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EDUCATION

- Ph.D., University of California, Berkeley, Civil and Environmental Engineering, 2000
- M.S., University of California, Berkeley, Civil and Environmental Engineering, 1994
- B.S., University of California, Los Angeles, *Cum Laude*, Civil Engineering, 1990

EXPERIENCE

- 2022-Present, Interim Chair, Environmental Systems Graduate Group, UC Merced
- 2022-Present, Chair, Department of Civil and Environmental Engineering, UC Merced
- 2020-Present, Professor, Department of Civil and Environmental Engineering, UC Merced
- 2016-2019, Chair, Environmental Systems Graduate Group, University of California, Merced
- 2015-2020, Associate Professor, School of Engineering, University of California, Merced
- 2015-Present, Faculty, Sierra Nevada Research Institute, University of California, Merced
- 2011-2015, Associate Professor, Department of Civil and Environmental Engineering, Washington State University
- 2013-2014, Guest Researcher, Department of Earth Sciences, University of Florence, Italy
- 2004-2011, Assistant Professor, Department of Civil and Environmental Engineering, Washington State University
- 2001-2004, Principal Water Resources Engineer, Brown and Caldwell, Walnut Creek, CA
- 2000-2001, Post-Doctoral Researcher, Kastanienbaum Limnological Research Center, Switzerland
- 1990-1993, Junior/Assistant Engineer, East Bay Municipal Utility District, Oakland, CA

AWARDS

- 2016 Visiting Scholars Fellowship, Department of Earth Sciences, University of Florence, Italy
- 2012 WSU Civil and Environmental Engineering Department Outstanding Advisor Award
- 2009 NSF CAREER Grant: *Mercury Cycling in Lakes on the Colville Indian Reservation*
- 2009 WSU College of Engineering and Architecture Merit Grant
- 2005 WSU Faculty Seed Grant
- 2000 Fulbright Post-Doctoral Fellowship, Swiss Federal Institute for Environmental Science and Technology, Kastanienbaum Limnological Center, Lucerne

RESEARCH ACTIVITIES

Research Focus

Sustainable control of dilute pollutants in managed surface waters including nutrients, pesticides, pathogens and metals, with a focus on redox mediated transformations at the sediment-water interface. Focus areas include: mercury cycling in aquatic ecosystems; reservoir oxygen addition to repress internal loading of nutrients and metals; enhanced nitrogen removal in constructed treatment wetlands; biomonitoring of atmospheric mercury contamination; co-digestion for sustainable management of organic solid waste; assessment of tobacco- and cannabis-related environmental pollution.

Funded Research Activities

USDA Equipment Grants Program, $75,204. O'Day and Zhao (PIs), Beutel (multiple co-I). *Purchase of AMS/Alliance Smartchem 450 Discrete Chemistry Analyzer.* In review.

Albemarle Corporation, 2022-25. $595,000. O'Day (PI), Beutel (co-PI). *Evaluation of Amendment Treatments for Mercury Remediation in Wetland Sediments.* In review.

U.S. Department of Energy Minority Serving Institution Partnership Program, 2022-2023. $320,000. O'Day (PI), Beutel (co-I). *Manganese and Iron Oxide-Modified Activated Carbon for the Remediation of Mercury Contaminated Sediment and Water.* Second renewal. Pending.

SLAC National Accelerator Laboratory, 2022-23. O'Day (PI), Beutel (multiple co-Is). Proposal for Beamtime: Mercury Speciation in Environmental Samples for Remediation and Mitigation Studies.

UC Tobacco-Related Disease Research Program, 2022-24. $687,551. Beutel (PI), Naughton, Song, Zhao, Eunha (SDSU), Dodder (SDSU). *Estimating Smoking Prevalence in California's Central Valley using Wastewater-Based Epidemiology.* On program waitlist, not currently funded.

Santa Clara Valley Water District, 2022-24. $243,537. Beutel (PI) and O'Day (Co-PI). *Evaluation of Sorbents and Application Methods for Hg Remediation in Mine-Contaminated Surface Waters.*

UC Merced ORED Core Research Facilities Grants, Environmental Analytical Laboratory & Stable Isotope Ecosystems Laboratory, 2022. $1,500. Beutel (PI). *Water quality and biota monitoring of effects of bottom-water oxygen addition to Hodges Reservoir, San Diego.*

Metropolitan Water District of Southern California, 2021. $13,500. Beutel/UC Merced Environmental Analytical Laboratory. *Experimental and Analytical Support for Lake Skinner Sediment Nutrient Release and Oxygen Demand Study.*

Stillwater Sciences, City of Escondido, and Vista Irrigation District, 2021. $71,000. Beutel (PI). *Lake Henshaw and Lake Wohlford Sediment Study.*

US Geological Survey. 2021, $83,000. O'Day (PI), Beutel (co-PI). *Cache Creek Settling Basin Mercury Studies Project*

U.S. Department of Energy Minority Serving Institution Partnership Program, 2021-2022. $270,000. O'Day (PI), Traina (co-I), Beutel (co-I). *Manganese and Iron Oxide-Modified Activated Carbon for the Remediation of Mercury Contaminated Sediment and Water.* First renewal.

UC Merced Center for Information Technology Research in the Interest of Society Seed Grant, 2020-2023. $30,000. Beutel and Hestir (co-PIs). *Enhancing Remote Sensing Capacity of California Water Utilities to Monitor Harmful Algal Blooms in Drinking Water Reservoirs.*

UC-National Lab Collaborative Research and Training Award, 2018-2021. $3.7 million total, $506,544 UC Merced, Dozier (PI UCSB), Beutel (UCM Lead, multiple co-Is). *Headwaters to Groundwater: Resources in a Changing Climate.*

UC Tobacco-Related Disease Research Program, 2019-2021. $532,000 total, $155,501 UC Merced. Holden (PI UCSB), Beutel (UCM lead, multiple co-Is). *Tobacco and Cannabis Chemical Transport and Fate in California Ecosystems.*

State of California Proposition 1 Watershed and Delta Ecosystem Restoration Grant Programs, Delta Stewardship Council, 2019-22. $863,160. O'Day (PI), Beutel (multiple co-Is). *Integrated Science and Management of Nutrient, Salt, and Mercury Export from San Joaquin River.*

U.S. Department of Energy Minority Serving Institution Partnership Program, 2020-2021. $270,000. O'Day (PI), Traina (co-I), Beutel (co-I). *Manganese and Iron Oxide-Modified Activated Carbon for the Remediation of Mercury Contaminated Sediment and Water.*

City of Newman, CA. 2019-2024, $180,000. Beutel (PI). *Design and Monitoring of Natural Treatment System to Treat Stormwater and Agricultural Runoff.* No-cost extension pending as of August 2022.

San Diego Public Utility District/San Diego County Water Authority, 2016-2021. $338,209. Beutel (PI). *Water Quality Monitoring Support and Assessment of Oxygen Addition at Hodges Reservoir.*

<u>*Prior to Current Review Period*</u>

UC MEXUS-CONACYT Collaborative Projects, 2016-17. $25,000. Beutel (PI) and Hansen (Mexican Institute of Water Technology). *Experimental Assessment of Strategies to Repress Sediment Nutrient and Mercury Release in Valle de Bravo, a Drinking Water Source for Mexico City.*

Stillwater Sciences/Marin Municipal Utility Department, 2016-17. $45,000. Beutel (PI). *Soulajule Reservoir Sediment-Water Interface and Lake Oxygenation Study.*

National Park Service, 2013-16. $130,000. Beutel (PI). *Sensitivity of High Elevation Lakes in Mount Rainier, North Cascades, and Olympic National Parks to Atmospheric Nitrogen Deposition.*

WSU Research Advancement Challenge Grant, 2012-13. $70,000. Christen (PI), Beutel (co-I). *Streams of Knowledge: Water Science and Education for the 21st Century.*

EPA Small Business Innovation Research Program Phase I, Fungi Perfecti LLC, 2012-13. $80,000. Stamets (PI), Beutel (co-I). *Assessment of Mycofiltration Biotechnology to Remove Pathogens from Urban Storm Water.*

NSF Research Experience for Undergraduates, 2010-13. $18,000. Beutel (PI). Supplemental to 2009 CAREER Grant. NSF Research Experience for Undergraduates.

USDA Cooperative State Research, Education and Extension Service; University of Idaho and Washington State University Aquaculture Initiative, 2010-12. $23,700. Beutel (PI). *Enhancing Aquaculture Water Usage and Fish Production using Oxygenation*.

Washington State Centennial Clean Water Program, 2010-13. $250,000. Hummel (PI), Beutel (multiple co-Is). *Clarks Creek Water Quality Science, Restoration and Education Implementation Program.*

Colville Confederated Tribes, 2009-13. $260,000. Beutel (co-PI). *Effects of Lake Oxygenation on Mercury Accumulation in Zooplankton and Fish.*

Washington State Department of Ecology, 2009-10. $150,000. Barber (PI), Beutel (co-I). *Lake Osoyoos Drought Study*.

NFS 2009 CAREER Grant Program, 2009-14. $400,200 (#0846446). Beutel (PI). *CAREER: Fundamental Understanding of Mercury Cycling in Lakes and Use of Reservation-Based Research to Recruit American Indians into Environmental Engineering and Science.*

Agouron Institute Grant in Microbial Ecology, 2008-12. $158,000. Beutel (PI). *Microbial Ecology of Mercury Cycling in Freshwater Lakes.*

Northwest Power and Conservation Council FY 2007-09 Fish and Wildlife Program Innovative Project Solicitation, $150,000. Funded by Colville Confederated Tribes. Beutel (co-PI). *Lake Oxygenation to Improve Trout Habitat and Water Quality in Twin Lake.*

Strategic Environmental Research and Development Program FY 2008, $149,300. Watts (PI), Beutel (co-I). *Pretreated Starch Solution for Sustainable Aircraft Deicing.*

USGS Section 104(B) Grant FY2007. $23,000. Beutel (PI). *Quantifying and Enhancing Nitrogen Removal in Constructed Wetlands.*

USGS Section 104(B) Grant FY2006. $23,000. Beutel (PI). *Effects of Sediment Oxygenation on Methylmercury Bioaccumulation in Benthic Biota.*

Metropolitan Water District of Southern California, 2006-07. $25,000. Beutel (PI). *Lake Perris Sediment-Water Interface Study.*

WSU 2005 Faculty Seed Grant. $19,900. Beutel (PI). *Effects of Wet-Dry Cycling on Chlorpyrifos removal in Wetland Sediments.*

USGS Section 104(B) Grant FY2005. $27,500. Beutel (PI). *Oxygenation for the Management of Sediment Mercury Release from Aquatic Sediments.*

Graduate Student Fellowships

Alianza MX/University of California Doctoral Fellowship, 2019-23. ~$100,000. Naivy Rodal (PhD student) and Beutel (advisor). *Effects of Bottom-Water Oxygenation on Mercury Cycling in Drinking Water Reservoirs.*

