

**Attachment B
to Declaration of Robert Annear**

Geosyntec
consultants

Resume

ROBERT L. ANNEAR, PH.D., P.E.

**Water Quality and Hydrodynamic Modeling
Water Resources Engineering
Sediment Transport Modeling
Fate and Transport Modeling
Expert Consultation**

EDUCATION

Ph.D., Portland State University, Civil and Environmental Engineering, 2007
M.S., Portland State University, Civil Engineering, 1997
B.S., Boston University, Aerospace Engineering, 1993

REGISTRATIONS AND CERTIFICATIONS

Environmental Engineer (P.E.), OR: 53757; ID: 14190; WA: 46812; FL: 71806
Graduate Certificate in Hydrology

PROFESSIONAL HISTORY

Geosyntec Consultants (Senior Engineer) January 2011-Current
Portland State University, Department of Civil and Environmental Engineering (Affiliated Faculty) June 2008-Current
DHI Water & Environment, Inc., (Senior Engineer and Vice President), February 2008
November 2010
Portland State University, Department of Civil and Environmental Engineering, (Research Faculty) 2001 – 2008
Independent Consulting (Water Resources) 1995 – 2008

CAREER SUMMARY

As a water resources engineer, Dr. Annear is principally involved in hydrodynamic and water quality modeling with a focus on regulatory permits and requirements, surface water system assessments, Total Maximum Daily Loads (TMDL) development and implementation, Endangered Species Act (ESA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), Natural Resource Damage Assessment (NRDA) studies, Federal Energy Regulatory Commission (FERC) relicensing of hydropower facilities and water quality management for multiple uses (supply, salmon, recreation etc.). He has over 15 years of experience in the development and calibration of hydrodynamic and water quality models (1-D & 2-D) throughout the U.S. He has been involved in

several RCRA projects involving groundwater, surface water, sediment transport, and fate and transport processes. His experience includes reviewing 2-D hydrodynamic and sediment transport and fate & transport models of riverine and estuarine systems. He is Affiliated Faculty at Portland State University, teaching undergraduate and graduate courses and has more than 10 years of experience teaching water quality modeling training workshops.

Dr. Annear has considerable experience in leading multidisciplinary teams of professionals, managing projects, budgets, work flow processes, quality control and assurance, on call contracts and complex project implementation and developing monitoring plans and conducting field work. He has conducted numerous peer reviews of surface water models for agencies such as the U.S. EPA, Oregon DEQ, WA Dept. of Ecology, and the U.S. Bureau of Reclamation and has also served as a reviewer for various water resource and hydrologic journals and has served on EPA national water quality grant review panels.

PROJECT EXPERIENCE

Portland International Airport Stormwater Services, Port of Portland, Senior Engineer (2012-present). As part of an on-call contract reviewed the current permit regulatory environment, monitoring requirements, and monitoring programs in place in order assess the first step in developing a pollutant load modeling approach. Participated in data gap assessment and provided recommendations for additional data collection. Assisted the Port staff with strategy development for their upcoming Master Planning process.

Mono Basin Operations and Facilities Management Plan, Mono County, California, Los Angeles Department of Water & Power (LADWP), Senior Engineer (2012-present). LADWP is the largest municipal water utility in the nation. During a previous project Geosyntec provided recommended stream restoration flows to resolve outstanding issues related to the balance of stream flows for water supply and environmental objectives in the Mono Basin. Developing a new Mono Basin Operations and Facilities Management Plans for LADWP to implement the new stream flows and implement with field crews.

Anacostia River, Confidential Client, Petroleum Spill Modeling (2011-present). As part of NRDA study a 2-D hydrodynamic and petroleum spill model is being developed to better understand the extent of a historical spill along the Anacostia River. The model results and field studies will be used to assess environmental impacts by local regulators.

Portland Harbor, Lower Willamette River, Confidential Client, Hydrodynamic Model Reviewer and Expert, (2011-present). Conducted preliminary assessment of 2-D river hydrodynamic and sediment transport model of the Portland Harbor (CERCLA) for

accuracy and in assessing local conditions for the client. Provided expert advice and recommendations for follow-on hydrodynamic and sediment transport modeling for site specific conditions.

Scappoose Bay, Lower Columbia River, Kaiser Gypsum Company, Inc., Hydrodynamic Model Reviewer and Expert, (2011-present). Conducted review of 2-D river and estuarine bay hydrodynamic model calibration and validation. Provided expert advice and recommendations for model improvements for remediation alternatives analysis.

Water Quality Modeling Workshop Training and Technical Support, US Army Corps of Engineers (Portland and Walla Walla District). Project Manager and Technical Lead (2011-present). Developed curriculum for and lead a 3-day workshop on use of the 2-D hydrodynamic and water quality model, CE-QUAL-W2. The workshop included hydrodynamic and water quality modeling theory; the mechanics of using the model; recently added algorithms; and modeling studies best practices including: developing scopes and budgets, documentation, model selection, conducting model peer reviews and technical considerations for modeling projects. The project also included providing on-call technical support to Corps staff using CE-QUAL-W2.

Mono Basin Stream Flow and Export Development, Mono County, California, Los Angeles Department of Water & Power, Senior Engineer (2011-present). The Los Angeles Department of Water & Power (LADWP) is the largest municipal utility in the nation and was established more than 100 years ago to deliver reliable, safe water and electricity supplies to the residents and businesses in Los Angeles. The Water Services organization of LADWP, whose goal is to provide customers with reliable, high quality, and competitively priced water services in a safe and publicly and environmentally responsible manner. Geosyntec has been providing technical assistance to LADWP in a process to develop a comprehensive set of stream flow alternatives to resolve outstanding issues related to the balance of stream flows for water supply and environmental objectives in the Mono Basin. Conducted preliminary review of past studies to identify work plans and methodologies for developing new water balance, hydrodynamic and temperature models for key surface water resources in Mono Basin. Provided recommendations for follow on studies to refine the current understanding of operational opportunities to meet stream flow and water quality objectives.

Brawley Landfill Closure, Imperial County, California – Imperial County Department of Public Works, Senior Engineer (2011-present). The County owns and operates the Brawley Solid Waste Site (BSWS), a Class III non-hazardous solid waste landfill that is bounded to the north by the New River. River training structures such as bendway weirs needed to be designed to protect the landfill at two critical bends in the river for the 100 year flood event by minimizing the scour at the toe of the landfill and by diverting the thalweg away from the bank to the center of the New River at BSWS. Served as senior reviewer of a 2-D hydrodynamic model (RiverFLO-2D) to support design mitigation strategies to protect the landfill. Conducted a review of the hydrodynamic model results of the design alternatives. The current phase of the project involves development and review of a sediment transport model to refine the bendway

weir designs.

