



# City of Seattle

Gregory J. Nickels, Mayor

Seattle Public Utilities

Chuck Clarke, Director

0315

December 17, 2004

Department of Ecology  
Water Quality Program  
DEC 23 2004

Mr. Ken Koch  
Washington State Department of Ecology  
P.O. Box 47600  
Olympia, Washington 98504-7600

Re: Comments on Ecology's Draft Water Quality Assessment

Dear Mr. Koch:

Thank you for the opportunity to comment again on Ecology's Draft Water Quality Assessment (WQA). This letter contains specific comments and recommendations based on our assessment of Ecology's latest proposed WQA. In some cases, Seattle Public Utilities (SPU) is reiterating comments we provided to Ecology in our letter dated March 15, 2004, which has been enclosed for your convenience. This is being done in the interest of clarifying apparent misunderstandings or misinterpretations of Ecology's listing policies.

1. General Comment – Policy of Listing Prior to Evaluating Anthropogenic Influences

Based on our review of Ecology's responses to comments submitted by SPU and others, a policy decision has been made by Ecology to include in Category 5 (303(d) List) certain receiving waters that seem to exceed water quality standards even though natural influences cannot be ruled out as the only cause. Parameters such as dissolved oxygen and temperature are examples. This may have advantages from Ecology's perspective of prompting further research into the issue and expediting TMDL development. However, placing a water body in Category 5 (303(d) List) when the cause might not have an anthropogenic basis can have significant disadvantages and generate unintended consequences for local jurisdictions. Specifically, local jurisdictions may find themselves legally prohibited from adding connections to existing drainage lines, constructing new outfalls, or relocating existing outfalls in cases where these conveyance systems discharge into listed water bodies. Delays while waiting for completion of potentially unnecessary TMDLs or additional scientific studies—on the order of years or decades—may unacceptably prohibit a jurisdiction from rehabilitating failing conveyance systems, responding to new development or redevelopment, or reducing upstream flooding.

We acknowledge the usefulness of placing water bodies on a "watch list" and believe Category 2 (Waters of Concern) has been created for just this purpose. Further research can then proceed that will better identify the causes and effects of various influences on the receiving water, possibly leading to the water body being moved to Category 5. However, prematurely placing a receiving water in Category 5 in the absence of clear, scientific justification based on the cause or remedy, could have significant and negative work planning and fiscal impacts on our utility.

*SPU Recommendation:* In consideration of the unintended consequences of listing a water body for a parameter for which natural influences cannot be ruled out, Ecology should remove these receiving waters from the Category 5 (303(d) List) and place them instead as Category 2 (Waters of Concern). Specific to Seattle would be Elliott Bay at Station ELB015,

listed for Dissolved Oxygen. Additional research should be encouraged to better determine cause and effects leading to potential violations of water quality criteria.

## 2. Thornton Creek.

Listing ID: 13600  
Parameter: Copper  
Date Source: King County (unpublished)

*SPU Comment.* Based on the information made available from the Water Quality Program's WQA website, Thornton Creek is being newly listed based on two copper samples (June 11, 2001, and November 14, 2001) collected by King County. SPU obtained these data from King County and provided calculations to Ecology in our letter of March 15 demonstrating that neither concentration exceeded the water quality criteria after accounting for hardness to determine acute and chronic toxicity levels.

*Ecology Response:* "No Change. Review and reassessment of the 20 samples show all samples above minimum detection levels."

*SPU Reply:* Our understanding of the water quality criteria for copper in freshwater, as contained in Chapter 173-201A WAC, is that the specific maximum allowable concentrations are determined by calculating acute and chronic toxic levels using measured concentration and hardness in the water column as input variables. To our knowledge, water quality criteria for copper is not based on minimum detection levels. Furthermore, our examination of 12 other King County samples collected at the same station indicated that there were no other copper concentrations exceeding water quality criteria. Finally, Ecology's reference to 20 samples indicates that Ecology is basing this portion of its WQA on a data pool to which we as a reviewer and stakeholder are not privy.

*SPU Recommendation.* This should be a basic factual matter. SPU recommends

- (1) Ecology provide the data used to support its WQA of Thornton Creek to SPU and other stakeholders. SPU will independently verify the proposed listing based on the procedures contained in Chapter 173-201A WAC.
- (2) Ecology re-verify to its satisfaction that these concentrations exceed water quality criteria using the procedures contained in Chapter 173-201A WAC rather than using the minimum detectable limit as the criteria, as reflected in its response.
- (3) Should Ecology determine the WQA of Thornton Creek to be in error, or if the data used to make the determination cannot be made available in sufficient time for SPU (and others) to review, Ecology should remove Thornton Creek until such time as copper concentrations can be more definitively reviewed.

