

Federal Definition for Best Available Science

Per the Federal Water Pollution Control Act, Oil and hazardous substance liability section (33 U.S.C. 1321)

“...the term ‘best available science’ means that—

- (A) maximizes the quality, objectivity, and integrity of information, inducing statistical information;
- (B) uses peer-reviewed and publically available data; and
- (C) clearly documents and communicates risks and uncertainties in the scientific basis for such projects.”

Review of Available Methodologies for the Future Identification and Evaluation of Best Available Science

Three methodologies are presented as potential options to assist in the future identification of best available science related to water quality and habitat for the Capitol Lake basin. Use of the selected method, identification of best available science, and evaluation of environmental data would occur as part of the Environmental Impact Statement, included as part of Phase II for Capitol Lake Long-Term Management Planning.

The process to select these methodologies to identify best available science included:

- Reviewing a number of state, federal and international methods that were widely accepted and used
- Focusing on methods that would be suitable for review of environmental data such as water quality or habitat
- Confirming that the methods were commonly used and reflected current best practice
- Confirming that the methods were provided in formal guidance or codified in law

Sources:

Washington State Legislature. 2003. Washington Administrative Code 365-195-905, Criteria for determining which information is the “best available science.” <http://apps.leg.wa.gov/wac/default.aspx?cite=365-195-905>. Accessed May 9, 2016.

U.S. Environmental Protection Agency (USEPA). 2012. *Guidance for Evaluating and Documenting the Quality of Existing Scientific and Technical Information: Addendum to “A Summary of General Assessment Factors for Evaluating the Quality of Scientific and Technical Information.”* Prepared for the USEPA by members of the Peer Review Advisory Group of the Science and Technology Policy Council. December.

Klimisch, H.-J., M. Andreae, and U. Tillman. 1997. “A Systematic Approach for Evaluating the Quality of Experimental Toxicological and Ecotoxicological Data.” *Regulatory Toxicology and Pharmacology* 25(1): 1–5. February.

Summary of the Methodologies Identified for Discussion



Washington State Criteria (Chapter 365-195 WAC Growth Management Act)

- Provides criteria to assist in determining whether information constitutes as best available science
- Provides a general indication of the characteristics of a valid scientific process in a table format
- Guides Washington cities and counties through inclusion of best available science in newly adopted policies and regulations to protect the functions and values of critical areas
- Used by Ecology and WDFW for the synthesis and summary of literature relevant to the science and management of wetlands and environmentally critical areas in the state of Washington



U.S. Environmental Protection Agency Guidelines

- Provides guidance for collecting and assessing existing scientific and technical information using five general assessment factors
- Establishes minimum review and documentation requirements for assessing and accepting data from other organizations
- Ensures that scientific and technical information comply with the agency’s formal Information Quality Guidelines
- Relevant to any existing scientific and technical information used to support Agency decision making



Internationally-Recognized Scoring System

- Provides a scoring system with different reliability categories, including standardized criteria for characterizing and differentiating the quality of data
- Suggests that a brief written justification should be provided after the scientific data is evaluated and assigned a code or category of reliability
- Intended to harmonize similar processes in data evaluation internationally
- Used in risk assessments to evaluate whether data is complete and valid, and confirm that the data was derived using current standards

Capitol Lake Basin Water Quality and Habitat Technical Documents to be Reviewed as Potential Best Available Science in a Future EIS Process as Part of Phase II

*These documents provide science related to **water quality** and **habitat** and would be relevant to the evaluation of long-term management options and the impacts of retaining or removing the dam. These documents would be reviewed during a future EIS process as part of Phase II.*

*Technical studies regarding **Water Quality** include those from the entire watershed to capture waterbodies affecting or affected by Capitol Lake, and also include factors affecting water quality such as water quantity or sediment characterization. **Habitat** is inclusive of habitat for fish, wildlife, and other aquatic organisms, and includes other information relevant to habitat, such as habitat restoration plans or science regarding invasive species.*

