Lacks Sufficient Data

When there are insufficient water quality data available to make a determination on the status of water quality criteria or a designated use, the waterbody segment will be placed in the *Lacks Sufficient Data* category. Listings from data placed in this category still must meet data quality standards. This category will include all waters in the State (except on tribal reservation lands) that lack sufficient information for placement in any other category. Waterbody 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 are 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 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.

Category 3 may also be used for waterbody segments within the boundary of a TMDL under development. Segments based on datasets found to be incomplete or inconclusive for determining the appropriate category will be placed in Category 3 and reassessed after the TMDL has been approved by EPA.

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 program other than a TMDL is already in place (Category 4b).
- The impairment is not known to be caused by a pollutant, and therefore a TMDL is not appropriate to address the impairment (Category 4c).

Category 4 is not part of the 303(d) list. It has three subcategories.

4a . Segment Has a TMDL Approved by EPA
Data showing that a designated use is impaired by a pollutant is placed into Category 5. When a TMDL addressing that impairment has been developed and been approved by EPA, the waterbody segment/ parameter combination will be moved to *Category 4a: Has a TMDL*. A Category 5 listing is no longer required because the primary purpose of a Category 5 listing – to lead to preparation and implementation of a TMDL – has been achieved. This category does not include situations where EPA has disapproved the TMDL and not yet adopted a federal TMDL, nor does it include situations where Ecology determines that the TMDL is not being successfully implemented. In these cases, the impaired listing(s) will remain or be placed back in Category 5.

If sufficient data within a Category 4a listing indicates that the specific waterbody segment is no longer contributing to impairment within its watershed, then the segment may be placed in Category 1. See the Section 7, "Assessment of Water bodies within a TMDL" for more details on when waterbody segments move in or out of Category 4a. If a TMDL has been declared completed and implementation has ended, but at that time or later the waterbody segment is again shown to be impaired, then the segment will be returned to Category 5.

4b. Segment Has a Pollution Control Program (in lieu of a TMDL)
When data show that a waterbody segment is impaired by a pollutant, but a local, state, or federal authority is implementing a pollution control program (or sediment cleanup plan), and Ecology determines that the program or strategy is expected to result in the waterbody meeting water quality standards, the segment will be placed in the *Has a Pollution Control Program* category for consideration by EPA. A 303(d) listing is not required because the pollution control 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 program is not being successfully implemented. Progress on water quality improvements is an essential element of a successful pollution control strategy. Any Category 5 listings that are proposed by Ecology to move to Category 4b will need involvement by EPA to ensure that the pollution control program meets requirements in the following outline.

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 Program* category, the pollution control program must meet all of the following elements:

- 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 standards.
- 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 listed previously, the 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 program that is submitted to determine if it meets these elements. 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 is likely. Documentation must be provided to clearly explain and support how the pollution control program meets the criteria for each specific pollutant and water body.

Any program may qualify if Ecology determines that it meets all of the previously listed requirements. 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.

All category 4b listings must be reassessed by Ecology during each assessment cycle to determine progress:

- If sufficient data within a Category 4b listing indicates that the specific waterbody segment is now meeting standards, the segment will be placed in Category 1.
- If Ecology determines that the pollution control program is making sufficient progress towards meeting tested standards, the segment will remain in Category 4b.
- If a pollution control program is not making sufficient progress, then the listing will be returned to Category 5. Likewise, if a pollution control program has been declared completed and implementation has ended, but at that time or later the waterbody segment is again shown to be impaired, then the segment will be returned to Category 5.

4c. Segment is Impaired by a Non-Pollutant

Segments are placed in this category when the failure to meet the applicable water quality standards 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 the *Impaired by a Non-Pollutant* 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.

Water bodies 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 Section 6, "Assessment of Information using Narrative Standards"). 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. Segment is on 303(d) List

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. A waterbody segment may also be placed in Category 5 if it is currently meeting standards, but credible trend information and data collected through a valid statistical methodology indicates that the water body is not expected not to meet applicable water quality standards by the next assessment cycle. Waterbody segments on Category 5 will need a TMDL, pollution control program, or other actions to bring the water into compliance with the water quality standards.

6. Assessment Methodology

The purpose of the assessment is to determine the status of the State's water quality based on water quality standards and available data. The results will be used to meet CWA 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, depending on the parameter. Modeled data that meet QA 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.

Use of Non-Detect Samples

It is appropriate to use non-detect values for assessment purposes when the detection limit is less than the criteria (e.g. bacteria). In these situations, we can be assured that the non-detect samples are meeting the water quality standard. However, if the detection limit is greater than the criteria, it is not appropriate to use non-detect samples (e.g. some toxics). In these situations, a non-detect sample may, or may not show compliance with water quality standards. For calculating a geometric mean using non-detect samples, where zero cannot be used, a value should be chosen so as not to bias the geometric mean high or low.