Water Quality Modeling Technical Support, Turbidity Modeling, New York City, Department of Environmental Protection, New York. Senior Engineer (2010-2011). Provided independent technical advice and expertise for improving model performance for several CE-QUAL-W2 models of drinking water reservoirs for New York City's water supply. As part of an expert panel a peer-review was conducted of the temperature and turbidity models for Ashokan, Schoharie, and Kensico Reservoirs. The models are being used in larger decision support system to help the City better manage their 19 drinking water reservoirs.

Special Operations Dashboard for Willamette Valley Project, US Army Corps of Engineers, Portland District. Project Director (2010). Directed a complex project implementation and handled client relations to develop a decision support tool for managing special reservoir operations for the Willamette Valley Project hydroelectric facilities. The implementation team documented business processes and designed a database schema to implement a web-based interface for inputting and reporting on special reservoir operations to streamline and simplify existing business processes which utilize loosely-defined ad hoc data transfer methodologies. This project was implemented using DHI's Dashboard Manager web-portal software.

Alameda Creek Sediment Transport Analysis, Alameda County Flood Control and Water Conservation District, Alameda County, California. Project Manager (2010). Managed a large project regarding the analysis of the exchange of fine sediments between the lower reaches of the creek and the adjacent salt ponds using the hydrodynamic, sediment transport and morphological model MIKE 21C. Analyze the extent of flooding during extreme floods using MIKE FLOOD (Combined 1-D and 2-D model). The focus of the project was to improve flood conveyance in the flood control channel, while reducing the frequency of channel maintenance dredging and maintain sufficient channel flow and morphology conditions for fish habitat in the low flow periods. An additional objective of the project was to restore historic tidal flushing to abandoned salt ponds and utilize these areas for flood control when needed.

San Lorenzo Creek Sediment Transport Analysis, Alameda County Flood Control and Water Conservation District, Alameda County, California. Project Director (2010). Directed implementation of a large project regarding the analysis of remedial solutions for sedimentation in the lower reaches of San Lorenzo Creek using the hydrodynamic, sediment transport and morphological model, MIKE21C (2-D hydraulic model).

Old Alameda Creek Sediment Transport Analysis, Alameda County Flood Control and Water Conservation District, Alameda County, California. Project Manager (2010). Managed a large project regarding the analysis of the exchange of fine sediments between the lower reaches of the creek and the adjacent salt ponds using the hydrodynamic, sediment transport and morphological modules of MIKE 21C.

Bull Run Reservoir system, City of Portland, Oregon. Project Manager and lead modeler (2010). As part of the City of Portland's effort to seek a variance from the LT2

Rule with U.S. EPA the city has been trying to understand the potential pathways for Cryptosporidium in the Bull Run watershed. A series of CE-QUAL-W2 model scenarios (180) with dye tracer releases at various tributaries and during specific storm events were simulated to estimate the travel time in each of the two drinking water reservoirs. The model results were provided to the city on a very short time frame.

Clackamas River Water Providers, Lower Clackamas River, Oregon. Senior Technical Lead (2010). Conducted a review of administrative hearing testimony, conducted a flow analysis, provided rebuttal testimony, and direct hearing testimony in defense of four drinking water providers along the lower Clackamas River based on previous work conducted in 2006.

Integrated Model Peer Review, Alameda County Flood Control and Water Conservation District, Alameda County, California. Project Manager (2009-2010). Managed a project to conduct a peer review and QA/QC check of an integrated MIKE 11 and MIKE URBAN model of the stormwater system and urban floodplain developed by another consulting firm on behalf of the District. Provided recommendation for model improvement.

Watershed Model Update and Plan Development, Collier County, Florida. Senior Water Quality Modeler (2009-2010). Provided guidance and expertise on the data collection and sampling needed to support water quality model development to meet regulatory requirements for improving storm water runoff and nutrient loading to surface and coastal waters.

City of Vancouver Sewer System Comprehensive Plan, City of Vancouver, Washington. Project Director (2009-2010). Directed the implementation of a MIKE URBAN model application of the City's sanitary network. The modeling team conducted a wet-weather model calibration and long term time series simulations in support of the mast plan development by the prime consultant. Reviewed project documents and worked with project manager to ensure all deliverables met the client's satisfaction.

Salmon River Estuary, U.S. Forest Service, Oregon. Co-Project Manager (2009-2010). Supervised project implementation to develop a 2-D model of the Salmon River on the Oregon Coast to examine restoration alternatives to restore the tidal prism through a new bridge design for Highway 101.

Hydropower Dam Decision Support System, Confidential Client, Idaho. Project Director (2008-2010). Directed the technical team with a complex project implementation and handled client relations to develop a decision support system (DSS) for predicting impact of reservoir operations on water level for a major hydroelectric facility on a major river in Idaho. The project focused was developing a user interface for controlling hydraulic model via a dashboard web page using the DHI Dashboard Manager to generate a web portal site based on Active Server Page (asp), including features to evaluate scenarios and execute a DHI MIKE 11 model and compare user input results with optimized model scenarios.

Pleiße River Basin, Lausitzer und Mitteldeutsche Bergbau-Verwaltungsgesellschaft mbH, Mitteldeutschland (central Germany), Senior Engineer, (2009). Provided water quality modeling technical expertise to the development of a water quality model (CE-QUAL-2) of the Pleiße River to be used in combination with a groundwater model and aquatic chemistry model to ensure regulatory compliance for mining company's restoration strategies.

Portland Harbor, Lower Willamette River, Confidential Client, Project Manager and Lead Fate and Transport Model Reviewer, (2009-2010) Managed a project to conduct a technical review of the hydrodynamic and sediment transport model (EFDC) and the abiotic fate and transport models of the Portland Harbor CERCLA site. Lead the review of the abiotic fate and transport model review, answering key questions about the model's ability to address Superfund related questions. Participated in the hydrodynamic and sediment transport model review.

Idaho Department of Parks and Recreation, Eagle Island State Park, Idaho. Senior Water Quality Expert (2008-2009). Directed water quality modeling of proposed recreation lakes in Eagle Island State Park on the Boise River.

Alan Plummer Associates, Inc., Trinity River, Texas. (2007-2008). Provided on call services to assist with the development of a 2-D hydrodynamic and water quality model (CE-QUAL-W2) of the Trinity River in TX.