Document	Brief Summary
Initial Technical Document List as Compiled by Floyd Snider	
Deschutes River, Percival Creek, and Budd Inlet Tributaries Temperature, Fecal Coliform Bacteria, Dissolved Oxygen, pH, and Fine Sediment Total Maximum Daily Load: Water Quality Improvement Report and Implementation Plan - Final Washington State Department of Ecology, December 2015 Publication No. 15-10-012	Builds upon the 2012 study involving data collection that characterized the sources and processes relevant to the existing impairments, and developed analytical tools to simulate the potential benefits of various management strategies. Provides an approach to controlling pollution in the Deschutes River, Percival Creek, and Budd Inlet, and includes detailed steps to meet those goals.
Deschutes River, Capitol Lake, and Budd Inlet Total Maximum Daily Load Study: Supplemental Modeling Scenarios Washington State Department of Ecology, September 2015 Publication No. 15-03-002	Summarizes supplemental modeling analyses for Capitol Lake and Budd Inlet. States that the Capitol Lake dam causes the largest negative impact on dissolved oxygen of any activity evaluated due to the dam's combined effects of changing circulation as well as nitrogen and carbon loads. Concludes that adding advanced nitrogen removal treatment to three small wastewater treatment plants discharging to Budd Inlet, shifting the LOTT outfall north, and reducing recreational or marina boat discharges would not improve oxygen conditions significantly. Concludes that reducing Deschutes River temperature, conducting alum treatments in the lake, eliminating stormwater sources, and dredging the lake to a nominal 13 feet average depth would not improve water quality in Capitol Lake significantly.
2015 Survey for <i>Potamopyrgus Antipodarum</i> (New Zealand Mudsnaill) within a Five-Mile Radius of Capitol Lake, Thurston County, Washington Edward J. Johannes, Deixis Consultants, June 2015	Updates previously reported findings and concludes that the mudsnail is still present throughout the north and middle basin. The mudsnail has also been found at one site along the Deschutes River; however, no significant spread within a 5-mile radius of Capitol Lake was reported.
Anthropogenic Dissolved Oxygen Impacts in Budd Inlet: Comparing Influences from a Lake or Estuary Washington State Department of Ecology (prepared by A. Ahmed, et al.), 2014 Publication No. 14-03-021	Provides initial findings from the Budd Inlet, Capitol Lake, and Deschutes River Total Maximum Daily Load Study, particularly focusing on the differences between influences to Budd Inlet from a Lake or Estuary management option.
2013 Survey for <i>Potamopyrgus Antipodarum</i> (New Zealand Mudsnaill) within a Five-Mile Radius of Capitol Lake, Thurston County, Washington Edward J. Johannes, Deixis Consultants, June 2013	Confirms that the mudsnail is spreading throughout the Capitol Lake basin.
Deschutes River, Capitol Lake, and Budd Inlet Temperature, Fecal Coliform Bacteria, Dissolved Oxygen, pH, and Fine Sediment Total Maximum Daily Load Technical Report: Water Quality Study Findings Washington State Department of Ecology, June 2012 Publication No. 12-03-008	This Ecology report summarizes the technical basis for a water cleanup plan (Total Maximum Daily Load study), which was conducted to determine the targets that enable water bodies to meet standards. However, water quality improvement targets are not quantified for Capitol Lake and Budd Inlet; the report defers to later work that will be performed by Ecology.
Distribution Survey for <i>Potamopyrgus Antipodarum</i> (New Zealand Mudsnaill) in the North and Middle Basins of Capitol Lake, Thurston County, Washington Edward J. Johannes, Deixis Consultants, July 2011	Establishes through a series of samples collected from Capitol Lake that the New Zealand Mudsnaill is present throughout the north basin, and within a majority of the middle basin.
Effect of Stocking in the East Mitigation Pond (Capitol Lake), Olympia, Washington Michelle Marko, et al., Concordia College, March 2011	The study demonstrates the ability of the milfoil weevil (<i>Euhrychiopsis lecontei</i>) to survive stocking, and to overwinter successfully. It is expected that the milfoil weevil could grow to populations that would control Eurasian watermilfoil in small water bodies.