Determination and Use of Field Replicate Samples

Field replicate sample values in EIM are averaged together if they are identified as field replicates. Additionally, for some parameters, samples collected at the same location within a specified time frame may be averaged. Bacteria samples are averaged if the samples are collected in the same location, less than 15 minutes apart. Bacteria samples are averaged within 15 minutes to reduce bias in situations where an additional sample(s) was collected at a different time of the same day. Dissolved oxygen, pH, and temperature samples are averaged if they are collected in the same location, less than 5 minutes apart. The resulting calculated value is treated

as a single sample in the assessment. The shorter 5-minute timeframe is used for certain parameters because:

1) These values can change rapidly, and averaging measurements that are more than 5 minutes apart could potentially mask a criteria excursion.

2) Continuous measurements are sometimes intentionally collected at 5, 10, or 15 minute intervals to illustrate actual changes in water quality.

Comparison of Data to a Water Quality Criteria Expressed as an Average

In cases where criteria are expressed in the standards as averages over a specified time period (e.g., 24-hour averages for the acute criteria for many metals) all samples collected from a representative site are averaged to assess compliance with the criteria during the specified averaging time. In cases where only one grab sample is available to represent the specified averaging period then that sample is used to represent the average concentration over the averaging period. These instantaneous measurements will be assumed to represent the averaging periods specified in the State's surface water quality standards for both acute and chronic criteria.

Assessment of Data and Information Using Numeric Standards

Assessment decision requirements for specific pollutant parameters are described in Section 8. Section 8 includes the basis for assessment decisions based on data requirements, general Assessment information, and the category determination process for each these parameters: Bacteria, bioassessment, contaminated sediments, dissolved oxygen, pH, total phosphorus (in lakes), temperature, total dissolved gas, toxic substances, and turbidity.

Assessment of Information using Narrative Standards

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 standards relating to pollutants when the information regarding that waterbody segment includes both 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.
- 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 by a Non-Pollutant).*

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 standards 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. Pristine wilderness areas or other areas with no significant human impact will be assumed to represent natural conditions. Placement of waterbody segments in Category 1 due to natural conditions do not need to meet Category 1 requirements described in the specific parameter sub-sections under Section 8.

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 (WAC 173-201A-200(1)(d)(i) and 173-201A-210(1)(d)(i)). The designation of a water body 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 (including historic data older than ten years), 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 water bodies that are clearly due to natural conditions, the waterbody segment will be placed in Category 1. For water bodies 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 specific data to determine whether the exceedance is above or below the threshold allowance, the waterbody segment 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 Water bodies within a TMDL Boundary

When a TMDL is developed because one or more Category 5 listings within the watershed boundary indicate impairment, the TMDL applies to all water bodies within the boundary of the TMDL. The TMDL is an in-depth study that addresses which waters are violating standards, which waters are contributing to downstream violations, and what needs to be done for all waters within the TMDL boundary to be brought back into compliance with the standards, natural conditions, or other objectives.

Assessment of Data during TMDL Development
Data generated during the development of a TMDL should not be used for the Assessment until the dataset is complete for the TMDL. This avoids conducting an assessment of incomplete datasets. Monitoring data submitted independent of the TMDL study that is within a TMDL boundary needs to also be considered within the context of the TMDL. TMDL staff should consult with Assessment staff regarding the adequacy of the additional data to make a category determination. If the dataset is determined to be incomplete or inconclusive for determining the appropriate category, the associated segments will be placed in Category 3 and reassessed after the TMDL has been approved by EPA.

Assessment of Data after TMDL is Approved by EPA
Once the TMDL is completed and approved by EPA, all monitored waters in the TMDL boundary that have a load or wasteload allocation associated with them are placed in Category 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 standards or TMDL objectives.

The completion of a TMDL provides additional information on contributions of pollutants from waterbody segments within the watershed and what is needed to bring a water body or watershed back into compliance with the standards. Therefore, Assessment listing decisions within a TMDL boundary need to consider the TMDL information in addition to the monitoring data. Determining the appropriate category for a waterbody segment within an approved TMDL boundary needs to be performed jointly by Assessment staff and regional TMDL staff to ascertain whether a new or changed assessment category is appropriate based on both data and TMDL information. The following should be considered when moving waterbody segments in or out of Category 4a during implementation of an approved TMDL.

- *Moving a proposed Category 1, 2, 3, or 5 listing to Category 4a*. When new data are assessed for a waterbody segment within an approved TMDL boundary, Assessment staff will consult with TMDL staff responsible for the TMDL to determine that a load or wasteload allocation exists for that segment. If the segment has a load or wasteload allocation associated with it, 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 alone.