## 3. Lake Union

Listing ID: 8066  
Parameter: Lead  
Date Source: King County (unpublished)

*SPU Comment.* Based on the information made available from the Water Quality Program's WQA website, Lake Union is being newly listed for lead based on unpublished data taken by

King County. Information provided to SPU by King County indicated that only one sample, collected on February 25, 1998, exceeded the chronic toxicity criterion. Ecology's procedures requires at least two. SPU noted this in our March 15 letter to Ecology.

*Ecology Response:* "Review and reassessment of the data shows 8 excursions. However, since two of these occurred on the same day, only 7 are reported."

*SPU Reply:* Either Ecology inadvertently miscalculated allowable lead concentrations, possibly by not incorporating hardness in the determination, or SPU (and King County) are mistaken in the interpretation of the data.

*SPU Recommendation.* This should be a basic factual matter. SPU recommends

- (1) Ecology provide the data used to support its WQA of Lake Union to SPU and other stakeholders. SPU will independently verify the proposed listing based on the procedures contained in Chapter 173-201A WAC.
- (2) Ecology re-verify to its satisfaction that two or more concentrations exceed water quality criteria, ensuring the procedures contained in Chapter 173-201A WAC are used.
- (3) Should Ecology determine the WQA of Lake Union to be in error, or if the data used to make the determination cannot be made available for SPU (and others) to review, Ecology should remove Lake Union until such time as lead concentrations can be more definitively determined to be violating water quality criteria.

#### 4. Bitter Lake

Listing ID: 12152  
Parameter: Fecal Coliform Bacteria  
Date Source: King County (unpublished)

*SPU Comment.* On the basis on the information made available from the Water Quality Program's WQA website, Bitter Lake is being newly listed based on two samples collected by King County. Based on our understanding of the guidelines contained in Ecology's 2002 Water Quality Program Policy 1-11, "Assessment of Water Quality for the Section 303(d) List," Bitter Lake does not qualify for listing. SPU's assessment was determined by specifically using Ecology's stated procedures for instances when fewer than five samples are available. SPU noted this in our March 15 letter to Ecology. Our determination is based on the following logic:

Two samples:	
August 8, 1998 .....	110 cfu/100 mL
August 16, 1999 .....	80 cfu/100 mL
Percentile criterion for Bitter Lake:.....	100 cfu/100 mL
No. of samples that must violate by more than 10% the percentile criterion for a water body to be placed on the 303(d) list:.....	Two
Number of samples exceeding the Percentile criterion: .....	None

*Ecology Response:* "No change. Listing Policy has considerations for less than five samples."

*SPU Reply:* WQP Policy 1-11 states that when fewer than five samples are available, water bodies will be placed on the 303(d) list when at least 2 samples exceed the 10 percent geometric mean standard or can be placed in the Waters of Concern category for fecal coliform if one sample exceeds the 10 percent geometric mean standard. Use designations have not been specifically identified for Bitter Lake. Either Ecology inadvertently misinterpreted the data when adding Bitter Lake on the 303(d) list for fecal coliform, or SPU is mistaken in our interpretation of the Ecology's Program Policy 1-11.

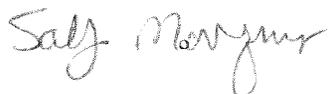
*SPU Recommendation.* This should be a basic factual matter. SPU recommends:

- (1) Ecology remove Bitter Lake from the Category 5 (303(d) List) for fecal coliform and place it on the Category 2 (Waters of Concern) list based on the calculations provided to Ecology by SPU, or
- (2) Ecology provide a more robust explanation than previously given, based on its guidelines reference above, for the inclusion of Bitter Lake based on the two fecal coliform samples as reported.

In summary, SPU is highly concerned with the likely unintended consequences of Ecology prematurely listing certain receiving waters in Category 5 when natural influences cannot be ruled out as the driving factor. Additionally, there are apparent disagreements over how water quality data should be used in Ecology's 2004 listing. In light of this, SPU would like to meet with Ecology technical staff in the near future to discuss the data and protocols for listing water bodies. This will not only help clarify any misunderstandings, but also reinforce the existing partnership between Ecology and the City of Seattle as we work together to improve water quality.