Capitol Lake Basin Water Quality and Habitat Technical Documents to be Reviewed as Potential Best Available Science in a Future EIS Process as Part of Phase II

Document	Brief Summary
Initial Technical Document List as Compiled by Floyd Snider (continued)	
Capitol Lake Alternatives Analysis – Final Report Herrera Environmental Consultants, July 2009	Provides a summary of potential effects to fish and wildlife habitat based on the findings of the WDFW report, "Implications of Capitol Lake Management for Fish and Wildlife." Summarizes findings from Ecology's "Water Quality Study Findings," and other similar reports to describe potential impacts to water quality.
Implications of Capitol Lake Management for Fish and Wildlife The Washington Department of Fish and Wildlife, September 2008	Reports that estuarine restoration (Estuary and Dual Basin Options) are anticipated to favor more special designation species than the lake options and support fewer exotic species than the lake options.
Generalized Surficial Geologic Units and Approximate Extent of Vashon Puget Lobe Ice, Plate 1 Washington State Department of Ecology (prepared by K.A. Sinclair and D.B. Bilhimer), 2007 Publication No. 07-03-002	Geologic map providing generalized surficial geological units to support the hydrogeologic investigation.
Study Well Locations, In-Stream Piezometer Thermographs, and Stream Seepage Results for the Deschutes River and Percival Creek Watersheds, Plate 2 Washington State Department of Ecology (prepared by K.A. Sinclair and D.B. Bilhimer), 2007 Publication No. 07-03-002	Graphical data from the hydrogeologic investigation.
Assessments of Surface Water/Groundwater Interactions and Associated Nutrient Fluxes in the Deschutes River and Percival Creek Watersheds, Thurston County Washington State Department of Ecology, January 2007	This report describes the results of a hydrogeologic investigation that was undertaken to support a Total Maximum Daily Load evaluation of the Deschutes River and Percival Creek watersheds. Field techniques were employed to evaluate the direction, volume, and timing of surface water and groundwater interactions, and to estimate the potential loading of phosphorus- and nitrogen-based nutrients in groundwater that contributes to reaches of the Deschutes River and Percival Creek.
Interim Results from the Budd Inlet, Capitol Lake, and Deschutes River Dissolved Oxygen and Nutrient Study Washington State Department of Ecology (prepared by Mindy Roberts and Greg Pelletier), 2007	Provides interim results from samples collected along the length of the Deschutes River and Capitol Lake as well as tributaries that were analyzed for nutrient content, and for oxygen, pH, temperature, and conductivity.
Addendum to the Deschutes River Estuary Restoration Study: Analysis and Summary of Benthic Invertebrates from Selected Benthic Cores Ralph J. Garono et al., Earth Design Consultants, January 2007	An addendum to the existing Biological Conditions Report to provide additional detail regarding the type of organisms that may inhabit mud and sand flats of a restored Deschutes Estuary, and what the ecological roles of those organisms may be. Concludes that if the estuarine habitat develops as predicted, then the restored Deschutes Estuary should support a diverse and productive benthic community.
Deschutes River Estuary Restoration Study Biological Conditions Report Ralph J. Garono et al., Earth Design Consultants, September 2006	Combines field data with results of the USGS hydrodynamic and sediment transport model to describe the biological communities that would likely develop in a restored estuary. The USGS model results and literature review indicate that a restored Deschutes Estuary will harbor organisms mainly associated with mud and sand flats, and that areas dominated by vegetated salt marsh communities will be rare.
Capitol Lake Vertebrate and Invertebrate Inventory Herrera Environmental Consultants, September 2004	Agency report providing an inventory of fish, wildlife, and invertebrates that live in Capitol Lake and its shorelines.
Salmon Habitat Protection and Restoration Plan for Water Resource Inventory Area 13, Deschutes Thurston Conservation District Lead Entity, July 2004	Thurston County plan to present a multi-species approach for developing habitat project lists that lead to restoring and protecting salmon habitat through voluntary projects.
Heritage Park Water and Sediment Quality Assessment Thurston County Environmental Division, January 2003	A report describing the results of the Heritage Park water and sediment quality assessment. Also included in this report is additional sampling data obtained by the City of Olympia during the lake drawdown in July and August 2002.

