**SE-YEUN LEE**

Research Scientist
School of Environmental and Forest Sciences
University of Washington

Research Scientist
Climate Impacts Group
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**Education:**
Ph.D. in Civil and Environmental Engineering, University of Washington, 2009
MSCE in Civil and Environmental Engineering, University of Washington, 2002
MSEE in Environmental Engineering, Chonbuk National University, Korea, 1996
BS in Environmental Engineering, Chonbuk National University, Korea, 1994

**Research Interests:**
- Water Resources Planning and Management
- Impacts of Climate Variability and Climate Change on Water Resources and Management
- Climate Change Planning and Adaptation
- Climate Impacts on Hydropower and Energy Systems
- Climate Impacts on Wetland Ecosystems and Stream Temperature
- Integrated Hydrological and Water Resources Modeling
- Optimization-Simulation Methods
- Bioremediation of PCE in Groundwater
- Transportation of Heavy-Metal in Groundwater
- Wastewater Treatment

**Academic Publications:**
Lee, S.Y., 2009: Development of Optimized Flood Control Rule Curves for the Columbia River Basin in Response to Climate Change and Interannual Climate Variability, Ph.D Dissertation, Department of Civil and Environmental Engineering, University of Washington, June.

Lee, S.Y., 2002: PCE Degradation in Methanogenic Consortia: Implications for Treatment Trenches, Master's Thesis, Department of Civil and Environmental Engineering, University of Washington, August.

Lee, S.Y., 1996: The Transport of Cadmium in Soil, Master's Thesis, Department of Environmental Engineering, Chonbuk National University, Korea, February.

**Journal Articles:**
Hamlet, A.F., Elsner, M.M., Mauger, G., Lee, S.Y., and Tohver, I. (2013). "An Overview of the Columbia Basin Climate Change Scenarios Project: Approach, Methods, and Summary of Key Results." *Atmosphere-Ocean,* 1:4, 392-415, DOI:10.1080/07055900.2013.819555.

Salathé, E.P, Hamlet, A.F., Mass, C.F., Stumbaugh, M., Lee, S.Y. and Steed, R. (2013). "Estimates of 21st Century Flood Risk in the Pacific Northwest based on Regional Climate Model Simulations." *Journal of Hydrometeorology* (accepted).

Tohver, I., Hamlet, A.F., and Lee, S.Y. (2013). "Impacts of 21st Century Climate Change on Hydrologic Extremes in the Pacific Northwest Region of North America." *Journal of the American Water Resources Association* (accepted).

Lee, S.Y., Hamlet, A.F, Ryan, M., Palen, W. and Halabisky, M. (2013). "Modeling the Hydrology of Pacific Northwest Wetland Ecosystems." *Methods in Ecology and Evolution*, (submitted).

Lee, S.Y., Hamlet, A.F., Fitzgerald, C.J., and Burges, S.J. (2011). "Daily Time Step Refinement of Optimized Flood Control Rule Curves for a Global Warming Scenario." *Journal of Water Resources Planning and Management,* 137, 309-317, DOI:10.1061/(ASCE)WR.1943-5452.0000125.

Lee, S.Y., Hamlet, A.F., Fitzgerald, C.J., and Burges, S.J. (2011). "Methodology for Developing Flood Rule Curves conditioned on ENSO Classification." *Journal of the American Water Resources Association,* 47(1), 81-92. DOI: 10.1111/j.1752-1688.2010.00490.x.

Elsner, M.M., Cuo, L., Voisin, N., Deems, J.S., Hamlet, A.F., Vano, J.A., Mickelson, K.E.B., and Lee, S.Y. (2010). "Implications of 21st Century Climate Change for the Hydrology of Washintgon State." *Climatic Change,* DOI:10.1007/s10584-010-9855-0.

Hamlet, A.F., Lee, S.Y., Mickelson, K.E.B., and Elsner, M.M. (2010). "Effects of Projected Climate Change on Energy Supply and Demand in the Pacific Northwest and Washington State." *Climatic Change,* DOI:10.1007/s10584-010-9857-y.

Lee, S.Y., Hamlet, A.F., Fitzgerald, C.J., and Burges, S.J. (2009). "Optimized Flood Control in the Columbia River Basin for a Global Warming Scenario." *Journal of Water Resources Planning and Management,*135 (6), 440-450, DOI: 10.1061/(ASCE)0733-9496(2009)135:6(440).

Lee, S.Y., Hamlet, A.F., Fitzgerald, C.J., Burges, S.J., and Lettenmaier, D.P., (2006). "Optimized Flood Control in the Columbia River Basin for a Global Warming Scenario." In D. Zimbelman and W.C. Loehlein (eds.), *Operating Reservoirs in Changing Conditions - Proceedings of the Operations Management 2006 Conference*, v 2006, p 256-271.

Lee, S.Y., Kim, D.K. and Lee, Y.D. (1997). "A Study of the Transport of Cadmium in Saturated Soil." *Journal of Korean Society of Environmental Engineers,*19(1), 9-18.

Lee, S.Y. and Hamlet, A.F. "Effects of Climate Change on Natural and Regulated Flood Risks in the Skagit River Basin and Prospects for Adaptation." (in preparation).

Lee, S.Y. and Hamlet, A.F. "Hydrologic Impacts on the Skagit River Basin." (in preparation).