Joint Water Commission, Barney Reservoir, City of Hillsboro, Oregon, Project Lead (2007-2008). Developed a Water Quality Monitoring Plan to address multiple management objectives in a drinking water supply reservoir for the Joint Water Commission in Washington County, OR

DeSabra-Centerville System Temperature Model, Pacific Gas & Electric, Consultant, Senior Modeler (2007-2008). Developed and calibrated a hydrodynamic and temperature model of the West Branch Feather River system including Pacific Gas & Electric hydropower facilities in CA. The model was then used to run management scenarios to improve stream temperatures in the system as part of their FERC relicensing environmental assessment and impact.

MapTech, Inc., James River, Virginia, (2008). Provided on call services to assist with the development of a 2-D hydrodynamic and water quality model (CE-QUAL-W2) of the James River in VA, including riverine and estuarine reaches.

City of Everett, Lake Chaplain, Washington. Project Lead (2008). Developed and calibrated a 2-D hydrodynamic and temperature model (CE-QUAL-W2) for Lake Chaplain in Northwestern Washington. The model was used to evaluate adding another drinking water intake location in the lake to avoid *Holopedium gibberum* blooms in late summer and early fall.

Clackamas River Water Providers, Lower Clackamas River, Oregon (2008). Upgraded an existing 2-D hydrodynamic and water quality model (CE-QUAL-W2) of the Lower Clackamas River and expanded its simulation time period from six to eight years.

Included additional enhancements in the model for regulatory compliance analyses. Developed management scenario simulations to investigate the impact of water withdrawals on temperature and water quality in the Lower Clackamas River.

Molalla River Model Review, Oregon Department of Environmental Quality, Senior Modeler (2007-2008). Conducted a peer-review of the temperature model (HEATSOURCE) developed for the Molalla River by Oregon Department of Environmental Quality as part of a temperature TMDL

South Fork Tolt Reservoir, Seattle Public Utilities, Washington (2006-2008). Developed and calibrated a 2-D hydrodynamic, temperature and turbidity model (CE-QUAL-W2) for the one of the City of Seattle's primary drinking water supply reservoirs the South Fork Tolt Reservoir. Initial management scenarios were developed, post processing tools were designed, and a training session conducted for Seattle Public Utilities for using the model to run management scenarios.

Columbia River, Rocky Reach Model Review, Chelan Public Utility District, Wenatchee, Washington (2005). Conducted a peer review of CE-QUAL-W2 application to the Rocky Reach section of the Columbia River in WA. The model review consisted of reviewing the model development and calibration and providing recommendations on future work and model improvements. Developed topographic shade file for input to the CE-QUAL-W2 model.

Oregon Department of Environmental Quality, Lost River (2005). Conducted a peer review of CE-QUAL-W2 application to the Lost River in CA. The model review consisted of reviewing the model development and calibration and providing recommendations on future work and model improvements. The water quality model was developed to help the U.S. EPA (Regions 9 & 10), the Oregon Department of Environmental Quality and the North Coast Regional Water Quality Control Board develop a TMDL for the river basin.

Clackamas River Water Providers, Lower Clackamas River, Oregon (2005). Upgraded an existing 2-D hydrodynamic and water quality model (CE-QUAL-W2) of the Lower Clackamas River and expanded its simulation time period from two summers to six years. Ran management scenario simulations to investigate the impact of water withdrawals on temperature and water quality in the Lower Clackamas River, OR.

Idaho Department of Environmental Quality, Pend Oreille River, Idaho (2005). Developed a 2-D hydrodynamic and water quality model (CE-QUAL-W2) for the Pend Oreille River from the outlet of Lake Pend Oreille to the WA-ID State line. Ran multiple model scenarios to support Idaho Department of Environmental Quality developing a water quality TMDL for the river.

Washington Department of Ecology, Pend Oreille River, Washington (2005). Developed a 2-D hydrodynamic and temperature model for the Box Canyon Reach of the Pend Oreille River (CE-QUAL-W2) in Washington. The model was used by Washington Department of Ecology in developing a temperature TMDL. Conducted a

peer-review of the temperature model developed for the Boundary Dam river reach below Box Canyon Dam.

Yaquina Bay Project, City of Toledo, Oregon (2005). Conducted a mixing zone study (CORMIX) for the city's wastewater treatment plant outfall in Yaquina River. This study consisted of developing both a near field mixing zone model and a far field river and bay 2-D hydrodynamic and water quality model (CE-QUAL-W2). The study considered the impacts of upgrading the wastewater treatment plant and resulting increase in effluent discharges.

Klamath River, PacifiCorp, Portland, Oregon (2005). Conducted a second peer review of the hydrodynamic and water quality model of the Klamath River. The model review consisted of reviewing the model development and calibration and providing recommendations on future work and model improvements.

Bull Run River – Reservoir System, City of Portland, Oregon (2001-2004). Lead Modeler. Updated and recalibrated a 2-D hydrodynamic and water quality model (CE-QUAL-W2) for the Bull Run reservoir system to simulate reservoir operations for 2001. Ran multiple management scenarios using the reservoir model to improve downstream temperature conditions for salmonids. Conducted additional analysis work and post-processing of model results, and conveyed to the City of Portland through several technical memorandums.

Bonestroo, Rosene, Anderlik, and Associates, Kinnickinnic River, St. Paul, Minnesota (2004). Conducted a review of CE-QUAL-W2 application to sections of the Kinnickinnic River near the City of River Falls, WI. The model review consisted of reviewing the model files and conducting analyses to assist with debugging the model results and verifying the analyses already conducted. Recommendations on model improvements and future work for long-term development of the model.

Klamath River, U.S. Bureau of Land Management, Portland, Oregon (2004). Conducted a peer review of CE-QUAL-W2 application to reservoir facilities along the Klamath River below Upper Klamath Lake in Oregon and California. The model review consisted of reviewing the model development and calibration and providing recommendations on future work and model improvements. The water quality model was developed to help PacifiCorp with the Clean Water Act Section 401 Water Quality Certification for re-licensing with the Federal Energy Regulatory Commission (FERC) the Klamath Hydroelectric Project.

Idaho Department of Environmental Quality, Lake Coeur d'Alene, Idaho (2004). Conducted a peer review of a hydrodynamic and water quality model (CE-QUAL-W2) of Lake Coeur d'Alene. The model review consisted of reviewing the model development and calibration and providing recommendations on future work and model improvements. The water quality model was developed to help Avista Corporation with the Clean Water Act Section 401 Water Quality Certification for re-licensing with the Federal Energy Regulatory Commission (FERC) for their Spokane River Hydroelectric Project.