Capitol Lake Basin Water Quality and Habitat Technical Documents to be Reviewed as Potential Best Available Science in a Future EIS Process as Part of Phase II

Document	Brief Summary
Initial Technical Document List as Compiled by Floyd Snider (continued)	
Capitol Lake Adaptive Management Plan Results for Budd Inlet-Capitol Lake Simulations Final Report Brown and Caldwell, October 2000	The study concludes that eliminating the Capitol Lake drawdown would improve water quality in the West Bay of Budd Inlet, and that substantial water quality improvements to Budd Inlet could be realized through a restored Deschutes Estuary. The study relies on the <i>Budd Inlet Scientific Study, Final Report, Brown and Caldwell et al., August 1998</i> and the <i>LOTT NPDES Permit Modifications Modeling, Revised Interim Report, Brown and Caldwell et al., November 1999</i> .
Deschutes River Off-Channel Habitat Inventory (Maps 1 thru 18) Thurston Regional Council for Squaxin Island Tribe Natural Resources, 1999	Series of maps (18 total) showing habitat within WRIA 13.
1997 Capitol Lake Drawdown Monitoring Results Entrance, November 1997	A memorandum describing results of the monitoring program for the 1997 Capitol Lake drawdown, including monitoring results related to shoreline habitat and water quality.
A Study of Rates and Factors Influencing Channel Erosion along the Deschutes River, Washington, with Application to Watershed Management Planning Brian Collins, April 1994	Study regarding erosion along the Deschutes River, between its inflow to Capitol Lake at RM 2 and Deschutes Falls at RM 41. The report is intended to support planning objectives including: reducing flooding, reducing loss of land to bank erosion, improving aquatic habitat, and slowing the delivery of sediment to Capitol Lake.
Budd Inlet/Deschutes River Watershed Characterization, Part II, Water Quality Study Thurston County/Washington State Department of Ecology, April 1993	Report prepared by Thurston County, in collaboration with Ecology, and providing results from water quality monitoring along the Deschutes River and tributaries, as well as Budd Inlet and Capitol Lake.
Budd Inlet/Deschutes River Watershed Characterization, Part I, Watershed Description Thurston County/Washington State Department of Ecology, March 1993	Predecessor to the Part II report, describing existing conditions of the natural environment, human environment, and activities throughout the watershed.
Capitol Lake Wetland Development Feasibility Analysis Entranco Engineers, November 1990	A feasibility study of three alternative wetland development concepts for the south and middle basins that would improve water quality in the north basin, defer maintenance dredging, and enhance fish and wildlife habitat.
Capitol Lake North Basin Shoreline Erosion Control Study Entranco Engineering, November 1990	Summarizes the present shoreline erosion conditions of the north basin of Capitol Lake and recommends conceptual repair actions and preliminary costs for planning purposes. The project included a condition survey of the entire north basin shoreline.
Deschutes River/Budd Inlet Watersheds Puget Sound Cooperative River Basin Team, June 1990	A USDA report that discusses forest, rural, and agricultural portions of the watersheds and their impacts on water quality. The report also includes a summary of findings with conclusions and recommendations for the improvement of water quality.
Budd Inlet Action Plan: Initial Data Summaries and Problem Identification U.S. Environmental Protection Agency (TetraTech), April 1988	The report provides information describing the geographic extent and severity of environmental degradation in Budd Inlet. Summaries of existing data are provided for the following indicators of environmental degradation: contaminant sources, eutrophication, microbial contamination, and chemical contamination of sediment and biota. Data that were collected from 1982 to 1987 are presented.
A Plan to Make Capitol Lake Swimming Beach Useable The ORB Organization, 1987	A report describing results from ambient water quality monitoring; intensive stream sampling; marina sampling; sediment sampling; and other special studies to provide a better understanding of water quality throughout the watershed.
Relationships Between Water Quality and Phosphorus Concentrations for Puget Sound Region Lakes Robert J. Gilliom, June 1984	The purpose of the study is to formulate predictive relationships between mean summer total phosphorus concentration and mean summer chlorophyll concentration and Secchi disc transparency for use in the management of Puget Sound region lakes. The predictive relationships developed in the study complement previously developed methods for estimating background and nonpoint source pollution loading for lakes in the region.
Capitol Lake Restoration Analysis Washington State Department of General Administration (prepared by Entranco Engineers), January 1984	A study addressing the prevention of fish kill, the current rate of sediment deposition, the current extent of water quality problems, and the performance of the swim beach restoration.
Deschutes River/Capitol Lake Water Quality Assessment Lynn R. Singleton/Washington State Department of Ecology, September 1982	A literature review that focuses on water quality issues in the watershed.