Convergence of Nano-engineered Devices for Environmental and Sustainable Applications, 2022. ~$35,000. Shelby Defeo (PhD student) and Beutel (advisor). *Monitoring Nitrate in Environmental Water Samples Using a Nano-Optical Approach.*

SoCal Edison UC Merced Graduate Fellowship, 2019-20. $10,000. Byran Fuhrmann (PhD student) and Beutel (advisor). *Control of Mercury Bioaccumulation in Reservoirs Using Lake Oxygenation.*

Prior to Current Review Period

UC Merced Blum Center, 2018-19. $10,000. Julia Burmistrova (MS student) and Beutel (advisor). *Biogas production via co-digestion of Wastewater solids and organic solid waste for sustainable waste management.*

WSU Research Assistantship for Diverse Scholars, Spring 2015. $15,000. Ricardi Duvil (PhD student) and Beutel (advisor). *Nitrate Control on Methylmercury Accumulation in Lakes and Reservoirs.*

Bullitt Environmental Fellowship, 2012-14. $100,000. Ricardi Duvil (PhD student) and Beutel (advisor). *Nitrate Control on Methylmercury Accumulation in Lakes and Reservoirs.*

WSU Nitrogen Systems: Policy-oriented Integrated Research IGERT Fellowship Program, 2012-14. $80,000. Jason Williams (PhD student) and Beutel (advisor). *Determining the Sensitivity of High Elevation Lakes to Atmospheric Nitrogen Deposition.*

WSU Nitrogen Systems: Policy-oriented Integrated Research IGERT Fellowship, 2011-13. $80,000. Ricardi Duvil (PhD student) and Beutel (advisor). *Nitrate Control on Methylmercury Accumulation in Lakes and Reservoirs.*

WSU Engineering and Architecture 2006 Interdisciplinary Research Fellowship, $24,000. Seyoum Gebremariam (PhD student) and Beutel (advisor). *Pesticide Sorption in Aquatic Sediments.*

Inland Northwest Research Alliance Research 2-year Fellowship, 2007-09. $60,000. Seyoum Gebremariam (PhD student) and Beutel (advisor). *Pesticide Sorption in Aquatic Sediments.*

Applied Research/Consulting

F.X. Brown/Bogia Engineering and Batta Environmental, 2021-22. *Support for preliminary design assessment of a hypolimnetic oxygenation system for Valle de Bravo Reservoir, Mexico.*

Century West Engineering, 2022. *Modeling of nitrogen removal in Saltese Flats, WA reclaimed water treatment wetland.*

Prior to Current Review Period

Stillwater Sciences, Berkeley, CA and East Bay Municipal Utility District, 2017-18. *Evaluation of magnitude and controls of hypolimnetic manganese accumulation in San Pablo Reservoir, a raw water reservoir near Berkeley, CA.*

Stillwater Sciences, Berkeley, CA and Marin Municipal Utility District, 2017-18. *Evaluation of magnitude and controls of hypolimnetic methylmercury accumulation and mercury bioaccumulation in Soulajule Reservoir, a back-up raw water reservoir in Marin, CA.*

Stantec/MWH. 2017. *Assessment of sediment nutrient release dynamics in Lake Las Vegas, NV.*

Alex Horne Associates/Rivanna Water and Sewer Authority, VA, 2017. *Assessment of sediment nutrient release dynamics in Beaver Creek Reservoir and South Fork Rivanna Reservoir, Virginia.*

Brown and Caldwell Consulting Engineers, Walnut Creek, CA and San Diego Public Utilities District, 2014-2015. *Assessment of sediment nutrient release dynamics and sediment oxygen demand in Hodges Reservoir, San Diego.*

JUB Engineering, Boise, ID, 2010-2011. *Evaluation of constructed treatment wetlands to cool secondary effluent from Moscow, ID wastewater treatment plant.*

Lake Tahoe Environmental Research Center, Davis, CA, 2010. *Advisor regarding efforts to assess future anoxia-induced internal nutrient loading from profundal sediments and control measures for current Asian clam infestation in littoral sediments of Lake Tahoe, CA/NV.*

Water Quality Engineering, Wenatchee and Washington State Department of Ecology, 2007-08. *Assessment of lake management strategies including lake alum treatment, alum treatment of tributary inflows, and lake aeration or oxygenation for Jameson Lake, WA.*

Parsons Engineering, Syracuse, NY, 2006-2008. *Expert review of efforts to develop lake management strategies to impede mercury bioaccumulation in aquatic biota of Onondaga Lake, a heavily polluted urban lake in NY.*

PUBLICATIONS AND PRESENTATIONS

[1]graduate or [2]undergraduate student advised by Beutel; [3]other graduate student

Peer Reviewed Journal Articles

End of current review period June 30,2022: ~2280 citations; H-Index 25 (Google Scholar)

End of last review period June 30, 2019: ~1440 citations; H-Index 19 (Google Scholar)

Burmistrova[1], J., Beutel, M.W., Hestir, E., Ryals, R., Pandey, P. Anaerobic Co-digestion to Enhance Waste Management Sustainability at Yosemite National Park. *Sustainability*, in review (revised manuscript submitted August 2022).

Seelos, M.[1], Beutel, M.W., McCord, S., Kim, S., Katie, V.[3] Plankton Population Dynamics and Methylmercury Bioaccumulation in the Pelagic Food Web of Mine-Impacted Surface Water Reservoirs. *Hydrobiologia*, in review.

65. Beutel, M.W., Harmon, T.C., Novotny, T.E., Mock, J., Gilmore, M.E., Hart, S.C., Traina, S., Duttagupta, S., Brooks, A., Jerde, C.L., Hoh, E., 2021. A review of environmental pollution from the use and disposal of cigarettes and electronic cigarettes: Contaminants, sources, and impacts. *Sustainability* 13, 12994.
64. Seelos, M.[1], Beutel, M.W., Austin, C.M., Wilkinson, E., Leal, C., 2021. Effects of hypolimnetic oxygenation on fish tissue mercury in reservoirs near the new Almaden Mining District, California, USA. *Environmental Pollution* 268, 115759.
63. Seelos, M.[1], Meraz, E.R.[3], Beutel, M.W., Traina, S.J., Fuhrmann, B.[1], Burmistrova, J.[1], Vlassopoulos, D., O'Day, P.A., 2021. Evaluation of Manganese Oxide Amendments for Mercury Remediation in Contaminated Aquatic Sediments. *Environmental Science & Technology Engineering* 1, 1688–1697.
62. Fuhrmann, B.C.[1], Beutel, M.W., Ganguli, P., Zhao, L., Brower, S., Funk, A., Pasek, J., 2021. Seasonal patterns of methylmercury production, release, and degradation in profundal sediment of a hypereutrophic reservoir. *Lake and Reservoir Management* 37, 360–377.
61. Wartenberg, A.C., Holden, P.A., Bodwitch, H., Parker-Shames, P., Novotny, T., Harmon, T.C., Hart, S.C., Beutel, M., Gilmore, M., Hoh, E., Butsic, V., 2021. Cannabis and the environment: What science tells us and what we still need to know. *Environmental Science & Technology Letters* 8, 98–107.
60. Beutel, M.W., DeSilva, L.[1], Amegbletor, L.[1], 2020. Direct measurement of mercury deposition at rural and suburban sites in Washington State, USA. *Atmosphere* 12, 35.
59. Fuhrmann, B.C.[1], Beutel, M.W., O'Day, P.A., Tran, C.[2], Funk, A., Brower, S., Pasek, J., Seelos, M.[1], 2021. Effects of mercury, organic carbon, and microbial inhibition on methylmercury cycling at the profundal sediment-water interface of a sulfate-rich hypereutrophic reservoir. *Environmental Pollution* 268, 115853.
58. Rimondi, V., Benesperi, R., Beutel, M.W., Chiarantini, L., Costagliola, P., Lattanzi, P., Medas, D., Morelli, G., 2020. Monitoring of airborne mercury: Comparison of different techniques in the Monte Amiata District, Southern Tuscany, Italy. *International Journal of Environmental Research and Public Health* 17, 2353.
57. Rimondi, V., Costagliola, P., Benesperi, R., Benvenuti, M., Beutel, M.W., Buccianti, A., Chiarantini, L., Lattanzi, P., Medas, D. and Parrini, P., 2020. Black pine (*Pinus nigra*) barks: A critical evaluation of some sampling and analysis parameters for mercury biomonitoring purposes. *Ecological Indicators* 112, 106110.
56. Beutel, M.W., Fuhrmann, B.C.[1], Herbon, G., Chow, A., Brower, S., Pasek, J., 2020. Cycling of methylmercury and other redox-sensitive compounds in the profundal zone of a hypereutrophic water supply reservoir. *Hydrobiologia* 847, 4425–4446.
55. Horne, A.J., Beutel, M.W., 2019. Hypolimnetic Oxygenation 3. An engineered switch from eutrophic to a meso/oligo-trophic state in a Californian reservoir. *Lake and Reservoir Management* 35, 338–353.
54. Horne, A.J., R. Jung, R., Lai, H., Faisst, B., Beutel, M.W., 2019 (August). Hypolimnetic Oxygenation 2. Oxygen dynamics in a large reservoir with submerged down-flow contact oxygenation (Speece Cone). *Lake and Reservoir Management* 35, 323–337.