Green River, King County, Washington (2003). Supervised a technical team in developing a 2-D hydrodynamic and water quality model for the Green River in King County, WA. Reviewed model development and calibration reports to provide input on improving model calibration and presentation model-data comparisons.

Middle Fork (Hood River) Irrigation District, Laurence Lake, Oregon (2003). Assisted in conducting field work to collect temperature and water quality data in Laurence Lake and the two inflow tributaries to support the development of a 2-D hydrodynamic and water quality model (CE-QUAL-W2). Conducted data analysis of meteorological data to investigate erroneous data. Assisted in collecting and analyzing bathymetry data for developing a computational model grid.

U.S. Forest Service, Willamette National Forest, Waldo Lake, Oregon (2003). Participated in interdisciplinary research team to discuss short-term and long-term monitoring of Waldo Lake to support a 2-D hydrodynamic and water quality model (CE-QUAL-W2). Developed GIS database for the watershed in coordination with research staff in the Center for Lakes and Reservoirs. Developed Waldo Lake bathymetry using field data to be used in developing the 2-D model grid and then calibrated the hydrodynamic and temperature model.

Upper Spokane River, Idaho, U.S. EPA Region 10, Seattle, Washington (2005). Assisted in developing a 2-D hydrodynamic and water quality model (CE-QUAL-W2) for the Spokane River from the outlet of Lake Coeur d'Alene to the WA-ID State line. The model was used by the EPA to improve water quality conditions in the Spokane River in ID as part of a TMDL. Refined and developed water quality model for Upper Spokane River in 2001 and 2004 and calibrated it for both years.

Upper Spokane River, Washington, City of Spokane, Washington (2005). Updated the water quality model for Upper Spokane River in 2001 and 2004 and calibrated it for both years as part of the larger Upper Spokane River TMDL.

Willamette River main stem Temperature TMDL, U.S. Army Corps of Engineers, Portland, Oregon and Oregon Department of Environmental Quality (2002). Developed a 2-D hydrodynamic and water quality model (CE-QUAL-W2) of the Willamette River main stem system and part of the Lower Columbia River. The model was used by the Oregon Department of Environmental Quality to develop temperature load allocations for the Willamette River main stem system as part of the Temperature TMDL plan. Supervised a team of modelers working on various submodels for the project. Attended modeling technical meetings to discuss model development, calibration results, and model scenarios needed by the Oregon Department of Environmental Quality. Participated in Willamette River TMDL Watershed Council meetings to answer technical questions.

Middle Willamette River, Portland General Electric, Inc. (2001). Compiled and analyzed water quality data and assisted in developing a 2-D hydrodynamic and water quality model (CE-QUAL-W2) for the Middle Willamette River from the City of Salem to the Willamette Falls. Model development, calibration, and a series of model

scenarios were documented in technical reports. The water quality model was developed to help Portland General Electric with the Clean Water Act Section 401 Water Quality Certification for re-licensing with the Federal Energy Regulatory Commission (FERC) for their Willamette Falls Hydroelectric Project.

Upper Spokane River, Washington, U.S. Army Corps of Engineers, Waterways Experiments Station, Vicksburg, Mississippi (2001). Modeler. Assisted in developing a 2-D hydrodynamic and water quality model (CE-QUAL-W2) for the Upper Spokane River system (WA-ID state line to the outlet of Long Lake Reservoir) for use in developing a TMDL plan. Assisted in the executing a three-day modeling training workshop for stakeholder with specific application to the Upper Spokane River system model.

Clackamas River, Portland General Electric, Inc. (2000). Compiled and analyzed water quality data and assisted in developing a 2-D hydrodynamic and water quality model (CE-QUAL-W2) for the Clackamas River Basin from Timothy Lake downstream to its confluence with the Willamette River. The water quality model was developed to help Portland General Electric with the Clean Water Act Section 401 Water Quality Certification for re-licensing with the Federal Energy Regulatory Commission (FERC) for their Clackamas River Basin Hydroelectric Project.

Bull Run River – Reservoir System, City of Portland, Oregon (1998-2000). Lead Modeler. The City of Portland was faced with a problem of trying to address competing demands between preserving the drinking water supply and releasing water for ESA listed fish in the river below their reservoirs. As part of their Habitat Conservation Plan effort a 2-D hydrodynamic and water quality model (CE-QUAL-W2) was developed for the two drinking water reservoirs and the river below the reservoirs. The models were developed and calibrated for a three year window (1997 to 1999) and used to investigate management options for meeting water demand and temperature habitat requirements for salmonids.

Cooper Creek Reservoir Project, City of Sutherlin, Oregon (2000). Accessed, compiled and analyzed meteorological and water quality data for the reservoir system and prepared information to be used in a hydrodynamic and water quality model (Army Corps of Engineer's CE-QUAL-W2). Utilized Geographic Information Systems (GIS) to analyze spatial data such as basin topography and areal distribution of rainfall within the watershed.

Lower Willamette River - Columbia River System, Water Environment Services, Clackamas County (2000). Compiled and analyzed water quality data and assisted in developing a 2-D hydrodynamic and water quality model (CE-QUAL-W2) of the Lower Willamette River and part of the Lower Columbia River. The model was then used to assist Clackamas County in understanding the assimilative capacity of their Tri-Cities' treatment plant discharge to the Lower Willamette River. Responsible for supervising junior modelers and coordinating tasks to meet project deadlines.

Siletz Bay Project, Lincoln City, Oregon (2000). Conducted a mixing zone study (CORMIX) for the city's wastewater treatment plant outfall to Schooner Creek, a tributary to Siletz Bay. This study consisted of developing a near field mixing zone model to support developing a hydrodynamic and water quality model (CE-QUAL-W2) of Siletz Bay. The model was then used to determine the water quality impacts from planned upgrades at the Lincoln City treatment plant on Schooner Creek and Siletz Bay.

Columbia Slough Drainage Basin Storm water Project, City of Portland, Oregon (1998). Investigated current land uses in the Columbia Slough and determined possible relationships between land uses and storm water quality constituents. Identified potential data gaps for storm water quality data, and assisted in projecting future impacts of land use development on water quality in the slough. Responsible for coordinating the research team activities.

Russell Creek-Coast Fork Willamette River Project, Abiqua Engineering, Salem, Oregon (1998). Accessed, compiled and analyzed hydrological data for Russell Creek and the Coast Fork of the Willamette River. Analyzed hydrological data to calculate 7Q10 minimum flows for Russell Creek.