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Document	Brief Summary
Initial Technical Document List as Compiled by Floyd Snider (continued)	
Water Quality in Capitol Lake Olympia, Washington Ecology (prepared by CH2M HILL), June 1978 Publication No. 78-e07	Concludes that Capitol Lake has experienced chronic algal, turbidity, coliform, and sedimentation problems since it was constructed in 1951. Studies show that the water quality in Capitol Lake is affected by natural and manmade causes. The major detriments to water quality in the watershed are predominantly nonpoint sources of pollution along the Deschutes River, but some point sources exist within the lake.
Hydraulic and Water Quality Research Studies of Capitol Lake Sediment and Restoration Problems College of Engineering, Washington State University, September 1975	A database and recommendation related to sedimentation, water quantity, and water quality, prepared to inform planning, design, and management decisions for dredging, maintenance, and improved utilization of Capitol Lake. Includes a sediment study and water quality study.
Additional Technical Documents Provided by the Technical Committee and Executive Work Group Members	
Deschutes River Coho Salmon Biological Recovery Plan Prepared by Confluence Environmental for the Squaxin Island Tribe Natural Resources Department, September 2015	The Plan provides a synthesis of available information on the basin, an analysis and recommendations for the priority reaches in the watershed for habitat restoration and protection projects, priority types of actions to implement, and estimate of costs associated with implementation of the recommended restoration work.
Thurston County Water Resources Annual Report 2014 Thurston County, August 2015	The 2014 annual report providing water quality data collected within the Capitol Lake basin, conducted as part of an ambient surface water monitoring program, funded by the local storm and surface water utilities of Thurston County and the Cities of Lacey, Olympia, and Tumwater. The report discusses issues with water quality, reports water quantity and tracks trends in stream flow and water quality over time. A number of summary tables and comparisons of water quality data to water quality standards are included.
Thurston County Water Resources Annual Report 2013 Thurston County, August 2014	The 2013 annual report providing water quality data collected within the Capitol Lake basin, conducted as part of an ambient surface water monitoring program, funded by the local storm and surface water utilities of Thurston County and the Cities of Lacey, Olympia, and Tumwater. The report discusses issues with water quality, reports water quantity and tracks trends in stream flow and water quality over time. A number of summary tables and comparisons of water quality data to water quality standards are included.
Thurston County Water Resources Annual Report 2012 Thurston County, August 2013	The 2012 annual report providing water quality data collected within the Capitol Lake basin, conducted as part of an ambient surface water monitoring program, funded by the local storm and surface water utilities of Thurston County and the Cities of Lacey, Olympia and Tumwater. The report discusses issues with water quality, reports water quantity and tracks trends in stream flow and water quality over time. A number of summary tables and comparisons of water quality data to water quality standards are included.
Thurston County Water Resources Annual Report: Water Resources Monitoring Report, 2009-2010 Water Year, 2010-2011 Water Year Prepared by Thurston County Public Health and Social Services Department, Environmental Health Division and Thurston County Resource Stewardship Department, Water Resources Division, August 2012	The 2011 annual report providing water quality data collected within the Capitol Lake basin, conducted as part of an ambient surface water monitoring program, funded by the local storm and surface water utilities of Thurston County and the Cities of Lacey, Olympia, and Tumwater. The report discusses issues with water quality, reports water quantity, and tracks trends in stream flow and water quality over time. A number of summary tables and comparisons of water quality data to water quality standards are included.
Sediment Characterization Study, Budd Inlet, Olympia, WA, Final Data Report Prepared by SAIC for Ecology, March 2008	A study conducted for Ecology to determine the nature and extent of dioxins/furans in Budd Inlet sediments, evaluate potential sources, and measure the uptake of dioxins/furans in ecological receptors by analyzing fish and benthic organism tissue.
Final Deschutes River Watershed Recovery Plan: Effects of Watershed Habitat Conditions on Coho Salmon Production Prepared by Anchor Environmental for the Squaxin Island Tribe Natural Resources Department, January 2008	The investigation focused on the effects of freshwater habitat conditions on the production of coho, using a habitat-based population simulation model. The model applies information on habitat features influencing the productivity and capacity of the river to estimate the number of coho surviving each life stages. The model allows the user to input watershed data on habitat conditions, coho population distributions, and the functional relationships between habitat and coho production.
Mainstem Deschutes River Bank Erosion: 1991 to 2003 Prepared by Northwest Indian Fisheries Commission for the Squaxin Island Tribe Natural Resources Department, December 2005	Supporting documentation for the development of a Total Maximum Daily Load for fine sediment/bank erosion along the mainstem Deschutes River for the time period from 1991 to 2003, and compared with bank erosion estimates for the previous time period of 1981 to 1991. Estimates of fine sediment from bank erosion are also compared with estimates from erosion from unpaved roads.