- *Moving an existing Category 4a listing to a Category 1*. It is not always necessary to fully complete all implementation activities within a TMDL boundary before Category 4a listings within the TMDL can move to Category 1. If new data are assessed for a waterbody segment

within an approved TMDL boundary and the data indicates that the water body is meeting tested standards, the segment may be moved from Category 4a to Category 1 under certain circumstances:

1. The sampling effort is from more recent reporting periods that were conducted during the seasonal or critical condition period identified in the TMDL.
2. Best Management Practices (BMP) implementation is occurring where appropriate.
3. Previous pollution sources in the vicinity of the monitoring location are not likely to contribute to future impairments at downstream locations.

Assessment staff will consult with regional TMDL Leads to share initial data assessment results and to verify that the TMDL is being implemented and there are not known sources in the vicinity of the monitoring location that would contribute to an impairment at a downstream location. Waterbody segments may be moved to Category 1 based on data if these conditions are satisfied. Moving waterbody segments within a TMDL boundary 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.

If future monitoring data indicates impairment of a waterbody previously moved from Category 4a to Category 1, then the waterbody segment will be returned to Category 4a if Ecology determines that the applicable TMDL is active and appropriate for prescribing and scheduling the needed corrective actions. If not, the segment will be moved back to Category 5.

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 water body 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-basin of the surface water, such as at the location of a discharge pipe prior to complete mixing, or within a lake 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 describe the overall 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 include the following:

1. The reason(s) the listing is inappropriate and how the policy would lead to a different outcome.
2. 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 Assessment report to EPA.

Ecology will, in consultation with EPA, correct any errors identified in the 303(d) list or the overall 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 Basis for Assessment Decisions

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
- Total Phosphorus in Lakes
- Temperature
- Total Dissolved Gas
- Toxic Substances
- Turbidity

a. Bacteria

Designated Uses:	Water contact recreation Shellfish harvesting
Numeric Criteria:	WAC 173-201A-200 (2); WAC 173-201A-210 (3)
Narrative Standards:	WAC 173-201A-260 & -300
Unit of Measure:	Number of colony forming units per 100mL

Assessment Information and Specific Data Requirements
Fecal coliform and *Enterococcus spp.*data will be assessed by Ecology staff in the according to the following description:

Sample data for bacteria will typically be assessed in 12-month reporting periods or in reporting periods that represent a 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 water body. Ecology will determine the assessment periods, case-specific, based on local circumstances such as climate, weather, and associated bacteria data; otherwise, the assessment period will be consistent with the general water year for the State, October through September. Waters that have previously been assessed based on calendar year, as described in early versions of this policy, will not be reassessed unless new information indicates that these assessments would result in a change of the category determination. Data from incomplete water years may be reserved for the next Assessment when further data will allow a geometric mean to be calculated for the entire water year.

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). Violations are based on either of these provisions.

To reduce concerns of low bias when the data are later used to calculate a geometric mean, an arithmetic mean value will be calculated from multiple data points collected in the same sampling event and waterbody segment. This averaging helps to reduce the effects of sample variability inherent in determining ambient bacteria concentrations at the time of sampling. The resulting single representative data point for the sampling event will represent the daily value to be included in this assessment methodology.

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, in some water bodies 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 water body during each visit.

During peak use, a lake swimming beach may be affected by numerous temporary sources of bacteria associated with human swimmers, including disturbed sediments. When bacteria samples are collected in lake swimming areas without significant water exchange, and it is determined that the swimmers themselves are the primary source of bacterial pollution, this data may be excluded from the Assessment. Ecology may require data from outside the active primary contact period to ensure that other sources are not causing exceedances of the recreational criteria.

Bacteria criteria may vary depending on salinity concentrations in brackish waters of estuaries. In these cases, the method to determine what standards apply is described in WAC 173-201A-260(3)(e). If 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).

Agency Advisories
Fish, shellfish, and swimming advisories issued by the Department of Health (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.

Waterbody segments covered in whole or in part by a fish, 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 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 consecutive calendar days in a year.

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

The 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 is included in the Assessment for marine primary contact waters because these waters must at least meet the secondary contact recreation bacteria criteria.

Category 1 Determination

A waterbody segment will be placed in Category 1 when (1) at least ten samples meeting the criteria are available for the most recent data collection year from a reporting period as defined above, and (2) both the geometric mean criterion and the percent exceedance criterion are met.

Waterbody segments that are well within the classification standards as described in the DOH Shellfish Growing Area Annual Report AND have at least 10 samples that do not exceed either criterion, will be placed in Category 1 unless there is more recent data indicating that the use of water contact recreation is impaired.