If you have any questions regarding this matter, please to contact Robert Chandler at (206) 386-4576 or by e-mail at [robert.chandler@seattle.gov](mailto:robert.chandler@seattle.gov).

Sincerely,



Sally Marquis  
Director, Resource Planning Division  
Seattle Public Utilities

cc: David Peeler, Department of Ecology  
Nancy Ahern, Seattle Public Utilities  
Darla Inglis, Seattle Public Utilities  
Beth Schmoyer, Seattle Public Utilities  
Robert Chandler, Seattle Public Utilities  
Theresa Wagner, Seattle City Attorney's Office

Enclosure: Comments on January 2003 Draft WQA, SPU Letter dated March 15, 2004.

Enclosure to  
Seattle Public Utilities letter to Department to Ecology  
"Comments on Ecology's Draft Water Quality Assessment"  
Dated: December 17, 2004



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Gregory J. Nickels, Mayor

**Seattle Public Utilities**

Chuck Clarke, Director

March 15, 2004

Mr. Ken Koch  
Department of Ecology  
P.O. Box 47600  
Olympia, WA 98504-7600

Subject: Seattle Public Utilities Comments on Ecology's January 2003 Draft Water Quality Assessment

Dear Mr. Koch:

Thank you for the opportunity to comment on Washington's draft Water Quality Assessment (WQA). Seattle Public Utilities (SPU) is impressed by Ecology's effort to categorize and map the quality of state waters. Ecology has requested input on the WQA, particularly around the following 4 categories:

1. Data that do not fit listing criteria of Ecology WQP Policy 1-11 (9/02) (Cat. 5/303(d)).
2. Data that may fit WQP Policy 1-11, but Ecology's listing criteria seem inappropriate (Cat. 5/303(d)).
3. Technical flaws found in data listing or mapping (Cat. 5/303(d)).
4. Concerns about listings in categories other than Category 5.

The enclosed Technical Appendix provides examples of WQA concerns that fall into the above categories. Given the type of results of our review, we suspect that there may be additional instances where we would wish to comment on the WQA. SPU understands from the public hearing presentation in Everett and from the Water Quality Partnership that Ecology will be producing a second draft 2002/2004 WQA, which will also be subject to public review. SPU's comments are based on that understanding, and SPU looks forward to a second opportunity to carefully review and comment on these important listings.

In addition, we have two general comments that surfaced during our review period:

1. **Data Quality:** A general comment: SPU requests that Ecology reevaluate and compare the *entire* 303(d) list data to Ecology's listing criteria policy, in addition to considering specific comments made by the public.

While reviewing underlying data for waters in and around Seattle, SPU discovered a few instances where there appear to be errors in Ecology's matching of the data against the listing criteria of WQP Policy 1-11. The reason for the discrepancies is not immediately clear, but SPU suspects it might have to do with the modeling/screening method used or limited resources for QA/QC.

To the extent possible, SPU has already identified on the attached Technical Appendix the inconsistencies for waters in which SPU has greatest interest. However, SPU is operating under serious resource constraints and is still reviewing data. Therefore, SPU may choose to submit additional, more specific comments in the coming days. While recognizing that the comment deadline will have passed, and requests Ecology to consider any upcoming comments in the interest of a more accurate Water Quality Assessment and a more appropriately targeted 303(d) list.

2. **Future Use of Category 4(c):** SPU is concerned that Ecology not prejudge the future uses of Categories 1-4, particularly Category 4(c), "Impaired by a Non-Pollutant." It is useful to gather and organize data regarding possible problems with waterbodies outside the 303(d) list, and sharing this information may aid watershed and other planning efforts. However, Ecology has developed few guidelines to determine types of impairment and no criteria for determining level of impairment for Category 4(c). (See WQP Policy 1-11 at p. 23, addressing only "altered water flow.") Therefore, it is difficult to predict whether or not a water body will be listed on Category 4(c), and the means of solving potential problems that are identified are not clear. SPU cautions against assigning any regulatory significance to Category 4(c) for Section 401 certifications, funding, etc. In addition, Category 4(c) impairment issues should not be incorporated into the implementation plans that accompany any TMDL for pollutant; they are beyond the scope of the TMDLs.

Thank you for your consideration of SPU's comments. Working with Ecology to improve water quality is important to SPU, and we will await with interest the revised 2002/2004 Water Quality Assessment.