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Document	Brief Summary
Additional Technical Documents Provided by the Technical Committee and Executive Work Group Members (continued)	
Capitol Lake, Washington, 2004 Data Summary Jodi Eshleman, Peter Ruggiero, Etienne Kingsley, Guy Gelfenbaum, and Doug George, U.S. Geological Survey, 2005	A collection and presentation of bathymetry data in Capitol Lake for the calculation of sediment infilling rates and development of bottom boundary conditions for numerical models of water quality, sediment transport, and morphological change. The data were collected in 2004, and were supplemented with data from sediment samples collected in 2005.
Net Water Movement in Budd Inlet: Measurements and Conceptual Model, Proceedings of the Puget Sound Research Conference, 12–13 March 1998, Ebbesmeyer, C.C., C.A. Coomes, V.S. Kolluru, and J.E. Edinger, Seattle, Washington. Puget Sound Water Quality Action Team, March 1998	A year-long field program assessing the effect on water movement of permitting additional effluent into Budd Inlet from the Lacey-Olympia-Tumwater-Thurston County wastewater treatment plant. The results suggest that tidal pumping maintains a vigorous circulation year-round in Budd Inlet, secondarily controlled by discharge from Capitol Lake.
Budd Inlet Focused Monitoring Report for 1992, 1993, and 1994 Washington State Department of Ecology, July 1997 Publication No. 97-327	A study to assess whether a reduction in nutrient loading to the inlet would result in immediate changes in nutrient, phytoplankton, and dissolved oxygen concentrations in the water column. The study covered 2 years prior and 1 year following nitrogen removal.
Comprehensive circulation and water quality study of Budd Inlet, Southern Puget Sound water quality assessment study, Final report Prepared by URS Corporation for the Washington State Department of Ecology, July 1986	A study to identify the cause of low dissolved oxygen concentrations that occur in Budd Inlet in the late summer and early fall and contributed to fish kills and water quality violations. A number of surveys were conducted: (1) point source surveys to measure the contribution of algal nutrients, benthic oxygen demand, dissolved oxygen, and fecal coliform; (2) non-point source bacteriological surveys; (3) synoptic water quality and current meter studies; (4) a sediment oxygen demand and benthic nutrient flux study; (5) nutrient and dissolved oxygen budgets using a box model; and (6) development of a circulation and water quality model.
Additional Technical Documents Provided by the Community	
Capitol Lake: The Healthiest Lake in Thurston County. David H. Milne, PhD, June 2015	A report discussing water quality within Capitol Lake, as compared to existing state and federal standards, and in comparison to other lakes within the same management area. The report also includes a discussion of aquatic life associated with the existing Capitol Lake basin.
Modeling the Hydrodynamic and Morphologic Response of an Estuary Restoration Douglas A. George, et al., July 2012	A study investigating estuary evolution using the hydrodynamic and sediment transport model, Delft3D to study the response of a dammed tidal basin to restored tidal processes. The model was developed to predict the changes in physical habitat in the Capitol Lake basin resulting from restoration to an estuary.
Budd Inlet Scientific Study Final Report Aura Nova Consultants, Inc., Brown and Caldwell, Evans-Hamilton, J.E. Edinger and Associates, Washington State Department of Ecology, and the University of Washington Department of Oceanography, 1998	A scientific study designed to model circulation in Budd Inlet, to evaluate potential impacts of the Lacey, Olympia, Tumwater and Thurston County (LOTT) wastewater treatment plan on Budd Inlet and its nutrient levels and to better understand the contributors to low dissolved oxygen levels and fecal coliform bacteria in Budd Inlet. The potential effects to water quality in Budd Inlet from Capitol Lake were also evaluated.

Note:

Additional documents related to the Capitol Lake basin, or providing science from comparable projects, have been retained as part of the project bibliography, but are not included here if they are outside of the scope of this document review, which focuses on science related to water quality and habitat in the Capitol Lake basin.