Category 1 determinations based solely on *Enterococcus spp.* data, can only be applied to marine waters designated for secondary contact recreation. Fecal coliform data are required to make a category 1 determination in primary contact waters in accordance with the bacteria standards for that recreational use class, (WAC 173-201A-200(2)(b)).

Data eligible to result in a change from Category 5 to Category 1 must include a sampling effort designed to target the critical period(s) (if applicable) in which exceedances of the criterion are more likely to occur in the waterbody segment. Sampling during the critical period must show that the segment is meeting the Category 1 requirements for the water quality criteria within that critical period. 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.

Waterbody segments previously placed in Category 5 based on DOH advisories can be moved to Category 1 if new DOH Shellfish fecal coliform data show no exceedances of the criterion and no data are submitted from other groups indicating otherwise. If available data from other groups still show exceedances of the criterion, the segment will be moved to Category 2.

Data from more recent reporting periods available may allow a previous Category 2 listing to be moved to Category 1 if, (1) at least ten samples are available from the most recent data collection year and represent a reporting period as defined above, and (2) both the geometric mean criterion and the percent criterion are met. Single samples may individually exceed the percent criterion value provided that no more than ten percent of the sample set exceeds the criterion.

Exceptions to the above data requirements for listing segments in Category 1 based on fecal coliform data may be made under certain circumstances. When a waterbody segment is part of a detailed pollution study, such as a TMDL, Ecology may determine that an alternative set of sampling values is sufficient for determining that a waterbody is meeting tested standards and can be listed in Category 1. A minimum of at least five samples are necessary within the identified "critical condition" period for calculating a geometric mean for bacteria. Multiple years of data may be necessary in these situations. See Section 7, "Assessment of Water bodies within a TMDL Area" for further details on moving listings within a TMDL to Category 1.

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 1 or 5.

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.

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.

Waterbody segments that are within the classification standards as described in the DOH Annual Shellfish Growing Area Review, AND have less than 10 samples with no exceedances of either criteria, will be placed in Category 3.

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 Ecology determines that a pollution control program for bacteria is in place and meets 4b reqruiements. Waterbody segments that have a DOH 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. Category 4c does not apply to pollutant parameters.

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 provided that two or more samples exceed the 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 primary or secondary contact recreation criteria:

1. The calculated geometric mean of all samples[1] from a waterbody segment exceeds the geometric mean criterion 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 for primary or secondary contact recreation.

   AND

   More than ten percent of all sample values1 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 will not be applied to datasets of fewer than five sample values, in accordance with water quality standard recommendations in WAC 173-201A-200(2)(b)(i).

Waterbody segments that fail to meet shellfish 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.

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.

Waterbody segments will be placed in Category 5 based on Agency Advisories as described in that section (see above under "Agency Advisories").

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

b. Bioassessment

Designated Uses:	Aquatic life
Narrative Standards:	WAC 173-201A-260 & -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 or chemical impairments for which there are no criteria. For this reason, bioassessment methods are used 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 Standard Operating Procedures (SOP) #EAP073, but may also accept data collected using other protocols. After 2012, all biological data submitted for review must be collected using the field and data reporting protocols outlined in the SOP for collecting freshwater macroinvertebrates. Although the state water quality standards do not currently contain numeric biocriteria limits, bioassessment tools are used to determine impairment to designated uses of water bodies. This is an application of the narrative standards in WAC 173-201A-260 and 300. Ecology currently endorses and uses the River Invertebrate Prediction and Classification System (RIVPACS) multivariate model and a multi-metric index of Biotic Integrity (IBI) to help identify impairments of the biologic community.

Bioassessment Model Information
Ecology uses RIVPACS and multi-metric index models like the Benthic Index of Biotic Integrity (B-IBI) to assess the biological condition of streams. RIVPACS 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.

B-IBI is based on the scaled response of community attributes to a range of changes in environmental conditions. The score for each attribute is representative of Good, Fair or Poor conditions, and are summed to give an overall picture of the biological integrity of the stream.

Ecology 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.

Ecology compiled the following information, including field collection protocols and taxonomic references:

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: www.monitoringmethods.org/

Taxonomic Effort: Standard Effort follows Plotnikoff and Wiseman (2001) Benthic Macroinvertebrate Biological Monitoring Protocols for Rivers and Streams. http://www.ecy.wa.gov/pubs/0103028.pdf . Any questions of nomenclature validity and classification will defer to the Integrated Taxonomic Information System (ITIS) available online at: http://www.itis.gov/ .

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: www.cnr.usu.edu/wmc

Data submittals should include the raw macroinvertebrate assemblage counts, an environmental matrix reporting data for predictor variables (including LAT/LONG, Slope at the site, Elevation, and Sample Date), and any other applicable information detailed in Section 4 of this policy.

Ecology will require a minimum of two years of monitoring data at the site to ensure that consistent results point to impairment to list as a Category 5 site. This will help minimize the risk that a single data point reflects an anomaly rather than a trend.