**Other Publications:**

Lee, S.Y., and Hamlet, A.F. (2011). "Skagit River Basin Climate Science Report, a Summary Report Prepared for Skagit County and the Envision Skagit Project." Department of Civil and

Environmental Engineering and the Climate Impacts Group at the University of Washington. [http://www.skagitclimatescience.org/research/completed-research/]

Hamlet, A.F., Lee, S.Y., Mantua, N.J., Salathe, E.P., Snover, A.K., Steed, R., and Tohver, I. (2010). "Seattle City Light Climate Change Analysis for the City of Seattle, Seattle City Light Department." The Climate Impacts Group, Center for Science in the Earth System, Joint Institute or the Study of the Atmosphere and Ocean, University of Washington, Seattle, Washington. [http://cses.washington.edu/db/pdf/snoveretalscl709.pdf]

Hamlet, A.F., Carrasco, P., Deems, J., Elsner, M.M., Kamstra, T., Lee, C., Lee, S.Y., Mauger, G., Salathé, E. P., Tohver, I., Whitely Binder, L., 2010. "Final Project Report for the Columbia Basin Climate Change Scenarios Project." The Climate Impacts Group at the University of Washington. [http://www.hydro.washington.edu/2860/report/]

**Selected Presentations:**

Lee, S.Y., and Hamlet, A.F., 3rd Annual Pacific Northwest Climate Science Conference, Boise, Idaho, October 1st – 2nd, 2012, "Effect of Climate Change on Hydrology and Water Management in the Skagit River Basin."

Lee, S.Y., Hamlet, A.F., and Ryan, M., Society of Wetland Scientists Pacific Northwest Chapter 2012 Regional Conference, September 19th – 21st, 2012, "Modeling Climate Change Effects on the Hydrology of Pacific Northwest Wetland Ecosystems."

Lee, S.Y., and Hamlet, A.F. Second Annual Pacific Northwest Climate Science Conference, University of Washington, Kane Hall, Seattle, WA, Sept., 2011, "Effects of Climate Change on Natural and Regulated Flood Risks in the Skagit River Basin and Prospects for Adaptation."

Lee, S.Y., Hamlet, A.F. and Burges, S.J., Climate and Water Resource Forecasts for the 2009 Water Year Meeting, Vancouver, WA, October 2nd, 2008, "Development of Flood Rule Curves for the Columbia River Basin conditioned on ENSO Climate Classification."

Lee, S.Y., Hamlet, A.F., Fitzgerald, C.J., and Burges, S.J., Climate Impacts Group's Climate and Water Resources Forecast for the 2007 Water Year, Kelso, WA, October 3rd, 2006. "Optimized Flood Control in the Columbia River Basin for a Global Warming Scenario."

Lee, S.Y., Hamlet, A.F., Fitzgerald, C.J., and Burges, S.J., ASCE Operations Management Conference, Sacramento, CA. Aug 14-16th, 2006. "Optimized Flood Control in the Columbia River Basin for a Global Warming Scenario."

Lee, S.Y., and Burges, S.J., 2005 Hydrology and Water Resources Symposium, Vancouver, BC, September 30th, 2005. "An Investigation of Potential Benefits of Developing Flood Rule Curves Conditioned on Climate Classification for the Columbia River Basin."

Lee, S.Y., and Lee, Y.D. 1996 Korean Society of Environmental Engineers Conference, Su-Won, South of Korea, Spring, 1996. "A Study of the Transport of Cadmium in Saturated Soil."

**Awards and Scholarships:**
Washington Section AWRA 2004-2005 Fellowship Award
Luther E. Gregory Scholarship for Autumn Quarter 2008
Scholarship from Chonbuk National University in Korea, Feb.1990 – Jan. 1994

**Courses Taught:**
CEE 491 Deterministic System, Co-Instructor, Department of Civil and Environmental Engineering, University of Washington (fall quarter, 2012; spring quarter, 2012, spring quarter, 2011)

The Design for Wastewater Treatment System, Instructor, Department of Environmental Engineering, Jeonju University, Korea (first semester, 1999)

Introduction to Environmental Engineering I, Instructor, Department of Environmental Engineering, Jeonju University, Korea (first semester, 1998; first semester, 1999)

Introduction to Environmental Engineering II, Instructor, Department of Environmental Engineering, Jeonju University, Korea (second semester, 1998)

Introduction to Environmental Engineering, Instructor, Department of Environmental Engineering, Kunsan National University, Korea (second semester 1997; first semester, 1998; second semester, 1998; first semester 1999)

**Other Activities:**
Jan. 2013 ~ Current: Post-Doctoral Research Associate, School of Environmental and Forest Sciences, University of Washington

Jul. 2009 ~ Current: Research Scientist, Climate Impacts Group, University of Washington

Jul. 2009 ~ Dec. 2012: Post-Doctoral Research Associate, Civil and Environmental Engineering, University of Washington

Dec. 1999 ~ Jun. 2009: Research and/or Teaching Assistant, Civil and Environmental Engineering, University of Washington

May 1998 ~ July 1999: Laboratory Chief Research Science of The Environmental Assessment of Sae-Man-Kum Land Reclamation Project (the Korean government project)

July 1994 ~ Mar. 1995: Research Assistant of the Investigation for the Amount and Characteristics of Producing Waste (the Korean government project)