Columbia Slough Wetland Bench Feasibility Study, U.S. Army Corps of Engineers, Portland, Oregon (1997). Investigated the feasibility of designing wetland benches in the lower Columbia Slough by conducting nine-year model simulations using 2-D hydrodynamic and water quality model (CE-QUAL-W2). Wetland bench design water quality and hydraulic results were analyzed and compared to results from a nine-year base case simulation. Incremental bench designs were also compared to the base case simulations for two summer periods.

Lake Oswego Project, R.M. Martin, Inc. (1997). Developed a hydraulic model to analyze the effects of the Flood of 1996 on the Foothills Rd. Area of Lake Oswego. The model was then used to evaluate the causes of the flood in the study area and to provide potential management options to mitigate the flooding. Analyzed a 100 year flood event in the Foothills Road Area, and determined the pumping rates required in a nearby detention pond to mitigate the flooding.

Bear Creek Project, Carollo Engineers, Portland, Oregon (1996). Accessed, compiled and analyzed phosphorus and hydrological data for Bear Creek in Southwestern Oregon. Analyzed hydrological data to calculate 7Q10 minimum flows for two Bear Creek stations.

Columbia River Project, Montgomery Watson Americas, Inc. (1996). Collected water quality and hydrological data in the field. Responsible for use and calibration of water quality and hydrological instruments. Coordinated equipment resources, data collection, and subcontracted lab work for duration of project. Compiled data and developed summary report of field activities.

Columbia Slough Project, City of Portland, Oregon (1996). Developed database for storing water quality data and a user's manual, and compiled historical data for the

database. Reviewed Columbia Slough water quality monitoring data for the summer of 1996 and the winter of 1996/1997, the summer of 1997 and the winter of 1997/1998, and compared the data to monitoring data from previous years.

Fairview Project, Friends of Blue and Fairview Lakes (1996). Assisted panel of professors with logistics and review of past research reports on groundwater contamination in East Multnomah County. Compiled bibliography and library of reports completed on groundwater contamination, and assisted in writing final panel report. Worked with community leaders and public agency representatives to set up community meetings. Developed series of informational “fact sheets” to assist in educating community about the panel’s findings. Reviewed the U.S. Environmental Protection Agency Superfund Technical Assistance Grant Program for the East Multnomah County site and for the McCormick and Baxter Creosoting Company site. Gathered groundwater monitoring and geologic data for developing a three dimensional contamination plume and local stratigraphy visualization model as an educational tool.

AFFILIATIONS

American Geophysical Union
American Water Works Association (AWWA)
Secretary Treasurer 2011-2012, AWWA, Pacific Northwest Section

TEACHING

Lead and lectured Water Resources Engineering (CE 364, Spring, 2008 and 2011).
Co-lead and lectured Surface Water Temperature Modeling (CE 510, Winter, 2008).
Assisted with teaching Fluid Mechanics (EAS 361, Fall 2005).
Guest lecturer in Water Quality Modeling (CE 578, Spring Term, several years).
Guest lecturer in Water Resources Engineering (CE 364, Spring 2007).

JOURNAL REVIEWER

Journal of Hydrologic Engineering
International Journal of Meteorology
Journal of Hydrological Processes
U.S. Geological Survey Scientific Investigation Reports

INVITED SEMINARS

Annear, R. L. “Hydrodynamic and Water Quality Modeling using CE-QUAL-W2,” Dresden Groundwater Research Institute, December 20, 2004, Dresden, Germany

Annear, R. L. “Water Quality Modeling of Rivers and Reservoirs with CE-QUAL-W2,” Consulting Engineers for Groundwater Ltd., December 20, 2006, Leipzig, Germany

Annear, R. L. "Water Quality Modeling of Rivers and Reservoirs with CE-QUAL-W2," UFZ-Helmholtz Centre for Environmental Research, December 21, 2006, Magdeburg, Germany

Annear, R. L. "Water Quality Modeling of Rivers and Reservoirs with CE-QUAL-W2," University of Massachusetts, December 19, 2007, Amherst, MA.

Annear, R. L. "Hydrodynamic and Water Quality Modeling of Rivers and Reservoirs with CE-QUAL-W2," DHI-WASY GmbH, December 22, 2008, Berlin, Germany

SELECTED PUBLICATIONS

Annear, R. L., and S. A. Wells (2007), A comparison of five models for estimating clear-sky solar radiation, *Water Resour. Res.*, 43, W10415, doi:10.1029/2006WR005055.

Annear, R. L. and Wells, S. A. (2002) "The Bull Run River-Reservoir System Model," *Hydrological Science and Technology*, 2002 AIH Annual Meeting, Hydrologic Extremes: Challenges for Science and Management, October 13-17, 2002, Portland, Oregon, Volume 19, No. 1-4, 2003, American Institute of Hydrology

Annear, R. L. and Wells, S. A. (2002) "The Bull Run River-Reservoir System Model," *Proceedings, 2nd Federal InterAgency Hydrologic Modeling Conference*, Las Vega, NV, July 28-August 1, 2002.

Berger, C. J.; Annear, R. L.; and Wells, S. A. (2002) "Willamette River and Columbia River Waste Load Allocation Model," *Proceedings, 2nd Federal InterAgency Hydrologic Modeling Conference*, Las Vegas, NV, July 28-August 1, 2002.

Annear, R. L. and Wells, S. A. (2002) "The Bull Run River-Reservoir System Model," *Proceedings of the Research and Extension Regional Water Quality Conference 2002*, Proceedings on CD, Vancouver, WA, February 20-21, 2002.

Wells, S. A. and Annear, R. L. (2002) "River Basin Modeling Using CE-QUAL-W2 Version 3: The Bull Run River-Reservoir System Model," *Proceedings 4th International Conference on Reservoir Limnology and Water Quality*, Ceske Budejovice, Czech Republic, August 12-16, 2002.

Berger, C.; Annear, R. L. and Wells, S. (2002) "TMDL Development of the Spokane River-Long Lake System using CE-QUAL-W2," *Proceedings, Water Environment Federation National TMDL Science and Policy Conference*, Phoenix, Nov 13-16, 2002.

Annear, R. L.; Wells, S. A.; Berger, C. J.; McKillip, M. L.; and Khan, Sher Jamal (2003) "Willamette River System Temperature Waste Load Allocation Model,"

Proceedings of Getting It Done: The Role of TMDL Implementation in Watershed Restoration Conference 2003, Stevenson, WA, October 29-30, 2003.