Category 1 Determination
A waterbody segment will be placed in Category 1 based on a bioassessment when the RIVPACS score from the two most recent years of available macroinvertebrate assemblage data are equal to or greater than 0.86, or a B-IBI score indicates no biological impairments.

Category 2 Determination
A waterbody segment will be placed in Category 2 based on bioassessment of the benthic macroinvertebrate community when a RIVPACS score from two of the most recent five years of available data results in a score less than 0.86 and at least 0.73, or a B-IBI score indicates a level of degradation that indicates the uses in the waterbody are not impaired but are 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 Ecology approves the use of a pollution control program for pollutants identified as stressors to the macroinvertebrate community. Placement of a waterbody segment in Category 4c for either RIVPACS or the B-IBI will be based on impairment data and information that show the condition is likely not the result of pollutant sources but from other factors as defined in the section explaining Category 4c.

Category 5 Determination
A waterbody segment will be placed in Category 5 as biologically impaired when the RIVPACS score calculated from the two most recent years of available macroinvertebrate assemblage data results in a score less than 0.73, or a B-IBI score indicates a level of degradation such that the uses in the water body are impaired.

c. Contaminated Sediments

Designated Uses:	Aquatic life
Numeric Criteria:	WAC 173-204 - *Sediment Management Standards*
Narrative Standards:	WAC 173-204-100(3)
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.

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 in EIM. For information on the sediment data submission requirements see: http://www.ecy.wa.gov/programs/tcp/data_submittal/Data_Requirements.htm

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.

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.

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 TCP 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 Category 2. 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 Stat*e, Publication No. 97-323a (1997), 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.

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.

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 TCP. 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*.

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.

d. Dissolved Oxygen

Designated Uses:	Aquatic life
Numeric Criteria:	WAC 173-201A-200(1)(d); WAC 173-201A-210(1)(d)
Narrative Standards:	WAC 173-201A-260 & -300
Unit of Measure:	mg/L or parts per million (ppm)

Assessment Information and Specific Data Requirements
The water quality standards for dissolved oxygen set 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 are 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 ambient dissolved oxygen concentrations typically exhibit a diurnal cycle. Continuous monitoring can better determine the lowest daily dissolved oxygen concentration in a water body. 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.

Data sample values collected infrequently or less frequently than one sample value per hour will be considered "single sample data." Data sets that include at least one sample value per hour will be considered continuous monitoring.

In freshwater, where a detailed vertical profile of dissolved oxygen data are 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 are 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 when determining whether the water body is impaired by human sources.

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 occur throughout the seasonal duration in which dissolved oxygen concentrations are expected to be lowest. A waterbody segment will be placed in Category 1 when data from the most recent two years in which the data exists show no excursions below the criteria.

Single sample events (grab samples) will not be used to determine a Category 1 listing because this sampling method is insufficient to show that the water body 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 program for dissolved oxygen. Category 4c does not apply to pollutants.

Category 5 Determination
Category 5 determinations are dependent on whether the sampling consisted of single grab or continuous monitoring. 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 natural or a significant amount of 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. A waterbody segment may also be placed in Category 5 for dissolved oxygen when three daily minimum values from continuous monitoring are below the criterion.

e. pH

Designated Uses:	Aquatic life
Numeric Criteria:	WAC 173-201A-200(1)(g); WAC 173-201A-210(1)(f)
Narrative Standards:	WAC 173-201A-260 & -300
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 are 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 exhibits a diurnal cycle. However, until improved technology leads to more projects incorporating continuous pH measurements, Ecology recognizes that most pH monitoring is performed as single sample events.

Data sample values collected infrequently or less frequently than one sample value per hour will be considered "single sample data." Data sets that include at least one sample value per hour will be considered.

Category 1 Determination
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 for pH. Data collection schedules must occur throughout the seasonal duration in which pH concentrations are expected to exceed criteria. The waterbody segment will be placed in Category 1 if fewer than 5% of the daily values show an excursion using data from the most recent two years from which adequate data exist. The "daily value" refers to the extreme sample value for each day (described above in first paragraph of "Assessment Information and Specific Data Requirements").

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 excursions of the 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.

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 program for pH. Category 4c does not apply to pollutant parameters.

Category 5 Determination
A waterbody segment will be placed in Category 5 when a minimum of three excursions exist from all data considered, and at least ten percent of values in a given year do not meet the criterion.

f. Total Phosphorus in Lakes

Designated Uses:	Recreational; Aquatic life
Numeric Criteria:	WAC 173-201A-230
Narrative Standards:	WAC 173-201A-260 & -300
Unit of Measure:	mg/L in congruence with the Ecology EIM system. (Units for total phosphorus criteria are calculated in μg/L)

Assessment Information and Specific Data Requirements
If available, the phosphorus criterion established by a lake-specific study as described in WAC 201A-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 standards 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 standards 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 condition" 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 condition" 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 condition" 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; and
- The arithmetic mean of the sample values for each "critical condition" period or season from each year is equal to or less than the numeric criterion or action value for that waterbody.