Sincerely,

Sally Marquis  
Director, Resource Planning  
Seattle Public Utilities

Enclosure: Technical Appendix

**Technical Appendix**  
**SPU comments on 2004 303(d) list**  
 March 15, 2004

**General Comments**

1. It appears that some of the sediment sites may not meet the minimum data requirements established by Ecology for selecting water body segments for the 303(d) list. The Ecology policy (Ecology 2002) specifies that water body segments will be listed for pollutants in sediment when the average of the 3 highest concentrations for any chemical, biological effects, or other reserved criteria exceeds the cleanup screening level as described in WAC 173-204-500. However, there are a number of instances where it appears that fewer than 3 stations were used to establish the listing in the Duwamish and Elliott Bay segments. Examples include Listing ID Numbers 24466, 24494, 24495, and 24498. SPU has not been able to complete a thorough review of the data used and recommends that further review be conducted before finalizing the 303(d) list. We intend to conduct a more detailed evaluation of the data and will submit additional comments to Ecology by March 31.

**Specific Comments**

1. Listing ID 13600: Thornton Creek Station 0434  
 Parameter: Copper  
 Category: 5  
 Media: Water  
 Data source: King County (unpublished)

The 303(d) list reports that copper concentrations in Thornton Creek on June 11, 2001 and November 14, 2001 exceeded the chronic toxicity criterion. However, based on available data provided by King County for station 0434 (Thornton Creek east of Sandpoint Way NE) it does not appear that the copper concentrations measured on these 2 dates exceeded the state standard:

Sample date	Dissolved Copper (mg/L)	Hardness <sup>a</sup> (mg/L as CaCO <sub>3</sub> )	Acute Toxicity <sup>b</sup> (mg/L)	Chronic Toxicity <sup>c</sup> (mg/L)
June 11, 2001	0.00329	30.3	0.0055	0.0041
November 14, 2001	0.00377	31.1	0.0057	0.0042

- a. Hardness calculated from total calcium and magnesium concentrations measured in the sample.
- b. Calculated using the following equation:  $(0.960)e^{(0.9422[\ln(\text{hardness})]-1.464)/1000}$
- c. Calculated using the following equation:  $(0.960)e^{(0.8545[\ln(\text{hardness})]-1.465)/1000}$

None of the other 12 samples analyzed for copper at this station exceeded the water quality standard. Therefore, it is recommended that Thornton Creek be deleted from the 303(d) Category 5 list for copper.

2. Listing ID 12173: Ship Canal at Fremont Bridge  
Parameter: Fecal coliform bacteria  
Category: 5  
Media: Water  
Data source: King County (unpublished) and Hallock (2001)

Monthly sample results are available for the Ship Canal for 1994 and 1999 through 2003. Annual geometric mean values for fecal coliform over the period of record (18 to 30 cfu/100 mL) are consistently below the 50 cfu/100 mL limit for this waterbody, which is designated for extraordinary primary contact use. In addition, only 3 of the 72 samples collected at this station exceeded 100 cfu/100 mL (4 percent). However, 2 of these exceedances occurred in 2002, which resulted in a violation of the percentile criterion for that year. Given the infrequent excursions above the state water quality standards and recognizing that fecal coliform bacteria are generally not considered to be a reliable measure of the presence of pathogenic bacteria or viruses, SPU recommends that the Ship Canal be listed as Category 2 (waters of concern) rather than Category 5.

3. Listing ID 8066: Lake Union at Station 527  
Parameter: Lead  
Category: 5  
Media: Water  
Data source: King County (unpublished)

The 303(d) list reports that lead concentrations in Lake Union exceeded the chronic toxicity criterion on 7 days in samples collected in 1998 and 2000. However, King County reports that only one sample collected on February 25, 1998 exceeded the chronic toxicity criterion (Wilson 2004 personal communication). SPU recommends that the data for this station be reviewed before finalizing the listing. SPU intends to complete the review and submit additional comments to Ecology by March 31.