<u>*Prior to Current Review Period*</u>

53. Beutel, M.W., S.R. Dent[1], R.L. Newcombe, G. Möller, 2019 (February). Mercury removal from municipal secondary effluent with hydrous ferric oxide reactive filtration. *Water Environment*

Research 91, 132–143.
52. Beutel, M.W., A.J. Horne, 2018. Nutrient fluxes from profundal sediment of ultra-oligotrophic Lake Tahoe, California/Nevada: Implications for water quality and management in a changing climate. *Water Resources Research* 54, 1549–1559.
51. Child[3], A.W., B.C. Moore, J.D. Vervoort, M.W. Beutel, 2018. Bioavailability and uptake of smelter emissions in freshwater zooplankton in northeastern Washington, USA lakes using Pb isotope analysis and trace metal concentrations. *Environmental Pollution* 238, 348–358.
50. Child[3], A.W., B.C. Moore, J.D. Vervoort, M.W. Beutel, 2018. Tracking long-distance atmospheric deposition of trace metal emissions from smelters in the upper Columbia River valley using Pb isotope analysis of lake sediments. *Environmental Science and Pollution Research* 25, 5501–5513.
49. Labaut[3], Y., C.R. Betancourt, M. Díaz-Asencio, M.W. Beutel, 2018. Influence of dominant environmental processes in the tropical Cuban basin Hanabanilla and reservoir on sediment composition. *Limnetica* 37, 297–309.
48. Duvil[1], R., M.W. Beutel, B. Fuhrmann[1], M. Seelos[1], 2018. Effect of oxygen, nitrate and aluminum addition on methylmercury efflux from mine-impacted sediment. *Water Research* 144, 740–751.
47. Williams[1], J.J., S.H. Chung, A.M. Johansen, B.K. Lamb, J.K. Vaughan, M.W. Beutel, 2017. Evaluation of atmospheric nitrogen deposition model performance in the context of US critical load assessments. *Atmospheric Environment* 150, 244-255.
46. Beutel, M.W., R. Duvil[1], F.J. Cubas, T.J. Grizzard, 2017. Effects of nitrate addition on water column methylmercury in Occoquan Reservoir, Virginia, USA. *Water Research* 210, 288–296.
45. Chiarantini, L., M. Benvenuti, M.W. Beutel, and others, 2016. Mercury and arsenic in stream sediments and surface waters of the Orcia River basin, southern Tuscany, Italy. *Water Air and Soil Pollution* 227, 408–423.
44. Williams[1], J.J., A. Nurse, J.E. Saros, C. Welch, J. Riedel, M.W. Beutel, 2016. Effects of glaciers on nutrient concentrations and phytoplankton in lakes within the North Cascades National Park. *Biogeochemistry* 131, 373–385.
43. McCord, S.A., M.W. Beutel, S.R. Dent, S.G. Schladow, 2016. Evaluation of hypolimnetic oxygenation to control methylmercury bioaccumulation in mercury-impacted seasonally stratified reservoirs in the Guadalupe River Watershed, California. *Water Resources Research 52*, 7726–7743.
42. Chiarantini, L., V. Rimondi, M. Benvenuti, M.W. Beutel, P. Costagliola, C. Gonnelli, P. Lattanzi, M. Paolieri. Black Pine (*Pinus nigra*) barks as a biomonitors of airborne mercury pollution, 2016. *Science of the Total Environment* 569-570, 105–113.
41. Neerackal[3], G.M., P.M. Ndegwa, H.S. Joo, X. Wang, C.S. Frear, J.H. Harrison, M.W. Beutel, 2016. Potential application of Alcaligenes faecalis strain No. 4 in mitigating ammonia emissions from dairy wastewater. *Bioresource Technology* 206, 36–42.
40. Williams[1], J.J., M.W. Beutel, A. Nurse, B.C. Moore, S. Hampton, J. Saros, 2016. Phytoplankton responses to nitrogen enrichment in Pacific Northwest mountain lakes. *Hydrobiologia* 10.1007/s10750-016-2758-y.
39. Beutel, M.W., R. Duvil[1], F.J. Cubas, T.J. Grizzard, F.M. Wilhelm, D. Austin, D.A. Matthews, A.J. Horne, S.Y. Gebremariam, 2016. A review of managed nitrate addition to improve surface water quality. *Critical Reviews in Environmental Science and Technology* 46, 673–700.
38. Beutel, M.W., S.E. Cox[1], S.Y. Gebremariam[1], 2016. Effects of chironomid density and dissolved oxygen on mercury efflux from profundal sediment of a mesotrophic lake. *Lake and Reservoir Management* 32, 158–167.
37. Rimondi, V., L. Chiarantini, P. Lattanzi, M. Benvenuti, M.W. Beutel, and others, 2015. Metallogeny, exploitation and environmental impact of the Mt. Amiata mercury ore district (Southern Tuscany, Italy). *Italian Journal of Geosciences* 134, 323–336.
36. Beutel, M.W., S. Diemont, D. Reinhold, 2015. The 13th annual conference of the American ecological engineering society: Ecological engineering and the dawn of the 21st century. *Ecological Engineering* 78, 1–5.

35. Beutel, M.W., L. Larson, 2015. Pathogen removal from urban pond water using a simple rock biofilter. *Ecological Engineering*, 78, 72–78.
34. Taylor, A., A. Flatt[1], M.W. Beutel, M. Wolff, K. Brownson, P. Stamets, 2015. Removal of Escherichia coli from synthetic stormwater using mycofiltration. *Ecological Engineering* 78, 79–86.
33. Beutel, M.W., M.R. Morgan, J.J. Erlenmeyer[1], E.S. Brouillard, 2014. Phosphorus removal in a surface-flow constructed wetland treating agricultural runoff. *J. Environmental Quality* 43, 1071–1080.
32. Beutel, M.W., S.R. Dent[1], B. Reed[1], P. Marshall[1], S. Gebremariam[1], B. Moore, B. Cross[3], P. Gantzer, E. Shallenberger, 2014. Effects of hypolimnetic oxygen addition on mercury bioaccumulation in Twin Lakes, Washington, USA. *Science of the Total Environment* 496, 688–700.
31. Dent[1], S.R., M.W. Beutel, P. Gantzer, B.C. Moore, 2014. Response of methylmercury, total mercury, iron and manganese to oxygenation of an anoxic hypolimnion in North Twin Lake, Washington. *Lake and Reservoir Management* 30, 119–130.
30. Beutel, M.W., V. Whritenour[1], E. Brouillard, 2013. Fecal coliform removal in a lightly loaded surface-flow constructed treatment wetland polishing agricultural runoff. *Water Sci Technology* 68, 909–915.
29. Dent[1], S.R., M.W. Beutel, 2012. Targeted outreach to enhance diversity in university-sponsored technology competitions. *J. Applications Practices Engineering Education* 3, 43–49.
28. Moore, B.C, B. Cross[3], M.W. Beutel, S.R. Dent[1], E. Preece[3], M. Swanson, 2012. Newman Lake restoration: A case study – Part III. Hypolimnetic oxygenation. *Lake Reserv. Manage.* 28, 311–327.
27. Debroux J., M.W. Beutel, C.M. Thompson, S. Mulligan, 2012. Design and testing of a novel hypolimnetic oxygenation system to improve water quality in Lake Bard, California. *Lake and Reservoir Management* 28, 245–254.
26. Beutel, M.W., 2012. Water quality in a surface-flow constructed treatment wetland polishing tertiary effluent from a municipal wastewater treatment plant. *Water Science and Technology* 66, 1977–1983.
25. Gebremariam[1], S.Y., M.W. Beutel, D. Christian, T.F. Hess, 2012. Effects of glucose on the performance of enhanced biological phosphorus removal in activated sludge. *Bioresource Technology* 121, 19–24.
24. Gebremariam[1], S.Y., M.W. Beutel, M. Flury, J.B. Harsh, D.R. Yonge, 2012. Non-singular adsorption/desorption of chlorpyrifos in soils and sediments: Experimental results and modeling. *Environmental Science and Technology* 46, 869–875.
23. Lancaster[3], C., M.W. Beutel, 2011. Fate and transport of metals and particulates within the roadside environment – A review. *Water Research and Management* 1, 37–46.
22. Gebremariam[1], S.Y., M.W. Beutel, D.R. Yonge, M. Flury, J.B. Harsh, 2011. Adsorption and desorption of chlorpyrifos to soils and sediments. *Reviews of Environ. Contamination and Toxicology* 215, 123–175.
21. Plahuta[3], J.M., A.L. Teel, M. Ahmad, M.W. Beutel, J.A. Rentz, R.J. Watts, 2011. Oxidized starch solutions for environmentally friendly aircraft deicers. *Water Environment Res*. 83, 826–833.
20. Gebremariam[1], S.Y., M.W. Beutel, T.F. Hess, D. Christian, 2011. Research advances and challenges in the microbiology of enhanced biological phosphorus removal – A review. *Water Environment Research* 83, 195–219.
19. Betancourt[3], C., F. Jorge, R. Suárez, M.W. Beutel, S.Y. Gebremariam[1], 2010. Manganese sources and cycling in a tropical eutrophic water supply reservoir, Paso Bonito Reservoir, Cuba. *Lake and Reservoir Management* 26, 217–226.
18. Gebremariam[1], S.Y., M.W. Beutel, 2010. Effects of drain-fill cycling on chlorpyrifos mineralization in microcosms containing wetland sediment. *Chemosphere* 78, 1337–1341.
17. Allen[1], J.G., M.W. Beutel, D.R. Call, A.M. Fischer, 2010. Effects of oxygenation on ammonia oxidation potential and microbial diversity in sediment from surface-flow wetland mesocosms. *Bioresource Technology* 101, 1389–1392.
16. Palmer[1], H.R., M.W. Beutel, S.Y. Gebremariam[1], 2009. High rates of ammonia removal in experimental oxygen-activated nitrification wetland mesocosms. *ASCE J. Environmental Engineer*. 135, 972–979.

15. Al-Houri[3], Z.M., M.E. Barber, D.R. Yonge, J.L. Ullman, M.W. Beutel, 2009. Impacts of frozen soils on the performance of infiltration treatment facilities. *Cold Regions Sci. Tech*. 59, 51–57.
14. Beutel, M.W., C.D. Newton[1], E.S. Brouillard, R.J. Watts, 2009. Nitrate removal in surface-flow constructed wetlands treating dilute agricultural runoff in the lower Yakima Basin, Washington. *Ecological Engineering* 35, 1538–1546.
13. Churchill[1], J.J., M.W. Beutel, P. Burgoon, 2009. Evaluation of the optimal dose and mixing regime for alum treatment of Matthiesen Creek inflow to Jameson Lake, WA. *Lake and Reservoir Management* 25, 102–110.
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4. Beutel, M.W., 2003. Hypolimnetic anoxia and sediment oxygen demand in California drinking water reservoirs. *Lake and Reservoir Management* 19, 208–221. *Nominated for Best Paper of the Year, North American Lake Management Society.*
3. Beutel, M.W., 2001. Oxygen consumption and ammonia accumulation in the hypolimnion of Walker Lake, Nevada. *Hydrobiologia* 466, 107-117.
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Lattanzi, P., M.W. Beutel, P. Costagliola, C. Fagotti, V. Rimondi. 2019. Tracing the impact of geothermal plants in the Monte Amiata area, Tuscany, Italy: evidence from Hg contents in stream sediments and tree barks. *European Geothermal Congress, Den Haag, The Netherlands, June 11-14, 2019.*

Beutel, M.W., T. García-Gallardo[3], A. Falcón-Rojas[3], B. Fuhrmann[1], A.M. Hansen. 2018. Use of Oxygen to repress release of redox-sensitive compounds from profundal sediment in the Valle de Bravo Reservoir, Mexico. In *6th International Symposium on Sediment Management, San Cristóbal de Las*

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Shi, X., M.W. Beutel, T. Long, A. Hellenthal, C. Bristoll-Groll. 2015. Green stormwater infrastructure strategies for airports: Challenges and opportunities. *ASCE Environmental Sustainability in Transportation Infrastructure Conference, Fairbanks, Alaska. doi: 10.1061/9780784479285.001.*

Larson, L., M.W. Beutel. 2014. Fecal coliform levels and control in DeCoursey Pond, an urban pond in Puyallup, WA. *StormCon 2014, Portland, Oregon*.