Category 2 Determination
A lake or lake grid segment will be placed in Category 2 when fewer than four sample values are available from a single season or "critical condition" period, and at least one value is greater than the 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 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 condition" period exceeds the criterion or action value for that lake or lake grid segment. A Category 5 determination may also result from narrative standards as described in section 6 of this policy.

g. Temperature

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 Standards:	WAC 173-201A-260 & -300
Unit of Measure:	Degrees Celsius (C) or Degrees Fahrenheit (F) Continuous: 7-Day Average of the Daily Maximum (7DADMax) or a 1-day maximum (1-DMax)

Assessment Information and Specific Data Requirements
The water quality standards set maximum temperature criteria 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 due to human actions.

To make a listing determination for temperature, Ecology will first assess numeric water temperature monitoring data to determine if there are exceedances. The warmest temperatures of the year and the potential for criteria exceedances (values greater than the criteria) generally occur during a "critical condition" 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. 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 are 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 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.

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 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. 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 data exists for the waterbody segment during the "critical condition" 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 exceed the criterion.

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

Ecology lists waterbody segments on the Category 5 list 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 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 change the 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. TMDLs or other pollution control studies will determine the extent of human influences.

h. Total Dissolved Gas

Designated Uses:	Aquatic life
Numeric Criteria:	WAC 173-201A-200(1)(f)
Narrative Standards:	WAC 173-201A-260 & -300
Unit of Measure:	Percent (%) Saturation

Assessment Information and Specific Data Requirements
The assessment of total dissolved gas data are 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. 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. Total dissolved gas datasets that include at least one sample value per hour are considered to be continuous monitoring. Where a detailed vertical profile of total dissolved gas data are collected, Ecology will use the data value from the deepest location. Natural conditions will be considered in cases where stream structure contributes to high total dissolved gas levels such as below natural waterfalls.

Exceedances of 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). Criteria exceedances may also occur below dams during critical operational conditions, such as powerhouse shut down or start up. The criteria do not apply when flow rates exceed the 7Q10 high flow rates.

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 waterbody segments where 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. 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.

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 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 TDG when ten percent or more sample values during the critical season or "critical condition" 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 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.

i. Toxic Substances

Designated Uses:	Aquatic life Fish and Shellfish harvesting Recreational Water supply
Numeric Criteria:	WAC 173-201A-240 40 CFR 131.36 - NTR
Narrative Standards:	WAC 173-201A-240(1); -260; -300
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 safe levels, as defined by exceedances of either numeric criteria or narrative criteria, as determined by criterion tissue equivalent concentrations and fish advisories. For water column and tissue data, non-detects are not used to determine exceedances. When the criterion or criterion tissue equivalent concentration is less than the detection value these data will not be used for Assessment purposes because the detection level is not sensitive enough to ensure compliance with the criterion. A more sensitive analytical method should be used to determine into which category the parameter/segment combination belongs.

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.

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 aquatic life criteria (WAC 173-201A-240(3)) or the National Toxics Rule human health criteria (40CFR131).

Fish and shellfish advisories issued by the state 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, may be used to directly assess a waterbody segment if site-specific information and data associated with the specific 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 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 metals may be dependent on hardness, 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 metals criteria which are dependent on these conditions. Modeled or otherwise estimated hardness values are not acceptable for the purpose of the 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 when assessing compliance with aquatic life-based criteria. Inorganic arsenic is used when assessing compliance with human health-based criteria (both tissue and water 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 freshwater ammonia concentration 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 the Assessment.

- **Polychlorinated biphenyls (PCBs)**

  The sum of PCB compounds or mixtures (all congener or all isomer or homolog or Arochlor analyses) may result in an exceedance of the criteria or criterion tissue equivalent concentration. 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 (aquatic life-based criteria) and criteria for individual isomers of DDT (human health-based criteria) will be considered in the assessment. The sum of one or more isomers may result in an exceedance of the Total DDT 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. Tissue data will be compared to the criterion tissue equivalent concentration for DDT and its isomers.

- **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 and criterion tissue equivalent concentration. An exceedance of the criterion or criterion tissue equivalent concentration 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 or criteria tissue equivalent concentrations: cis- and trans-chlordane, cis- and trans-nonachlor, and oxychlordane. To determine that a waterbody meets the criteria or criteria tissue equivalent concentration and should be placed 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) the most protective value will be used.