4. Listing ID 12152: Bitter Lake at Station A739  
Parameter: Fecal coliform bacteria  
Category: 5  
Media: Water  
Data source: King County (unpublished)

This station does not appear to meet the data requirements established by Ecology selecting water body segments for the 303(d) list (Ecology 2002). Only two samples from Bitter Lake have been analyzed for fecal coliform bacteria:

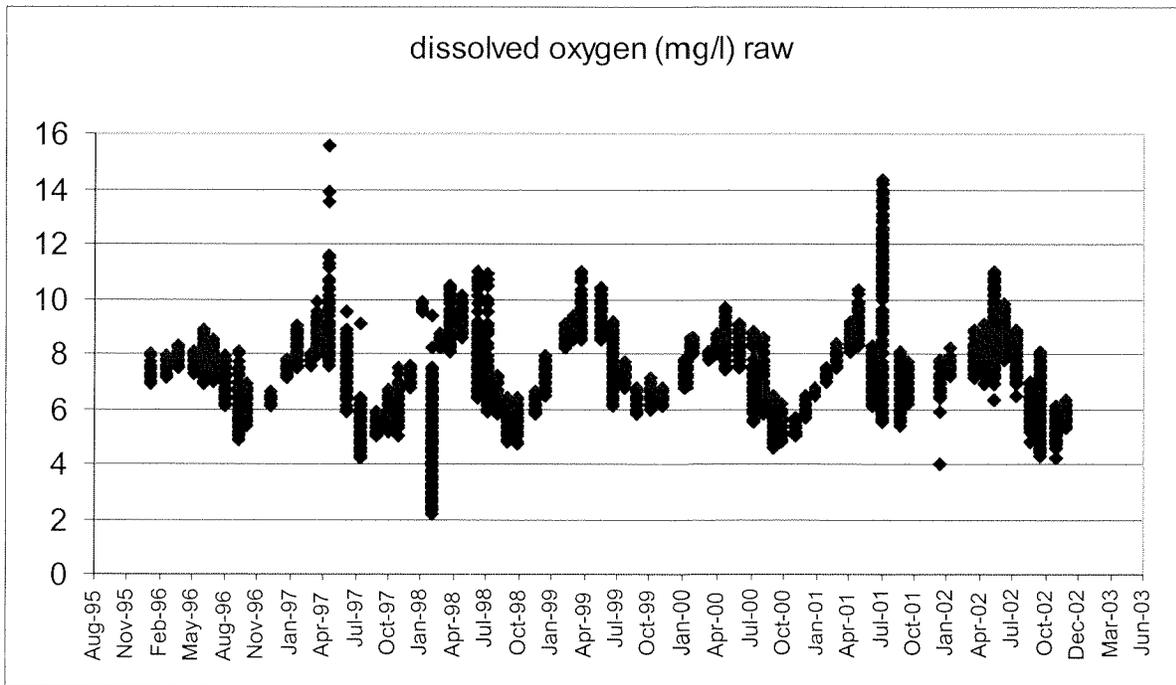
August 8, 1998:	110 cfu/100 mL
August 16, 1999:	80 cfu/100 mL.

According to Ecology's policy, a minimum of 5 samples is required to support placement on the 303(d) list. Alternatively, a site may be listed if at least 2 samples violate the percentile criterion. The percentile criterion for Bitter Lake is 100 cfu/100 mL, therefore only 1 sample is in violation. Based on existing data, SPU recommends that Bitter Lake be removed from the Category 5 list.

5. Listing ID 10167: Elliott Bay at Station ELB015

Parameter: Dissolved oxygen  
Category: 5  
Media: Water  
Data source: Ecology

The dissolved oxygen concentration at Station ELB015 frequently violates the dissolved oxygen criterion (6 mg/L). However, as shown in the figure below, this appears to be a seasonal trend, that occurs regularly in the late summer-early fall at depths greater than about 45 m. Given the seasonal nature of these low dissolved oxygen conditions, this appears to be a natural phenomena. Therefore, it is recommended that ELB015 be removed from the Category 5 list for dissolved oxygen.



7. Listing: Duwamish  
Parameter: All  
Media: Sediments

For all Category 5 listings for the Duwamish for WRIA 9 (including the east waterway, which may or may not be listed as "Duwamish"), Ecology should reevaluate and move segments to Category 4b ("Has a Pollution Control Plan") because sediment cleanup action is being planned or being implemented at a number of sites. Sites include Slip 4, Terminal 117, Plant 2, Diagonal/Duwamish, and the East Waterway. If you wish for additional, more specific information about the sites or cleanup plans is not provided to you in comments by King County, the Port of Seattle, or Boeing, please feel free to contact SPU.

### **References**

Ecology. 2002. Assessment of water quality for the Section 303(d) list. Water Quality Program Policy 1-11. Washington State Department of Ecology, Olympia, WA.

Wilson, Dean. March 12, 2004. Personal communication (e-mail to Jonathan Frodge, King County Department of Natural Resources and Parks Division and Beth Schmoyer, Seattle Public Utilities). King County Department of Natural Resources and Parks, Seattle, WA.