Wells, S. A.; Berger, C. J.; Annear, R. L.; McKillip, M. L.; and Khan, S. J. (2003) "Willamette River Basin Temperature TMDL Modeling Study," Proceedings National TMDL Science and Policy Conference, Chicago, IL, November 16-19, 2003.

Wells, S. A.; Berger, C. J.; Annear, R. L.; McKillip, M. L.; and Khan, S. J. (2003) "Willamette River Basin Temperature Modeling Study," Proceedings Watershed 2004, Dearborn, MI, July 11-14, 2004.

Wells, S. A., Annear, R. L., Berger, C. J., and McKillip, M. (in-print) "River modeling using CE-QUAL-W2," Corps of Engineers, Technical Notes Series, Waterways Experiments Station, Vicksburg, MS.

TECHNICAL REPORTS

Wells, S. A.; Li, S.; Beeson, B.; Cummings, M.; Pratt, R.; Annear, R. L.; and Brandt, K. (1996) "Impact of Groundwater Contamination in East Multnomah County on the Interlachen Community," Technical Report EWR-3-96, Department of Civil Engineering, Portland State University, Portland, Oregon.

Wells, S. A. and Annear, R. L. (1997) "Flows and Water Quality Loadings for Bear Creek," prepared for Carollo Engineers, Portland, Oregon.

Annear, R. L.; Wells, S. A.; Li, S.; Beeson, B.; Cummings, M.; and Pratt, R. (1997) "Review of the United States Environmental Protection Agency Superfund Technical Assistance Grant Program," Technical Report EWR-5-97, Department of Civil Engineering, Portland State University, Portland, Oregon.

Wells, S. A. and Annear, R. L. (1997) "Analysis of the February 1996 Flood Impact on the Foothills Road Area of Lake Oswego," prepared for Elizabeth Yeats, Esq., Seifer, Yeats, and Mills, LLP, Portland, Oregon.

Wells, S. A. and Annear, R. L. (1997) "BOD Levels in the Columbia Slough," prepared for City of Portland, Bureau of Environmental Services, Portland, Oregon.

Annear, R. L. and Wells, S. A. (1997) "Water Quality Monitoring of the Columbia Slough System: Summer 1996 and Winter 1996/1997," Technical Report EWR-7-97, Department of Civil Engineering, Portland State University, Portland, Oregon.

- Wells, S. A.; Annear, R. L.; and Berger, C. J. (1997) "Feasibility of Wetland Benches in the Lower Columbia Slough (interim report)," Technical Report EWR-8-97, Department of Civil Engineering, Portland State University, Portland, Oregon.
- Annear, R. L. and Wells, S. A. (1998) "Analysis of 100 Year Flood Event for the Foothills Road Area of Lake Oswego," prepared for Richard L. Martin, Inc., Lake Oswego, Oregon.
- Annear, R. L. and Wells, S. A. (1998) "Columbia Slough Database," Technical Report EWR-3-98, Department of Civil Engineering, Portland State University, Portland, Oregon.
- Lowry, T. and Annear, R. L. (1998) "Visualization of Geologic and Contamination Data at the East Multnomah County Groundwater Contamination Site," Technical Report EWR-2-98, Department of Civil Engineering, Portland State University, Portland, Oregon.
- Wells, S. A.; Annear, R. L.; and Berger, C. J. (1998) "Wetland Benches in the Lower Columbia Slough (final report)," Technical Report EWR-1-98, Department of Civil Engineering, Portland State University, Portland, Oregon.
- Wells, S. A. and Annear, R. L. (1998) "Analysis of Lane Community College's Effluent Discharge," prepared for Abiqua Engineering, Inc., Salem, Oregon.
- Annear, R. L. and Wells, S. A. (1999) "Water Quality Monitoring of the Columbia Slough System: Historical Review of Low Dissolved Oxygen Events and Review of Summer 1997," Technical Report EWR-1-99, Department of Civil Engineering, Portland State University, Portland, Oregon.
- Annear, R. L.; Wells, S. A.; and Evonuk, D. (1999) "Bull Run River-Reservoir System Model: Boundary Conditions and Model Setup," Technical Report EWR-6-99, Department of Civil Engineering, Portland State University, Portland, Oregon.
- Wells, S. A.; Annear, R. L.; Berger, C. J.; and Sytsma, M. (2000) "Modeling and Analysis of Cooper Creek Reservoir Water Quality," prepared for the City of Sutherlin, Oregon.
- Annear R. L.; Wells, S. A.; and Evonuk (1999) "Bull Run River – Reservoir Model: Boundary Conditions and Model Setup," Technical Report EWR-6-99, Department of Civil Engineering, Portland State University, Portland, Oregon.
- Annear, R. L. and Wells, S. A. (2000) "Bull Run River-Reservoir System Model: Model Calibration," Technical Report EWR-1-00, Department of Civil Engineering, Portland State University, Portland, Oregon.

- Annear, R. L. and Wells, S. A. (2000) "Bull Run River-Reservoir System Model: Management Strategies to Meet Temperature Guidelines in the Lower Bull Run River," Technical Report EWR-2-00, Department of Civil Engineering, Portland State University, Portland, Oregon.
- Wells, S. A. and Annear, R. L. (2000) "Modeling the Impact of the Lincoln City Wastewater Discharge on Siletz Bay," prepared for Richwine Environmental Inc., Beaverton, Oregon.
- Rodriguez, H. G.; Annear, R. L.; Wells, S. A.; and Berger, C. J. (2001) "Lower Willamette River Model: Boundary Conditions and Model Setup," Technical Report EWR-1-01, Department of Civil Engineering, Portland State University, Portland, Oregon, 134 pages.
- Berger, C. J.; Annear, R. L.; and Wells, S. A. (2001) "Lower Willamette River Model: Model Calibration," Technical Report EWR-2-01, Department of Civil Engineering, Portland State University, Portland, OR, 100 pp.
- Berger, C. J.; Annear, R. L.; and Wells, S. A. (2001) "Lower Willamette River Model: Management Scenarios," Technical Report EWR-03-01, Department of Civil Engineering, Portland State University, Portland, Oregon.
- Annear, R. L.; Berger, C. J.; Wells, S. A.; Cole, T. (2001) "Upper Spokane River Model: Boundary Conditions and Model Setup, 1991 and 2000" Technical Report EWR-04-01, Department of Civil Engineering, Portland State University, Portland, Oregon and U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi.
- Annear, R. L.; Berger, C. J.; and Wells, S. A. (2001) "CE-QUAL-W2 Version 3.1 Shading Algorithm," Technical Report EWR-05-01, Department of Civil Engineering, Portland State University, Portland, Oregon.
- Berger, C. J.; Annear, R. L.; Wells, S. A.; Cole, T. (2002) "Upper Spokane River Model: Model Calibration, 1991 and 2000" Technical Report EWR-01-02, Department of Civil Engineering, Portland State University, Portland, Oregon and U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi.
- Annear, R. L. and Wells, S. A. (2002) "Bull Run River-Reservoir Model: Reservoir Model Calibration," Technical Report EWR-02-02, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.
- Annear, R. L. and Wells, S. A. (2002) "Bull Run River-Reservoir Model: River Model Calibration," Technical Report EWR-03-02, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.