- **Endosulfans**
  For water, the sum of endolfan I (alpha) and endosulfan II (beta) are compared to the aquatic life criteria. For tissue, the recommended approach is to compare the criterion tissue equivalent concentration to the sum of alpha-endolfan, beta-endosulfan, and endosulfan-sulfate. However, an exceedance of the criterion may also occur from applying tissue equivalent concentrations to the individual compounds.

The NTR's human health criteria in 40 CFR Part 131 (Federal Register Vol. 57, No. 246, and as updated) apply to waters in the State. 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 placement of the water body into the appropriate category.

Aquatic life water column criteria: 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-260(3)(e) will apply. If salinity data are not available or a marine/freshwater delineation has not been made by Ecology, the more stringent criterion will apply.

Tissue: Criteria tissue equivalent concentrations are back-calculated to surface water concentrations using bioconcentration factors (BCF) that were used to derive the human health criteria in the NTR. 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 (http://www.epa.gov/waterscience/criteria/history.htm).

NTR human health criteria for water and equivalent fish tissue concentrations used to assess tissue data can be found at Ecology's website at: http://www.ecy.wa.gov/programs/wq/swqs/toxics.html.

All tissue samples used for the Assessment must be from resident fish. 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 three separate fish of the same species. Fin fish fillet tissue samples may be analyzed with skin on or skin off.

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 an aquatic life toxic pollutant when all of the following apply:

- At least 10 sample values within a three year period are available.
- 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 of the human health criteria 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 aquatic life criteria and the waterbody segment is not otherwise listed in Category 5 for the pollutant. If two or more samples values exceed thecriteria 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 human health criteria and the segment is not otherwise listed in Category 5 for the pollutant.

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 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 aquatic life criteria.

Tissue data: A waterbody segment will be placed in Category 5 for a specific pollutant when exceedances of the human health criteria are present from resident species for that pollutant. A segment will be placed in Category 5 if either the mean of the three single-resident fish samples with the highest concentration of a given pollutant or one composite sample made up of at least three resident fish exceed the criteria.

In addition to the state and federal numeric 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-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-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) and numeric criterion 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.

j. Turbidity

Designated Uses:	Aquatic life
Numeric Criteria:	WAC 173-201A-200(1)(e) WAC 173-201A-210(1)(e)
Narrative Standards:	WAC 173-201A-260 & -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. For rivers, the background value for turbidity is gathered at a location upgradient from the activity that is being investigated. In lakes and open marine waters, the background value is the ambient conditions outside of the impacted area. Depending on the designated aquatic life use of the water body, 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 downstream and upstream (or background) 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 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's Water Quality program by engaging in an annual project scoping process that will determine the upcoming fiscal year projects, based on the following primary criteria:

- Risk to threatened and endangered species.
- Public health threats from toxic chemical pollution.
- Where water quality based permit limits need to be established or lowered for municipalities' publicly owned treatment works and for industrial treatment plants.
- Vulnerability of water bodies to degradation.
- Risks to public health, including drinking water.
- Severity of the pollution.

Ecology takes a watershed approach to TMDL development so that water quality impairments for multiple pollutants are addressed in a holistic fashion. New TMDL development will occur in each Ecology region based primarily on the prioritization criteria above, and also on their ability to start new projects and available resources for conducting the technical studies.

The Water Quality Program also conducts a 5-year strategic planning process (which began in 2011) to scope regional projects and outline the Water Quality Program's ability to meet the TMDL production targets that address specific numbers of category 5 listings based on the prioritization criteria listed above.

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

10. Abbreviations, Acronyms, and Definitions

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
TCP	Toxics Cleanup Program
TMDL	Total Maximum Daily Load
WAC	Washington Administrative Code

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

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
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).
TMDL boundary	The area wherein a TMDL project applies and wherein implementation actions must occur to meet the goals and objectives of that TMDL