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Beutel, M.W., D. Wilson. 2005. Targeted oxygen addition to Hood Canal to ameliorate hypoxia. Proceedings of the 2005 Puget Sound Georgia Basin Research Conference, Seattle, WA.

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Beutel, M.W. 2016. The Other Internal Loading – A Look at Nitrogen and Mercury. *Lakeline* 36(2):13–16.

Beutel, M.W. 2011. Letter to the Editor – The Dam and the Reservoir. *Civil Engineering – ASCE Magazine*, December 2011.

Beutel, M.W., B.C. Moore, D. Christensen, P. Gantzer, E. Shallenberger. 2011. Ease the Squeeze in Twin Lakes - The Colville Confederated Tribes Work to Enhance a Trout Fishery and Improve Water Quality in Reservation Lakes. *Lakeline* 30(4):31–37.

Technical Reports

Century West Engineering, Esvelt Environmental Engineering, M.W. Beutel. 2022. Saltese Flats Reclaimed Water Feasibility Study. Report to the Liberty Lake Sewer and Water District, 13 p.

O'Day, P. and others. 2022. Integrated Science and Management of Nutrient, Salt, and Mercury Export from San Joaquin River Wetland Tributaries to Delta. Project report to Delta Stewardship Council, 20 p.

Beutel, M.W., 2021. Hypolimnetic Oxygen Demand in Valle de Bravo Reservoir. Report to F.X. Brown/Bogia Engineering, 23 p.

Beutel, M.W., Defeo, S.[1] 2021. Lake Henshaw and Lake Wohlford Sediment Flux Study. Project Report to Stillwater Sciences, City of Escondido, and Vista Irrigation District, 25 p.

Rodal Morales, N.[1], Beutel, M.W., 2020. Newman Constructed Treatment Wetland Report: (1) Water Budget, (2) Water Quality, (3) Pollutant Removal Modelling, and (4) Preliminary Design. Reports to the City of Newman, California, 20-26 p. each.

Prior to Current Review Period

Beutel, M.W., 2017. Lake Las Vegas Sediment Flux Study. Report to Stantec/MWH, Las Vegas, NV.

Beutel, M.W., 2017. Rivanna Sediment Flux Study. Report to Alex Horne Associates/Rivanna Water and Sewer Authority, VA.

Beutel, M.W., 2016. San Pablo Reservoir Sediment Oxygen Demand Study; San Pablo Reservoir Sediment Flux Study. Reports to Stillwater Sciences, Berkeley, CA and East Bay Municipal Utility District.

Beutel, M.W., 2016. Soulajule Reservoir Methylmercury Control Measures Study – Phase 2, Task 6; Sediment Oxygen Demand. Report to Stillwater Sciences and Marin Municipal Utility District.

Beutel, M.W., 2015. Lake Hodges Reservoir Sediment Oxygen Demand Study; Lake Hodges Reservoir Sediment Flux Study. Reports to Brown and Caldwell and San Diego Public Utility District.

Williams[1], J., M.W. Beutel, 2015. Atmospheric Nitrogen Deposition Model Performance in the Pacific Northwest and Implications for Critical Load Exceedance Tests. Progress Report to the National Park Service, Task Agreement P13AC00955.

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Beutel, M.W., S.R. Dent[1], 2011. Summary of 2010 Monitoring Efforts at Twin Lakes. Report to the Colville Confederated Tribes, 9 p.

Beutel, M.W., 2010. Use of the Moscow Constructed Treatment Wetlands to Cool Wastewater Effluent. Technical Memorandum to JUB Engineering and the City of Moscow, Idaho, 5 p.

Beutel, M.W., S.R. Dent[1], B.C. Moore, 2010. Twin Lakes 2008 and 2009 Metals Monitoring Summary Report. Report to the Colville Confederated Tribes, 23 p.

Beutel, M.W et al., 2010. Effects of Zosel Dam Water Regulation on Osoyoos Lake Water Quality (Study 4). Report to the Washington State Department of Ecology, 38 p.

Beutel, M.W., 2008. Jameson Lake Technical Memoranda: (1) Preliminary Sizing and Cost of Aeration and Oxygenation System; (2) Sediment Oxygen Demand; (3) Sediment Phosphorus Release; (4) Effects of Alum Addition on pH and Phosphorus in Lake Water and Lake Inflow. Reports to Water Quality Engineering and Washington State Department of Ecology, 40 p.

Beutel, M.W., H.R. Palmer[1], C.D. Newton[1], 2008. Quantifying and Enhancing Nitrogen Removal in Constructed Wetlands. Project Completion Report to State of Washington Water Research Center and USGS, Project 2007WA196B, 5 p.

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Beutel, M.W., 2006. Lake Perris Sediment-Water Interface Study. Report to Montgomery Watson Harza Americas, Inc. and the Metropolitan Water District of Southern California, 38 p.

Beutel, M.W., B.C. Moore, 2006. Oxygenation for the Management of Sediment Mercury Release from Aquatic Sediments. Project Completion Report to State of Washington Water Research Center and USGS. State of Washington Water Research Report WRR-27, 14 p.

Wilson, D., M.W. Beutel, 2005. Review of the Feasibility of Oxygen Addition or Accelerated Upwelling in Hood Canal, Washington. Report to Puget Sound Action Team, 44 p.

Beutel, M.W., K. Abu-Saba, 2004. Potential effects of the South Bay Salt Ponds Restoration Project on mercury cycling and bioaccumulation. Memorandum to California Coastal Commission, 47 p.

Invited Presentations

Rodal Morales, N.[1], M.W. Beutel, O'Day, P., Fleck, J., Marvin-DiPasquale, M., Alpers, C., 2022. Incubation experiments on Cache Creek Settling Basin sediments from coagulant-treated mesocosms. Delta Tributaries Mercury Council (virtual).

Rivas Meraz, E.[3], Traina, S., Beutel, M.W., O'Day, P.A., 2022. Evaluation of manganese oxide modified activated carbon (MOMAC) for treatment of mercury contaminated sediments. Delta Tributaries Mercury Council (virtual).

Beutel, M.W., 2022. Environmental Pollution from Tobacco Product Waste. Presented at the panel webinar: The Health and Environmental Harms of Tobacco Product Waste (TPW) Potential Solutions for Mitigating These Harms, February 24, 2022.

Beutel, M.W., 2020. A Review of Managed Nitrate Addition to Enhance Surface Water Quality. Webinar for the California Lake Management Society.

Beutel, M.W., Rodal Morales, N.[1], Fuhrmann, B.[1] 2020. Preliminary assessment of hypolimnetic oxygenation to improve water quality in Hodges Reservoir, California, USA. Lahti Lakes 2021 Virtual Conference, Finland.

Burmistrova[1], J., Beutel, M.W., 2019. Assessment of anaerobic co-digestion of food waste and wastewater solids for sustainable waste management in Yosemite National Park, USA. Yosemite Forum, Yosemite National Park, CA.

Prior to Current Review Period

Beutel, M.W. 2019. Bottom water oxygenation to improve water quality in reservoirs. Prevención de la proliferación de algas nocivas: experiencias de Europa y América del Norte. Colegio de Ingenieros Civiles de México A.C., Mexico City.

Beutel, M.W. 2018. Experimental assessment of oxygenation to repress methylmercury release at the profundal sediment-water interface in Hodges Reservoir, California, USA. Lahti Lakes 2018 – Restoration of Eutrophic Lakes: Current Practices and Future Challenges, Lahti, Finland.

Beutel, M.W. 2018. Engineered Oxygen Addition Case Studies. Environment and Climate Change Canada – Contaminated Sediment Management Workshop. Toronto, Canada.

Beutel, M.W. 2016. A review of managed nitrate addition to enhance surface water quality. University of Florence, Department of Earth Sciences, Florence, Italy.

Beutel, M.W. 2016. Effects of nitrate addition on methylmercury in the Occoquan Reservoir, Virginia. USA. University of Florence, Department of Earth Sciences, Florence, Italy.

Beutel, M.W., 2015. An Overview of hypolimnetic oxygenation: three brief case studies. World Bank Surface Water Oxygen Addition Workshop. Sacramento, CA.

Beutel, M.W. 2014. Effects of oxygen addition on mercury bioaccumulation in Twin Lakes, WA. Keynote Presentation, California Lake Management Society Annual Conference, Davis, CA.

Beutel, M.W. 2014. Enhancing Ammonia Removal in Constructed Treatment Wetlands. University of Pisa, Department of Civil Engineering, Pisa, Italy.

Beutel, M.W. 2013. Applied Biogeochemistry 1: Managing mercury bioaccumulation in lakes and reservoirs. University of Florence, Department of Earth Sciences, Florence, Italy.

Beutel, M.W. 2013. Applied Biogeochemistry 2: Enhancing ammonia removal in constructed treatment wetlands. University of Florence, Department of Earth Sciences, Florence, Italy.

Beutel, M.W. 2012. An historical overview of alum treatment in lakes in Washington State; Case Studies of Hypolimnetic Oxygenation in Western Lakes and Reservoirs. Arkansas Water Research Center Watershed and Research Conference, Fayetteville, AR.

Beutel, M.W. 2011. Effects of lake oxygenation on mercury cycling in Twin Lakes, Washington. University of Vermont, Rubenstein Ecosystem Science Laboratory and Rubenstein School of Environment and Natural Resources, Burlington, VT.

Beutel, M.W. 2011. Novel research avenues related to oxygenation: Mercury cycling in lakes and ammonia removal in wetlands. Four presentations: University of Arkansas, Fayetteville, AR; University of Waterloo, Ontario, Canada; University of Western Ontario, Ontario, Canada; McMaster University, Ontario, Canada.

Beutel, M.W., S.R. Dent[1], B.C. Moore, E. Shallenberger. 2011. Impacts of lake oxygenation on mercury cycling in Twin Lake, Washington. Second IWA Symposium on Lake and Reservoir Management, Granada, Spain.

Beutel, M.W. 2010. Effects of lake oxygenation on mercury cycling in Twin Lakes, Washington. IWA Lake and Reservoir Management Workshop. Montreal, Canada, September 2010.

Beutel, M.W. 2010. Mercury cycling: A graphical overview. University of Idaho. Moscow, ID.

Beutel, M.W. 2010. Novel research avenues related to oxygenation: Mercury cycling in lakes and ammonia removal in wetlands. San Diego State University, Department of Civil, Environmental and Construction Engineering, San Diego, CA.

Beutel, M.W. 2008. Novel research avenues related to oxygenation: Mercury cycling in lakes and ammonia removal in wetlands. University of Florida, Environmental Engineering Sciences Department, Gainesville, FL.