The subject of peer review was raised during discussions regarding the method for identifying Best Available Science. Peer review is a characteristic of a valid scientific process according to guidance provided in WAC 365-195-903, which is the methodology selected as the most appropriate for future identification of Best Available Science related to water quality and habitat for the Capitol Lake basin. The following is a summary of peer review and its related use in the identification of Best Available Science, and documents the relevant federal and state policy.

What is the definition of Peer Review?

“Peer review is a documented process for enhancing a scientific or technical work product so that the decision or position taken by the Agency, based on that product, has a sound, credible basis.” (USEPA 2015)

“Peer review is an objective and independent evaluation of the credibility of a scientific publication by a qualified person in the same or similar field of expertise, who is not associated with the work.” (Ecology 2012)

How is Peer Review used in the evaluation of Best Available Science?

“The goal of peer review is to obtain an independent review of the product from experts who have not contributed to its development.” Peer review is used to enhance the credibility and acceptance of an agency decision based on the work product or findings from a set of work products. (USEPA 2015)

What official guidance or policy exists for Peer Review that is also relevant to the evaluation of Best Available Science?

Guidance from the U.S. Environmental Protection Agency

- Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency (USEPA 2002)
- Peer Review Handbook, 4th Edition (USEPA 2015)

Policy of the Washington State Department of Ecology

- Water Quality Program Policy: Ensuring Credible Data for Water Quality Management (Ecology 2006)
- Guidelines for Technical Document Review: Environmental Assessment Program (Ecology 2000)

Regulations adopted by Washington State

- WAC 365-195-905: Criteria for determining which information is the “best available science” (Washington State Legislature 2003)
- RCW 34.05.271 and 272: Department of Fish and Wildlife and Department of Ecology (respectively) – Significant agency action – Identification and categorization of sources of information used (Washington State Legislature 2015a and 2015b)

How do you determine if someone is qualified to perform a Peer Review?

The Washington State Criteria for determining which information is the Best Available Science provides that a qualified scientific expert is determined by: professional credentials and/or certification, any advanced degrees earned in the pertinent scientific discipline from a recognized university, the number of years of experience in the pertinent scientific discipline, recognized leadership in the discipline of interest, formal training in the specific area of expertise, and field and/or laboratory experience with evidence of the ability to produce peer-reviewed publications or other professional literature. (Washington State Legislature 2003)

What guidance exists regarding the difference between public comment and Peer Review?

As part of the Peer Review Handbook, the USEPA provides guidance on the difference between public comment and peer review. Specifically, “the critical distinction between public comment and peer review is that public comment does not necessarily draw the kind of independent, expert information and in-depth analyses expected from the peer review process. Public comment frequently is open to all issues, and may be solicited for policy purposes or as part of the regulatory process, whereas the peer review process focuses on scientific and technical issues specified in the peer review charge.” (USEPA 2015)

When will the review of Best Available Science and Peer Review of certain technical documents be completed as part of the Capitol Lake Long-Term Management Planning process?

The review of Best Available Science related to water quality and habitat for the Capitol Lake basin will be completed by qualified scientific experts as part of an Environmental Impact Statement process in the future Phase II for Capitol Lake Long-Term Management Planning. During this effort, certain technical documents may be peer reviewed to ensure that decisions made by the Department of Enterprise Services and other collaborating agencies are sound, credible, and based on the Best Available Science.

List of References

- U.S. Environmental Protection Agency (USEPA). 2002. *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency*. EPA/260R-02-008. October.
- _____. 2015. *Peer Review Handbook, 4th Edition*. EPA/100/B-15/001. October.
- Washington State Department of Ecology (Ecology). 2000. *Guidelines for Technical Document Review: Environmental Assessment Program*. 18 April.
- _____. 2006. *Water Quality Program Policy, Chapter 2: Ensuring Credible Data for Water Quality Management*. September.
- Washington State Legislature. 2015a. *Revised Code of Washington, Section 34.05.271: Department of fish and wildlife—Significant agency action—Identification and categorization of sources of information used*. 30 December.
- _____. 2015b. *Revised Code of Washington, Section 34.05.272: Department of ecology—Significant agency action—Identification and categorization of sources of information used*. 30 December.
- _____. 2003. *Washington Administrative Code, Section 365-195-905: Criteria for determining which information is the “best available science.”*