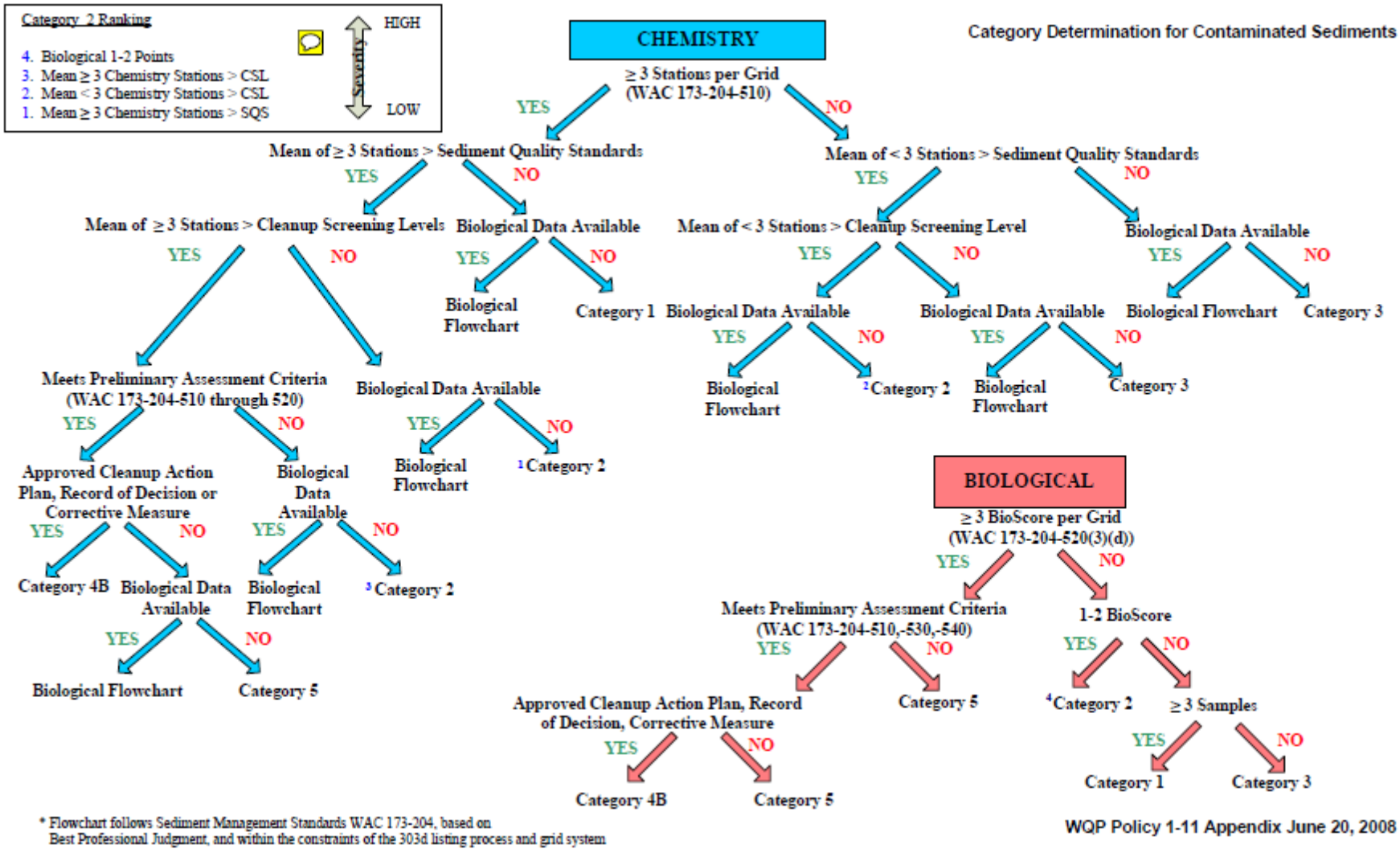
11. Approval

Approved: _____

Kelly Susewind, P.E., P.G. Date
Program Manager
Water Quality Program
Department of Ecology

Approved: _____

Robert Duff Date
Program Manager
Environmental Assessment Program
Department of Ecology


Category 2 Ranking
4. Biological 1-2 Points
3. Mean ≥ 3 Chemistry Stations > CSL
2. Mean < 3 Chemistry Stations > CSL
1. Mean ≥ 3 Chemistry Stations > SQS
Severity
HIGH
LOW
CHEMISTRY
Category Determination for Contaminated Sediments
≥ 3 Stations per Grid (WAC 173-204-510)
YES
NO
Mean of ≥ 3 Stations > Sediment Quality Standards
Mean of < 3 Stations > Sediment Quality Standards
Mean of ≥ 3 Stations > Cleanup Screening Levels
Biological Data Available
Mean of < 3 Stations > Cleanup Screening Level
Biological Flowchart
Category 1
Category 3
Meets Preliminary Assessment Criteria (WAC 173-204-510 through 520)
Approved Cleanup Action Plan, Record of Decision or Corrective Measure
Biological Data Available
[1] Category 2
[2] Category 2
[3] Category 2
Category 4B
Biological Flowchart
BIOLOGICAL
≥ 3 BioScore per Grid (WAC 173-204-520(3)(d))
Meets Preliminary Assessment Criteria (WAC 173-204-510,-530,-540)
1-2 BioScore
[4] Category 2
≥ 3 Samples
Approved Cleanup Action Plan, Record of Decision, Corrective Measure
Category 5
* Flowchart follows Sediment Management Standards WAC 173-204, based on Best Professional Judgment, and within the constraints of the 303d listing process and grid system
WQP Policy 1-11 Appendix June 20, 2008