Beutel, M.W. 2005. The use of oxygenation to improve water quality in Hood Canal. Testimony to the Washington State Legislature Select Committee on Hood Canal, Olympia, WA.

National and International Presentations

Clidance, D., Schleis, G., Rodal Morales, N.[1], Fuhrmann, B.[1], Beutel, M.W., November 2022. Assessment of Effects of Hypolimnetic Oxygenation in Hodges Reservoir, CA, the Most Recent Speece Cone HOS Installation. North American Lake Management Annual Conference, Minneapolis, MN (accepted).

Beutel, M.W., Rodal Morales, N.[1], Fuhrmann, B.[1], July 2022. Preliminary Assessment of Effects of Hypolimnetic Oxygenation on Mercury Cycling in Hodges Reservoir, California, USA. International Conference on Mercury as a Global Pollutant (virtual).

Rodal Morales, N.[1], M.W. Beutel, O'Day, P., Fleck, J., Marvin-DiPasquale, M., Alpers, C., July 2022. Mercury Methylation in Coagulant-treated Soils upon Rewetting: A Controlled Laboratory Incubation. International Conference on Mercury as a Global Pollutant (virtual).

Rivas Meraz, E.[3], Traina, S., Beutel, M.W., O'Day, P.A., July 2022. Mixed-valent Manganese Oxide Modified Activated Carbon (MOMAC) Amendments for Remediation of Mercury-Contaminated Sediments (poster). Goldschmidt Conference 2022, Hawaii.

Beutel, M.W., Rodal Morales, N.[1], June 2022. Kadlec's P-k-C* model for nitrate removal: Two case studies in treatment wetland preliminary design and sizing. American Ecological Engineering Society Annual Conference. Baltimore, MD.

Rodal Morales, N.[1], Fuhrmann, B.[1], Defeo, S.[1], Beutel, M.W., June 2022. Water Quality Benefits of Reestablishing Oxic Conditions in the Bottom of a Hypereutrophic Drinking Water Reservoir. American Ecological Engineering Society Annual Conference. Baltimore, MD.

Rivas Meraz, E.[3], Traina, S., Beutel, M.W., O'Day, P.A., March 2022. Manganese Oxide Modified Activated Carbon Amendments for Mercury Remediation in Contaminated Sediments (poster). American Chemical Society Spring Meeting, San Diego, CA.

Beutel, M.W., 2021. Targeted oxygen addition to Hood Canal, WA to ameliorate the impacts of hypoxia. Coastal and Estuarine Research Federation Virtual Conference.

Defeo, S.[1], Rodal Morales, N.[1], Beutel, M.W., 2021. Evaluation of Internal Nutrient Loading Conditions within Lake Henshaw and Lake Wohlford, San Diego County, California. American Ecological Engineering Society Annual Conference (virtual).

Rodal Morales, N.[1], Fuhrmann, B.[1], Defeo, S.[1], Beutel, M.W., 2021. Evaluation of Hodges Reservoir Mercury Cycle and Water Quality before Hypolimnetic Oxygenation Implementation. American Ecological Engineering Society Annual Conference (virtual).

Hohn[3], R.A., Ganguli, P.M., and others, 2021. Water Quality Downstream form the Second Largest Mercury Mine in North America: New Idria, CA (poster). Geological Society of America Annual Meeting (virtual).

Rivas Meraz, E.[3], Burmistrova, J.[1], O'Day, P., Beutel, M.W., 2020. Evaluating Manganese Oxide Modified Activated Carbon (MOMAC) for Remediation of Mercury Contaminated Sediments (poster). Waste Management Symposia, Tempe, AZ.

Seelos, M.[1], Rivas Meraz, E.[3], Burmistrova, J.[1], O'Day, P., Beutel, M.W., 2020. Manganese Oxide and Activated Carbon Amendments for Porewater Mercury Remediation (poster). Waste Management Symposia, Tempe, AZ.

O'Day, P., Rivas Meraz, E.[3], Burmistrova, J.[1], Seelos, M.[1], Beutel, M.W., Traina, S., Vlassopoulos, D., 2020. Novel Remediation of Mercury-Contaminated Sediments Using Manganese Oxide and Activated Carbon Amendments. Waste Management Symposia, Tempe, AZ.

Holden, P., Beutel, M.W., others. 2020. Environmental exposures and effects of tobacco and cannabis: Synthesis of evidence for policy arguments. APHA's 2020 VIRTUAL Annual Meeting and Expo.

Beutel, M.W., 2020. Internal Nutrient Loading in Ultra-Oligotrophic Lake Tahoe, California/Nevada: Implications for Water Quality and Management in a Changing Climate. North American Lake Management Annual Conference (virtual).

Rodal Morales, N.[1], Beutel, M.W., 2020. Modeling pollutant removal using the P-k-C* model in a surface-flow treatment wetland to treat and reuse agricultural runoff in Newman, California (poster with recorded presentation). American Ecological Engineering Society Annual Conference (virtual).

Beutel, M.W., Seelos, M.[1], 2020. Hypolimnetic Oxygenation to Control Mercury Bioaccumulation in Lakes: Two Case Studies. Annual Meeting of the California Chapter for the Society for Freshwater Science & California Aquatic Bioassessment Workgroup (virtual).

Schmitt, E.[3], Ganguli, P.M., and others, 2020. Linking Submarine Groundwater Discharge to Mercury Biogeochemical Cycling at the Coastal Margin (poster). Geological Society of America Annual Meeting (virtual).

Hohn[3], R.A., Ganguli, P.M., and others, 2019. Assessing Water Quality Downstream from the Former New Idria Mercury Mine (poster). AGU 2019, San Francisco, CA.

Hoover[3], C.L., Ganguli, P.M., and others. 2019. Long-Term Wildfire-Related Chemical Impacts on Water Quality within the Malibu Creek Coastal Watershed (poster). AGU 2019, San Francisco, CA.

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Rimondi, V., P. Costagliola, R. Benesperi, M. Benvenuti, M.W. Beutel, L. Chiarantini, P. Lattanzi. 2019. Mercury in tree bark and lichen at the mining site of Abbadia San Salvatore, Italy: A comparison study (poster). SETAC Europe Annual Conference, Helsinki, Finland.

Beutel, M.W., P. Costagliola, R. Benesperi, M. Benvenuti, V. Rimondi, P. Lattanzi, P. Parrini. 2019. Assessment of mercury speciation in contaminated tree bark via thermal desorption (poster). SETAC Europe Annual Conference, Helsinki, Finland.

Rimondi, V., P. Costagliola, R. Benesperi, M. Benvenuti, M.W. Beutel, A. Buccianti, L. Chiarantini, P. Lattanzi, P. Parrini. Black pine (*Pinus nigra*) bark as biomonitors of airborne mercury: sampling and analytical suggestions for minimizing methodological biases. SETAC Europe Annual Conference, Helsinki, Finland.

Beutel, M.W., V. Rimondi, P. Costagliola, P. Lattanzi. 2019. Biomonitoring mercury contamination of the landscape: Concentrations and speciation in tree bark near the Abbadia San Salvatore Mining District, Italy. American Ecological Engineering Society Conference, Ashville, NC.

Burmistrova[1], J., M. Seelos[1], M.W. Beutel, S. Traina, P. O'Day. 2019. Assessment of manganese/iron oxide-modified activated carbon to repress MeHg production in Hg-contaminated sediments (poster). American Ecological Engineering Society Conference, Ashville, NC.

Beutel, M.W. 2019. Patterns of Mercury Cycling in the Profundal Zone of Hodges Reservoir. American Ecological Engineering Society Conference, Ashville, NC.

Conn[1], M., M.W. Beutel, B. Fuhrmann[1], S. Brower. 2019. Seasonal zooplankton community structure and mercury bioaccumulation in a hypereutrophic reservoir. American Ecological Engineering Society Conference, Ashville, NC.

Beutel, M.W., B. Fuhrmann[1], S. Brower, J. Pasek, P. O'Day. 2018. Seasonal and redox-mediated patterns of methylmercury release from profundal sediment in Hodges Reservoir, California. SETAC North American Annual Conference, Sacramento, CA.

Beutel, M.W., T. García-Gallardo[3], A. Falcón-Rojas[3], B. Fuhrmann[1], A.M. Hansen (presenter). 2018. Use of Oxygen to repress release of redox-sensitive compounds from profundal sediment in the Valle de Bravo Reservoir, Mexico. 6th International Symposium on Sediment Management, San Cristóbal de Las Casas, Chiapas, Mexico.

Burmistrova[1], J., M.W. Beutel, S.J. Shackelton, J. Bailey. 2018. Feasibility of co-digestion to manage organic solid waste and wastewater solids from Yosemite National Park, USA. American Ecological Engineering Society Conference, Houston, TX.

Martinez[1], J., M.W. Beutel, B. Fuhrmann[1], S. Brower, J. Pasek. 2018. Mercury bioaccumulation in the aquatic food web of a eutrophic reservoir, Hodges Reservoir, California. American Ecological Engineering Society Conference, Houston, TX.

Fuhrmann[1], B., M.W. Beutel. 2018. Mercury cycling in California reservoirs: Takeaways and management strategies to repress bioaccumulation. American Ecological Engineering Soc. Conference, Houston, TX.

Lopez[2], A., J. Martinez[1], M.W. Beutel, P. Costagliola. 2017. Biomonitoring of atmospheric mercury pollution using lichen at the Monte Amiata Mercury Mining District in Southern Tuscany, Italy (poster). Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS) Annual Conference, Salt Lake City, UT.

Beutel, M.W., F. Cubas, R. Duvil[1], T. Grizzard. 2017. Effect of nitrate addition on water column methylmercury in Occoquan Reservoir, Virginia, USA. 13th International Conference on Mercury as a Global Pollutant, Providence, RI.

Beutel, M.W. (presented by D. Austin). 2017. Bench-scale evaluation of oxygen-activated nitrification wetlands: Ammonia removal rates, sediment nitrification potential and sediment microbial ecology. WETPOL Annual Conference. Big Sky Resort, MT.

Beutel, M.W., F. Cubas, R. Duvil[1], T. Grizzard. 2016. Nitrate addition as an ecotechnology to reduce mercury bioaccumulation in aquatic ecosystems: The Occoquan Reservoir case study. American Ecological Engineering Society Conference, Athens, GA.

Fuhrmann[1], B., M.W. Beutel. 2016. The use of hypolimnetic oxygenation to restore ecosystem function in the bottom of lakes and reservoirs. American Ecological Engineering Society Conference, Athens, GA.

Beutel, M.W. 2016. A review of managed nitrate addition to enhance surface water quality. North American Lake Management Society, Bamff, Canada.

Beutel, M.W. 2016. Effects of nitrate addition on methylmercury in the Occoquan Reservoir, Virginia. North American Lake Management Society, Bamff, Canada.