- Annear, R. L.; Wells, S. A.; and Berger, C. J. (2002) "Clackamas River System Model: Boundary Conditions and Model Setup," prepared on behalf of Duke Engineering for Portland General Electric, Portland, Oregon.
- Annear, R. L.; Wells, S. A.; and Berger, C. J. (2002) "Mid-Willamette River: Boundary Conditions and Model Setup," prepared for Portland General Electric, Portland, Oregon.
- Berger, C. J.; Wells, S. A.; and Annear, R. L. (2002) "Mid-Willamette River: Model Calibration," prepared for Portland General Electric, Portland, Oregon.
- Berger, C. J.; Wells, S. A.; and Annear, R. L. (2003) "Middle Willamette River: Management Scenarios," prepared for Portland General Electric, Portland, Oregon.
- Slominski, S.; Annear, R. L.; Berger, C. J.; Wells, S. A.; and Cole, T. (2002) "Upper Spokane River Model: Boundary Conditions and Model Setup, 2001" Technical Report EWR-04-02, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon and U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi.
- Berger, C. J.; Annear, R. L.; and Wells, S. A. (2003) "Upper Spokane River Model: Model Calibration, 2001," Technical Report EWR-01-03, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.
- Wells, S. A.; Annear, R. L.; and Berger, C. J. (2003) "Upper Spokane River Model in Idaho: Boundary Conditions and Model Setup for 2001" Technical Report EWR-02-03, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.
- Annear, R. L.; McKillip, M. L.; Khan, Sher Jamal; Berger, C. J.; and Wells, S. A. (2004a) "Willamette River Basin Temperature TMDL Model: Boundary Conditions and Model Setup," Technical Report EWR-01-04, Department of Civil and Environmental Engineering, Portland State University, Portland, OR.
- Annear, R. L.; McKillip, M. L.; Khan, Sher Jamal; Berger, C. J.; and Wells, S. A. (2004b) "Willamette River Basin Temperature TMDL Model: Model Scenarios," Technical Report EWR-03-04, Department of Civil and Environmental Engineering, Portland State University, Portland, OR.
- Berger, C. J.; McKillip, M. L.; Annear, R. L.; Khan, Sher Jamal; and Wells, S. A. (2004) "Willamette River Basin Temperature TMDL Model: Model Calibration," Technical Report EWR-02-04, Department of Civil and Environmental Engineering, Portland State University, Portland, OR.

- Kraft, T.; Annear, R. L.; Berger, C. J.; and Wells, S. A. (2004) "A Hydrodynamic and Water Quality Study of the Green River, King County, Washington," Department of Civil and Environmental Engineering, Portland State University, Portland, OR.
- Berger, C. J.; Wells, S. A.; and Annear, R. L. (2005) "Laurance Lake Temperature Model," Technical Report EWR-04-04, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.
- Sytsma M.; Rueter J.; Petersen R.; Koch R.; Wells S. A.; Miller R.; Annear R. L.; and Johnson L (2004) "Waldo Lake Research in 2003," Technical Report, Center for Lakes and Reservoirs, Portland State University, Portland, Oregon.
- McKillip, M.; Annear, R. L.; and Wells, S. A. (2005) "Lake Roosevelt Model: Boundary Conditions and Model Set-up," Technical Report EWR-01-05, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.
- Annear, R. L.; Wells, S. A.; and Berger, C. J. (2005) "Upper Spokane River Model in Idaho: Boundary Conditions and Model Setup and Calibration for 2001 and 2004," Technical Report EWR-02-05, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.
- Sytsma M.; Rueter J.; Petersen R.; Koch R.; Wells S. A.; Wood, M.; Pan, Y.; Miller R.; Annear R. L.; and Johnson L (2005) "Waldo Lake Research in 2004," Technical Report, Center for Lakes and Reservoirs, Portland State University, Portland, Oregon and Department of Biology, University of Oregon, Eugene, Oregon.
- Annear, R. L. and Wells, S. A. (2006) "Lower Clackamas River Model: Model Development, Calibration, and Scenarios, Part 1, Hydrodynamics" Technical Report EWR-01-06, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.
- Annear, R. L.; Berger, C. J.; and Wells, S. A. (2006) "Idaho Pend Oreille River Model: Model Development and Calibration," Technical Report EWR-02-06, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.
- Annear, R. L.; Berger, C. J.; and Wells, S. A. (2006) "Pend Oreille River, Box Canyon Model: Model Development and Calibration," Technical Report EWR-04-06, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.
- Annear, R. L. and Wells, S. A. (2006) "Lower Clackamas River Model: Model Development, Calibration, and Scenarios, Part 2, Water Temperature" Technical

Report EWR-05-06, Department of Civil and Environmental Engineering,
Portland State University, Portland, Oregon.

Annear, R. L.; Berger, C. J.; and Wells, S. A. (2007) "Idaho Pend Oreille River Model: Model Scenario Simulations," Technical Report EWR-01-07, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.

Annear, R. L. and Wells, S. A. (2007) "Lower Clackamas River Model: Model Scenarios, Hydrodynamics, Updated Simulations" Technical Report EWR-01-07, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.

Annear, R. L.; Berger, C. J.; and Wells, S. A. (2007) "South Fork Tolt Reservoir Model: Model Development," Technical Report EWR-02-07, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.

Berger, C. J.; Annear, R. L.; and Wells, S. A. (2007) "Pend Oreille River, Box Canyon Model: Model Scenario Simulations," Technical Report EWR-03-07, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.

Berger, C. J.; Annear, R. L.; and Wells, S. A. (2007) "South Fork Tolt Reservoir Model: Model Calibration," Technical Report EWR-06-07, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.

Annear, R. L.; Berger, C. J.; and Wells, S. A. (2008) "Lake Chaplain Model: Model Development, Calibration and Management Scenarios" Technical Report EWR-01-08, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.