Todorova, S., M.W. Beutel. 2015. Conceptual model for recovery of eutrophic freshwater ecosystems from mercury contamination. MERCURY 2015, Jeju Island, South Korea.

Williams[1], J., M.W. Beutel. 2015. Phytoplankton responses to nutrient enrichment within high elevation lakes at Mount Rainier, North Cascades, and Olympic National Parks. Science for Parks National Conference, Berkeley, CA.

Williams[1], J., M.W. Beutel, B.C. Moore. 2014. Effects of nitrogen deposition and glacier melting on mountain lakes in the North Cascades National Park (USA). American Society of Limnology and Oceanography Conference, Portland, OR.

Larson, L., M.W. Beutel. 2014. Fecal coliform levels and control in DeCoursey Pond, an urban pond in Puyallup, WA. StormCon 2014, Portland, OR.

Beutel, M.W., D. Drury, R. Duvil[1]. 2014. Effect of oxygen, nitrate and aluminum oxide addition on mercury efflux from mine-impacted reservoir sediments. SETAC Europe, Basil, Switzerland.

Beutel, M.W., L. Chiarantini, V. Rimondi, P. Costagliola, M. Benvenuti, P. Lattanzi. 2014. Biomonitoring of atmospheric mercury pollution using tree bark at the Monte Amiata mercury mining district in southern Tuscany, Italy (presentation and poster). SETAC North America, Vancouver, Canada.

Beutel, M.W., S.R. Dent[1], D. Drury, R. Duvil[1]. 2013. Effects of oxygen and nitrate on mercury cycling in natural and contaminated lakes and reservoirs in the Western USA. MERCURY 2013 Conference, Edinburgh, Scotland.

Duvil[1], R., M.W. Beutel, D. Drury. 2013. The effect of oxygen, nitrate and aluminum hydroxide on methylmercury efflux from contaminated profundal lake sediments. North American Lake Management Society Conference, San Diego, CA.

Beutel, M.W., L. Larson. 2013. Pathogen removal from urban pond water using a simple rock biofilter. American Ecological Engineering Society Conference, East Lancing, MI.

Beutel, M.W. 2012. Modeling nutrient removal in constructed treatment wetlands. American Ecological Engineering Society Conference, Syracuse, NY.

Williams[1], J., M.W. Beutel, D. Ward, C. Chen. 2012. How variable are rates of Hg biomagnification across systems? Society for Environmental Toxicology and Chemistry Conference (poster), San Diego, CA.

Marshall[1], P., M.W. Beutel, others. 2011. Mercury biomagnification in Twin Lakes in 2011 under oxygenated and non-oxygenated conditions. North American Lake Management Society Conference, Spokane, WA.

DeSilva[1], L., M.W. Beutel, B. Lamb, J. Vaughan. 2011. Field measurements of Hg deposition in Pullman and Puyallup, Washington. North American Lake Management Society Conference, Spokane, WA.

Cox[1], S., M.W. Beutel, S.R. Dent[1]. 2011. Influence of macrobenthos on the cycling of mercury at the sediment-water interface of lakes. North American Lake Management Society Conference, Spokane, WA. *Finalist for Outstanding Student Paper.*

Gebremariam[1], S.Y., M.W. Beutel. 2011. Enhancing trout production and health in aquaculture and hatcheries facilities using oxygenation. North American Lake Management Society Conference, Spokane, WA.

Beutel, M.W., M.E. Barber, L. Tran[3]. 2011. Effects of Zosel Dam water regulation on Osoyoos Lake water quality. Osoyoos Lake Water Science Forum. Osoyoos, BC, Canada.

Dent[1], S.R., M.W. Beutel, B.C. Moore, E. Shallenberger. 2011. An evaluation of the impacts of hypolimnetic oxygenation on water quality and mercury in Twin Lake, Washington. 10th International Conference on Mercury as a Global Pollutant, Halifax, Nova Scotia, Canada.

Mobley, M., R. Ruane, P. Gantzer, E. Shallenberger, F.H. Dunlap, M.W. Beutel, J.A. Sykes. 2011. Oxygen diffusers to enhance water quality and fish habitat in lakes and reservoirs. Second IWA Symposium on Lake and Reservoir Management, Granada, Spain.

Beutel, M.W., B. Reed[1], S.R. Dent[1], B.C. Moore, E. Shallenberger. 2011. Effects of biodilution and lake oxygenation on mercury bioaccumulation in zooplankton in Twin Lake, Washington. American Ecological Engineering Society Conference, Ashville, NC.

Beutel, M.W., S.R. Dent[1], B. Reed[1], B.C. Moore, D.R. Yonge, E. Shallenberger. 2010. Effects of hypolimnetic oxygenation on mercury cycling in Twin Lake, Washington (poster). American Geophysical Union Fall Meeting, San Francisco, CA.

Gebremariam[1], S.Y., M.W. Beutel, D.R. Yonge, M. Flury, J. Harsh. 2010. Retention and migration of chlorpyrifos in aquatic sediments. American Geophysical Union Fall Meeting, San Francisco, CA.

Betancourt[3], C., F. Jorge, R. Suárez, M.W. Beutel, S.Y. Gebremariam[1]. 2010. Evaluation of manganese sources and cycling in a eutrophic water supply reservoir. XV International Scientific Congress, Cuban National Center for Scientific Research, Havana, Cuba.

Mobley, M., M.W. Beutel, P. Gantzer, B.C. Moore, E. Shallenberger. 2009. Oxygenation diffusion for fish habitat enhancement at Colville Confederated Tribe's North Twin Lake. North American Lake Management Society Conference, Hartford, CT.

Dent[1], S.R., M.W. Beutel. 2009. Effect of transient oxygenation on methylmercury in the hypolimnetic waters of a eutrophic freshwater lake. American Ecological Engineering Society Conference, Oregon State University, Corvallis, OR. *Awarded Best Student Presentation.*

Erlenmeyer[1], J.J., M.W. Beutel. 2009. Phosphorus removal in constructed treatment wetlands polishing agricultural return flows in the Yakima Valley, Washington. American Ecological Engineering Society Conference, Oregon State University, Corvallis, OR.

Allen[1], J.G., M.W. Beutel. 2009. Microbial activity, composition and abundance in bench-scale oxygen-activated nitrification wetlands. American Ecological Engineering Society Conference, Oregon State University, Corvallis, OR.

Gebremariam[1], S.Y., M.W. Beutel. 2009. Effects of drain/fill cycling on chlorpyrifos mineralization in constructed treatment wetlands. American Ecological Engineering Society Conference, Oregon State University, Corvallis, OR.

Beutel, M.W., H.R. Palmer[1]. 2008. Almost beyond wetlands: Enhancing ammonia removal in constructed treatment wetlands using oxygenation. American Ecological Engineering Society Conference, Virginia Technical University, Blacksburg, VA.

Beutel, M.W., S.Y. Gebremariam[1]. 2007. Environmental properties and biochemical transformations of permethrin in aquatic ecosystems – A role for constructed wetlands? American Ecological Engineering Society Conference, Kansas State University, Manhattan, KS.

Beutel, M.W., N. Burley[2] and K. Culmer[2]. 2007. Induced sediment oxygen demand and nitrate demand. American Society of Limnology and Oceanography Conference, Santa Fe, NM.

Dent[1], S.R., M.W. Beutel. 2006. Effects of lake oxygenation on bioaccumulation of mercury in benthic organisms. 8th International Conference on Mercury as a Global Pollutant, Madison, WI.

Leonard[1], T.M., M.W. Beutel. 2006. Control of mercury release from lake sediments using oxygenation. American Ecological Engineering Society Conference, Berkeley, CA.

Barber, M.E., M.W. Beutel, B. Lamb, R. Watts. 2004. Understanding hydrologic processes in semi-arid cold climates. American Geophysical Union Fall Conference, San Francisco, CA.

Regional Presentations

Jones, D.[1], Gordus, A., Quinn, N., Beutel, M.W., O'Day, P., 2021. Mercury Cycling in Seasonal Wetlands of the Los Banos Wildlife Area. Bay-Delta Science Conference (virtual).

Helmrich, S.[3], Quinn, N., Herr, J., Beutel, M.W., O'Day, P., 2021. Improvement of WARMF model to simulate wetland processes leading to increased salinity (poster). Bay-Delta Science Conference (virtual).

Prior to Current Review Period

Beutel, M.W., B. Fuhrmann[1], others. 2019. Cycling of Methylmercury and Other Redox-Sensitive Compounds in the Profundal Zone of a Hypereutrophic Hodges Reservoir. California Lake Management Society Annual Conference, San Diego, CA, October 2019.

Fuhrmann[1], B., M.W. Beutel, others. 2019. Consequences of Inorganic Mercury, Organic Carbon, and Microbial Inhibitors on Mercury Methylation in Profundal Sediment of a Hypereutrophic Reservoir. California Lake Management Society Annual Conference, San Diego, CA, October 2019.

Beutel, M.W., B. Fuhrmann[1], others. 2019. Cycling of Methylmercury and Other Redox-Sensitive Compounds in Hodges Reservoir. Delta Tributaries Mercury Council Meeting, September 2019.

Fuhrmann[1], B., M.W. Beutel, others. 2019. Consequences of Inorganic Mercury, Organic Carbon, and Microbial Inhibitors on Mercury Methylation in Profundal Sediment of Hodges Reservoir. Delta Tributaries Mercury Council Meeting, September 2019.

Beutel, M.W., B. Fuhrmann[1], S. Brower. 2019. Patterns of mercury cycling in the profundal zone of Hodges Reservoir, California. SoCal SETAC Annual Conference, San Diego, CA.

Ganguli, P.M. and others. 2019. Contaminant mobilization in the Malibu Lagoon watershed following the November 2018 Woolsey Fire (poster). SoCal SETAC Annual Conference, San Diego, CA.

Hohn, R. and others. Water Quality Downstream from the Former New Idria Mercury Mine (poster). 2019 SoCal SETAC Annual Conference, San Diego, CA.

Beutel, M.W. 2019. Constructed treatment wetlands for water quality improvement. San Joaquin Valley Stormwater Quality Partnership. Newman, CA.

Beutel, M.W. 2018. Reservoir oxygenation to enhance water quality and repress mercury bioaccumulation. UC Water California Water Security Collaborative Meeting. Sacramento, CA.

Beutel, M.W. 2017. Mercury cycling in California reservoirs. UC Merced Sierra Nevada Research Institute Annual Research Symposium. Merced, CA.

Beutel, M.W., 2015. Oxygen addition to enhance surface water quality. Engineer Advisory Board. UC Merced.

Beutel, M.W. 2015. Effects of oxygen addition on mercury bioaccumulation in Twin Lakes, WA. Delta Tributaries Mercury Council, Davis, CA.

Whritenour[1], V., M.W. Beutel. 2014. Effectiveness of Surface Flow Contracted Wetlands Receiving Agricultural Runoff in Mitigating Pathogens and Turbidity, Lower Yakima Basin. WA (poster). WSU BIOAg Symposium, Pullman, WA.

Taylor, A., A. Flatt[1], M.W. Beutel, P. Stamets, M. Wolff, K. Brownson. 2014. Mycofiltration bio-technology for urban stormwater bacteria removal. Salish Sea Ecosystem Conference, Seattle, WA.

Williams[1], J., C. Chen, D. Ward, M.W. Beutel. 2012. How variable are rates of mercury biomagnification across systems? Washington Lakes Protection Association, Wenatchee, WA.

Beutel, M.W. 2012. Nutrient removal in constructed treatment wetlands. ASCE/Washington State Department of Transportation Nutrient Workshop, Spokane, WA.

DeSilva[1], L., M.W. Beutel, B. Lamb, E. Shallenberger. 2011. Field measurements of mercury deposition in Pullman and Puyallup, Washington. PNWIS Annual Conference, BC, Canada.

Beutel, M.W., E. Shallenberger. 2011. Lake oxygenation and mercury cycling in Twin Lakes, Washington. Water in the Columbia Basin Conference. Stevenson, WA.

Beutel, M.W., M. Barber. 2011. Effects of Zosel Dam water regulation on Osoyoos Lake water quality. Water in the Columbia Basin Conference. Stevenson, WA.

Reed[1], B., M.W. Beutel. 2010. Effects of oxygenation on mercury bioaccumulation in zooplankton in Twin Lakes, Washington. PNWIS Annual Conference, Missoula, MT.

Marshall, P., M.W. Beutel. 2010. A review of colloid-facilitated transport of pesticides in soils. PNWIS Annual Conference, Missoula, MT.

DeSilva[1], L., M.W. Beutel. 2010. Greenhouse gas emissions from constructed treatment wetlands: An overview. PNWIS Annual Conference, Missoula, MT.

Cox[1], S., M.W. Beutel. 2010. An introduction to the effects of macrobenthos on the efflux of pollutants from aquatic sediments. PNWIS Annual Conference, Missoula, MT.

Gebremariam[1], S.Y., M.W. Beutel, D.R. Yonge, M. Flurry, J. Harsh. 2010. Dual-component sorption of chlorpyrifos in aquatic sediments and soils at environmentally relevant concentrations. PNWIS Annual Conference, Missoula, MT.

Beutel, M.W., J. Liou. 2010. Enhancing aquaculture water usage and fish production using oxygenation. University of Idaho/WSU Aquaculture Meeting, Moscow, ID.

Whritenour[1], V.A., M.W. Beutel, J.R. Foltz[3]. 2009. Effectiveness of surface-flow constructed wetlands receiving agricultural runoff in mitigating pathogens and turbidity, Lower Yakima Basin, WA. Poster, WSU Showcase, Pullman, WA.

Beutel, M.W, B.C. Moore, others. 2009. Comprehensive limnological evaluation of water quality and trout habitat in Twin Lakes, Colville Indian Reservation. Poster, WSU Native American Research EXPO, Pullman, WA.

Dent[1], S.R., M.W. Beutel. 2008. Reducing the formation of methylmercury in freshwater lakes: From theory to practice. PNWIS Annual Conference, Anchorage, AK.

Beutel, M.W., H.R. Palmer[1]. 2008. A mesocosm study evaluating effects of pure oxygen addition on ammonia removal in constructed treatment wetlands. Inland Northwest Aquatic, Riparian and Wetland Symposium, Spokane, WA.

Palmer[1], H.R., M.W. Beutel. 2007. Effects of pure oxygen gas on ammonia removal in surface flow treatment wetlands. PNWIS Annual Conference, Boise, ID.

Dent[1], S.R., M.W. Beutel. 2007. Reducing the formation of methylmercury at the sediment-water interface in freshwater lakes. PNWIS Annual Conference, Boise, ID. *Best Student Presentation.*

Newspaper Articles, Blogs and Interviews

UC Merced News, May 15, 2018. “Engineering Students Get an Inside Look at Wastewater Treatment”

Sierra Sun Times, Mariposa, CA, March 17, 2018. “Mariposa County High School Students Visit UC Merced Thanks to Academic Boosters Club”

UC Merced News, July 6, 2016. “Professor’s Mercurial Studies Involve Tree Bark, Fish and Water Engineering”

The Post-Standard, Syracuse, NY. October 13, 2013."Mercury's Falling in an Onondaga Lake Success Story"

Biotechnology Calendar, Inc. May 24, 2013."WSU Team Tests Mycofiltration Biotechnology to Purify Water Supply," http://info.biotech-calendar.com/bid/97482/WSU-Team-Tests-Mycofiltration-Biotechnology-to-Purify-Water-Supply

AGU Blogoshpere. December 15, 2010. "Pumping oxygen into lakes may reduce mercury contamination," http://blogs.agu.org/meetings/2010/12/15/pumping-oxygen-into-lakes-may-reduce-mercury-contamination

The Enterprise, Cape Cod, MA. June 25, 2010."For alum, support from scientists, despite unknown effects on mercury"
Moscow-Pullman Daily News, Pullman, WA. June 21, 2010. "Taking advantage of the lull - Faculty, students use summer months to focus on research projects"
The Olympian, Olympia, WA. July 9, 2005. "Hood canal fixes proposed - Water quality panel scrutinizes oxygen-injection idea"
The Daily News, Longview, WA. January 3, 2007. "Polluted Camas Lake needs oxygen pumps"

EDUCATION ACTIVITIES

Post-Doctoral Researchers

Washington State University
Jason Williams, Civil Engineering, 2016-2017. *Nutrient enrichment critical loads of atmospheric nitrogen deposition for aquatic ecosystems in the Western U.S.*
Seyoum Gebremariam, Civil Engineering, 2010-11. *Enhancing trout aquaculture in the Pacific Northwest using oxygenation technology.*

Chair of PhD Committees (6 graduated, 4 ongoing)

University of California, Merced (current place of employment)
Shelby Defoe, Environmental Systems, started 2020. *Patterns of nutrient and metals release from reservoir sediment under variable dissolved oxygen and pH conditions*
Danielle Jones (co-advisor with Dr. Peggy O'Day), Environmental Systems, Passed Qualifying Exam Summer 2022. *Assessment and management of mercury export from San Joaquin River*
Louis Amegbletor, Environmental Systems, Passed Qualifying Exam Fall 2021. *Effects of wildfires on hydrology and water quality in the American River Basin, Sierra Nevada*
Naivy Rodal Morales, Environmental Systems, UCMEXUS/CONACYT Fellowship Scholar, Passed Qualifying Exam Summer 2021. *Redox control of nutrient and metal cycling in profundal lake sediment*
Mark Seelos, Environmental Systems, Graduated Fall 2019. *Manganese-oxide modified activated carbon (MOMAC) to repress methylmercury production in mercury contaminated sediment* (Associate Water Resources Specialist, Santa Clara Valley Water District)
Byran Fuhrmann, Environmental Systems, Graduated Fall 2019. *Redox control on methylmercury cycling in Hodges Reservoir, San Diego* (Research Engineer, SePro Corporation Environmental Consultants)

Washington State University (current place of employment)
Jason Williams, Engineering Science, Graduated Spring 2016. *Sensitivity of High Elevation Lakes to Atmospheric Nitrogen Deposition* (Senior Staff Scientist, Idaho Department of Environmental Quality)
Ricardi Duvil, Civil Engineering, Graduated Spring 2015. *Effects of Nitrate on Methylmercury Cycling in Lake Ecosystems* (Senior Engineer, USEPA Drinking Water Quality Office, Seattle, WA)
Stephen Dent, Civil Engineering, Graduated Spring 2012. *Effects of Oxygenation on Mercury Cycling in Twin Lakes, WA* (Senior Engineering Consultant, CDM-Smith Environmental Consultants)
Seyoum Gebremariam, Civil Engineering, Graduated Spring 2010. *Sorption and Biodegradation of Chlorpyrifos in Aquatic Sediments* (Senior Water Manager, Metropolitan Water District of Southern California)

Chair of MS Committees (18 graduated)

University of California, Merced (current place of employment)
Melissa Conn, Environmental Systems, Graduated Fall 2020. *Seasonal patterns of mercury bioaccumulation in seston and zooplankton in hypereutrophic Hodges Reservoir*
Julia Burmistrova, Environmental Systems, Graduated Spring 2019. *Effects of co-digestion of primary wastewater sludge and organic food waste on biogas production at Yosemite National Park* (Data Engineer, Green Street)
Jaycee Martinez, Environmental Systems (non-thesis), Graduated Spring 2019. *Patterns of mercury bioaccumulation in Hodges Reservoir, CA* (Project Engineer, Cupertino Electric)

Lindsey Jerome, Environmental Systems, Graduated Spring 2019. *Fungal Growth in Polluted New Zealand Mangrove Sediments* (Microbiology Lecturer, University of Southern Maine; Adjunct Professor, Southern Maine Community College)

Washington State University (current place of employment)

Louis Neira, Environmental Engineering (non-thesis), Graduated Fall 2013. *Removal of pathogens from urban stormwater*

Alicia Flatt, Environmental Engineering, Graduated Spring 2013. *Mycofiltration to remove E. coli and suspended solids from urban runoff* (Staff Engineer, City of Puyallup, WA)

Lanka Desilva, Environmental Engineering, Graduated Fall 2011. *Field Measurements of Mercury Deposition in the Pacific Northwest* (Staff Engineer, Environ, Lynnwood, WA)

Suzanne Cox, Environmental Engineering, Graduated Fall 2011. *Effects of Macrobenthos Density on Methyl Mercury Release from Sediments* (Consulting Engineer, WA)

Piper Marshall, Environmental Engineering, Graduated Fall 2011. *Effects of Lake Oxygenation on Mercury Uptake into Fish* (Washington State Department of Transportation, Wenatchee, WA)

Brandon Reed, Environmental Engineering, Graduated Spring 2011. *Effects of Lake Oxygenation on Mercury Uptake into Zooplankton* (Staff Engineer, TRC Engineering, Concord, CA)

Seyoum Gebremariam, Environmental Engineering, Graduated Fall 2010. *Effect of Plant Type on Nitrate Removal in Treatment Wetlands* (Senior Water Manager, Metropolitan Water Dist. of Southern CA)

Victoria Whritenour, Environmental Engineering (non-thesis), Graduated Fall 2010. *Pathogen Removal in Lightly Loaded Surface Water Treatment Wetlands* (Staff Engineer, Parsons, Syracuse, NY)

Jonathan Erlenmeyer, Environmental Engineering (non-thesis), Graduated Spring 2010. *Phosphorus Removal in Constructed Treatment Wetlands* (Staff Engineer, Moses Lake Industries, Inc., WA)