Annear, R. L.; Berger, C. J.; and Wells, S. A. (2008) "South Fork Tolt Reservoir Model: Model Training Manual," Technical Report EWR-02-08, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.

Annear, R. L.; Berger, C. J.; Wells, S. A.; Sytsma, M; and Miller, R. (2008) "Barney Reservoir Monitoring Plan: Plan Development," Technical Report EWR-03-08, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.

Annear, R. L.; Berger, C. J.; and Wells, S. A. (2008) "Lower Clackamas River Model: Model Development and Calibration, Part 1, Hydrodynamics" Technical Report EWR-04-08, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.

- Annear, R. L.; Berger, C. J.; and Wells, S. A. (2008) "Lower Clackamas River Model: Model Development and Calibration, Part 2, Water Temperature" Technical Report EWR-05-08, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.
- Annear, R. L.; Berger, C. J.; and Wells, S. A. (2008) "Lower Clackamas River Model: Model Scenarios, Hydrodynamics, Updated Simulations" Technical Report EWR-06-08, Department of Civil and Environmental Engineering, Portland State University, Portland, Oregon.
- Müller, M.; Lange, K.-P.; Annear, R. L. (2009) "Wasserbeschaffenheitsmodellierung der Pleiße unter dem Einfluss der Eisenexfiltration der Kippen – Phase 1: Analyse der Modellanforderungen und Testung von Modellansätzen", IBGW GmbH, Ecosystem Saxonia GmbH, and DHI US Inc., Leipzig, Germany.

PRESENTATIONS

- Annear, R. L. and Wells, S. A. "Modeling Streambed Heating in Shallow Streams," Pacific Northwest Clean Water Association, 70th Annual Conference, September 14-17, 2003, Boise, ID.
- Annear, R. L. and Wells, S. A. "Modeling Streambed Heating in Shallow Streams," American Institute of Hydrology Annual Meeting and Conference, October 19-22, 2003, Atlanta, GA.
- Annear, R. L.; Berger, C. J.; and Wells, S. A. "Willamette River System Temperature Waste Load Allocation Model," Getting It Done: The Role of TMDL Implementation in Watershed Restoration Conference 2003, October 29-30, 2003, Stevenson, WA.
- Annear, R. L. and Wells, S. A. Poster: "Modeling Streambed Heating in Shallow Streams," American Geophysical Union Annual Fall meeting, December 8-12, 2003, San Francisco, CA.
- Annear, R. L. and Wells, S. A. Poster: "Modeling Streambed Heating in Shallow Streams," Urban Ecology and Conservation Symposium, Urban Ecosystem Research Consortium, January 23, 2004, Portland, OR.
- Annear, R. L. and Wells, S. A. Poster: "Modeling Streambed Heating in Shallow Streams, Part 2" American Institute of Hydrology Annual Meeting and Conference, October 17-20, 2004, Las Vegas, NV

Annear, R. L.; Berger, C. J.; and Wells, S. A. “How to use a model to explore TMDL strategies?,” Pacific Northwest Clean Water Association, 71th Annual Conference, October 24-27, 2004, Seaside, OR

Annear, R. L.; Berger, C. J.; and Wells, S. A. Poster: “Willamette River System Temperature Waste Load Allocation Model,” 2006 Urban Ecology and Conservation Symposium, Urban Ecosystem Research Consortium, January 27, 2006, Portland, OR

Annear, R. L. and Wells, S. A. Poster: “Lower Clackamas River Temperature Model,” 2006 Urban Ecology and Conservation Symposium, Urban Ecosystem Research Consortium, January 27, 2006, Portland, OR

Annear, R. L.; Wells, S. A.; Sytsma M.; Rueter, J.; Petersen, R.; Koch, R.; Johnson, L.; and Miller, R. “Developing an Ecosystem Model for Waldo Lake,” Pacific Northwest Regional Conference for the North American Lake Management Society, September 13-15, 2006, Portland, OR

Annear, R. L. “Modeling Streambed Heating in Shallow Streams” at the Institute for Water and Watersheds at Oregon State University April 25, 2007, Corvallis, OR

Annear, R. L. Wells, S. A., and Berger, C. J. “The South Fork Tolt Reservoir Model,” Pacific Northwest Clean Water Association, 74th Annual Conference, September 10-12, 2007, Vancouver, WA

Annear, R. L. Wells, S. A., and Berger, C. J. Poster: “The South Fork Tolt Reservoir Turbidity Model,” Water in the Pacific Northwest: Moving Science into Policy and Action, November 7-9, 2007, Stevenson, WA.

Annear, R. L. Oral Presentation: “Modeling Streambed Heating in Shallow Streams” American Geophysical Union Annual Fall meeting, December 10-14, 2007, San Francisco, CA.

Annear, R. L. Wells, S. A., and Berger, C. J. “Modeling the Lower Clackamas River, water supply source meets fish habitat.” Urban Ecology and Conservation Symposium, Urban Ecosystem Research Consortium, January, 2009, Portland, OR.

Cheslak, E., Berger, C. J., Annear, R. L. and Wells, S. A. “Protecting Spring-Run Chinook salmon: The Use of a Two-dimensional Water Temperature Model

to Evaluate Alternative Hydroelectric Operations,” Waterpower XVI, New Roles for Hydro in a Changing World, July 28-20, 2009, Spokane, WA.

Kilgren, R., and Annear, R. L. “Water Resources Computer Modeling for Irrigation Districts,” Oregon Water Resources Congress, 2010 Technology Seminar, September 23-23, 2010, Bend, OR.

Annear, R.L. “Water Data Needs and Applications in the Private Sector,” Center for Research Libraries, Global Resources Network Forum: Global Water - 2010 and Beyond, October 21-22, 2010, Denver, CO.

Kilgren, R., and Annear, R. L. “How to Use Hydraulic Modeling in River Restoration Planning,” River Restoration Northwest, 10th Annual Stream Restoration Symposium, 2010 Technology Seminar, February 1-3, 2011, Stevenson, WA.

Annear, R. L. Wells, S. A., and Berger, C. J. “Willamette River Basin Temperature TMDL Modeling Study,” Willamette Basin Fisheries Science Review, January 30 – February 1, 2012, Corvallis, OR.

Annear, R. L., and Quigley, M. “A New Framework for Multi-Reservoir Operations and Management” Reservoir System Modeling Technologies Conference, Bonneville Power Administration, February 21-22, 2012 Portland, OR.