Jennifer Allen, Civil Engineering, Graduated Spring 2009. *Microbial Diversity and Activity in Oxygenated Wetland Mesocosms* (Staff Engineer, Anchor Environmental, Seattle, WA)

Crystal Newton, Environmental Science (Non-thesis), Graduated Spring 2008. *Nitrogen Removal in Surface-Flow Constructed Wetlands Treating Agricultural Return Flows, WA* (Washington State Department of Natural Resources, Spokane, WA)

Jillian Churchill, Environmental Engineering, Graduated Spring 2008. *Optimal Dose and Mixing to Remove Phosphorus in Tributary Inflow to Jameson Lake, WA* (Virginia State Office of Drinking Water)

Huckleberry Palmer, Environmental Engineering, Graduated Spring 2008. *Ammonia Removal in Treatment Wetland Using Oxygenation (*Staff Engineer, Washington Department of Ecology, Spokane)

Theo Leonard, Environmental Engineering, Graduated Spring 2006. *Effects of Oxygenation on Mercury Release from Lake Sediments* (Staff Engineer, Geoengineers, Seattle, WA)

Member of Graduate Student Committees

University of California, Merced

Current: Jonathon Kuntz (Sora Kim advisor), PhD ES; Edwin Rivas Meraz (Peggy O'Day advisor), PhD ES; Brittany Lopez (Erin Hestir advisor), PhD ES; Greg Jesmok (Cal State Northridge), MS; Nick Framsted (UC Davis), MS

2022: Stefanie Helmrich (Peggy O'Day advisor), PhD ES; Rachel Clark (Acadia U., Canada), MS

2019: Elisabet Perez Coronel (Mike Beman advisor), PhD ES; Ali Hassanzadeh (James Palko advisor), PhD ES; Ariadna Cairo (Mike Beman advisor), non-thesis MS ES

2018: Joe Rungee (Roger Bales advisor), PhD ES; Brandi McKuin (Elliott Campbell advisor), PhD ES

2017: Alex Leven (Peggy O'Day advisor), MS ES

Washington State University

2016: Bridget Deemer, PhD EES

2015: George Neerackal, PhD BSE; Ellen Preece, PhD NATRS; Lai Tran, MS non-thesis CE

2014: Hallie Rakjovich, MS NATRS, University of Idaho

2013: Ben Ware, MS CE; Matt McDonald, MS CE; Jerrin Tilson, MS CE 2013; Andrew Child, MS NATRS

2012: Eric Palmer, MS CE; Marc LaVanway, non-thesis MS CE

2011: Brian Lanouette, MS NATRS; Sandra Mead, MS NATRS 2011; Carman Bentancourt, PhD via University of Alicante Spain-Cuba Program
2010: Bridget Deemer, MS EES; Ellen Preece, MS NATRS; Emily Wessels, MS NATRS; Joe Plahuta, MS CE
2009: Olga Furman, PhD CE; Simon Smith, PhD BSE; Craig Frear, PhD BSE; Jeremiah Trenka, CE MS; Haley Watson, MS CE
2008: Zain Al-Houri, PhD CE; Casey Newton, non-thesis MS ES
2007: Elizabeth Milburn, MS CE; Bo Hu, PhD BSE; David Christensen, PhD NATRS; Joseph Corbin, PhD ES; Michael Biggs, MS NATRS; Kevin Anderson, MS NATRS
2006: Jeremy Schmidt, MS CE; Adam Hill, MS CE; Christopher Frei, MS CE; Steven Nelson, MS CE; Lynn Cutler, MS CE; Anastasia Chetty, non-thesis MS ES 2006; Zach Hedgpeth, non-thesis MS CE
2005: Cory Lancaster, MS CE; Harini Shanmugam, MS CE

Other Universities
2022: Rachel Clarke (Nelson O'Driscoll advisor), MS Acadia University, Invited external reviewer/defense questioner; Nick Framsted (Steven Sadro advisor), MS UC Davis; Greg Jesmok (Priya Ganguli advisor), MS Cal State Northridge

Undergraduate Research Advisor/Mentor (outcome)

University of California, Merced, Senior Capstone Team Mentoring
Fall 2021: Nitrate removal in Treatment Wetlands; Ismael Ontiveros, Stephanie Segura, Leonel Arvizu, Charlotte Calvario
Fall 2020: Nitrate removal in Treatment Wetlands; Marco Mendez, Humberto Flores Landeros, Breanna Paredes, Eduardo Gaspar-Morales
Spring 2019: Energy Production from Digester Biogas; Yurithzy Gomez, Nancy Ojeda, Alberto Gonzalez

University of California, Merced
2022-2023 MSIPP Project: Eberardo Camorlinga-Ruiz; Jullianna Chavez Hidalgo; Jackson Korsgaard
2021-2020: Charlotte Calvario (Staff Engineer City of Turlock)
2020-2021 MSIPP Project: Valerie Laquindanum; Jesus Mercado (Junior Engineer, CA Department of Water Resources); Jesus Salas Hernandez (Intern, Los Angeles Sanitation District); Tyler Anderson; Daniela Martinez (English language teacher, Spain)
2019: Eric Brown; Chairman Lin
2019-2020 MSIPP Project: Fidel Machado-Perez, Jesus Mercado (Junior Engineer, CA Department of Water Resources), Briana Aguilar (MS Student, UC Davis), Omnya Elhag, Tyler Anderson, Santiago Cisneros Castillo, Daniela Martinez (English language teacher, Spain), Julia Ramos Martinez, Hiroto Muranaka
2019: Eric Brown; Chairman Lin
2017-2018: Christian Tran (Research assistant, UCSF); Alejandra Martinez (Brown and Caldwell Engineering, Walnut Creek, CA)
2017: Thomas Spankowski (Alameda County Water District)
2016: Caitlin Putnam (Engineering student at Oregon State University)

Washington State University
2014: Destry Seiler; Kellie Bracht
2012: Esteban Mena; Rebecca Kloster (Oregon State graduate program); Brian Beleau (WSU graduate program)
2011: Alicia Flatt (WSU graduate program); Griffin Nielson (WSU graduate program); Danielle Judd (WSU graduate program); Gary Martindale (WSU graduate program)
2010: Marion Imbault (French exchange student); Julie Bryant (WSU graduate program); Jerin Tilson (WSU graduate program)
2009: Piper Marshal (WSU graduate program); Brandon Reed (WSU graduate program)
2006: Nathan Burley (UC Davis graduate program); Kayla Culmer (UC Berkeley graduate program)

2005: Adrienne Nikolic (Johns Hopkins graduate program)

Graduate Course Responsibilities

University of California, Merced

- Natural Treatment Systems (ES 280): Fall 2017, Fall 2019
- Environmental Systems Seminar Series (ES 291/ESS 190): Spring 2016

Washington State University

- Biological Wastewater Treatment (CE 542): Spring 2015
- Natural Treatment Systems (CE 555): Fall 2008, Fall 2009, Fall 2010, Spring 2012, Fall 2014
- Environmental Engineering Seminar (CE 580): Spring 2005, Fall 2010, Spring 2015
- Aquatic Ecosystem Restoration & Ecological Engineering (CE 585): Spring 2005, 2006, 2008, 2009
- Mercury and Nitrogen Cycling in Aquatic Ecosystems (CEE 543): Spring 2007
- Environmental Microbiology (CE 584): Fall 2005, 2006

Undergraduate Course Responsibilities

University of California, Merced

- Water and Wastewater Treatment (ENVE 176): Spring 2016, 2017, 2018, 2019, 2020, 2021
- Field Methods in Environmental Chemistry (ENVE 184): Fall 2016, 2018, 2020, 2021
- Engineering Service Learning Advisor (ENG 97/197): Spring 2018, Fall 2019
- Capstone Design Project Advisor: Spring 2019 (Biogas harvesting at City of Merced wastewater treatment plant), Fall 2020 and Fall 2021 (Nitrate removal in City of Newman treatment wetlands)

Washington State University

- Fluid Mechanics (CE 315): Fall 2004-2009, Spring 2011, Fall 2011, Fall 2014
- Water Resources Engineering (CE 351): Spring 2010; Fall 2012

Student Teaching Evaluations

University of California, Merced

Water and Wastewater Treatment (ENVE 176), 2016-2021 (possible high score of 7): mean overall effectiveness ~6.7; SoE average score ~ 5.8

Field Methods in Environmental Chemistry (ENVE 184), 2016, 2018, 2020, 2021 (possible high score of 7): mean overall effectiveness ~6.80; SoE average score ~ 5.8

Natural Treatment Systems (ES 280), 2017 and 2019 (possible high score of 7): mean overall effectiveness ~6.50; SoE average score ~ 6.2

Washington State University

Numerical average of 17 courses (possible high score of 5.0): Marc Beutel, 4.6; Civil and Environmental Engineering Department, ~4.3; College of Engineering and Architecture, ~4.1

SERVICE ACTIVITIES

Outreach Activities

Research Training for Minority and Undergraduate Students in Environmental Engineering. 2005-present. My research group to date (27 graduate students) has included 15 women and 4 African-American/African students. Over two dozen undergraduates, more than half of them women, have played meaningful roles in my research group, including the co-authorship on peer-reviewed papers and presentations. In collaboration with Drs. O'Day and Traina at UC Merced, we are implementing a DOE-funded undergraduate research experience focused on environmental mercury contamination that will train 4-6 students a year. This effort has been renewed two times in 2021 and again in 2022.

Mariposa Youth Impact Project, Science Outreach to Mariposa County High School Student, 2016-present. Host students at UC Merced where we measure mercury content in shrimp, salmon, chunk light canned tuna, albacore canned tuna, and shark. Effort highlights key themes of bioaccumulation of

environmental pollutants in aquatic food webs and fish consumption advisories emphasizing vulnerability of children and pregnant women.

WSU Upward Bound/USDA High School Outreach Program. 2011-2014. Mentored high school students in summer research program focused on pollution in surface waters.

NSF CAREER Grant. 2009-2014. Worked with WSU experts in American Indian outreach and education assessment to implement outreach program to middle school students on the Colville Indian Reservation related to water science.

American Ecological Engineering Society. 2007-2013. As member of AEES Executive Committee, supported key aim of the Society including promoting student involvement through discount memberships and travel scholarships to annual AEES conferences.

WSU Imagine Tomorrow. 2009-2010. Mentored students from rural Lake Roosevelt High School, WA participating in *Imagine Tomorrow*, a WSU-sponsored annual competition in which over 150 high school teams present design innovations related to energy sustainability. Judge for 2010 competition.

NSF Graduate Teaching Fellows in K-12 Education. 2008-2010. Facilitated involvement of my graduate students with the WSU Culturally Relevant Engineering Application in Mathematics Program, funded by NSF through the WSU Engineering Education Center.

University Service (UC Merced)

- Chair, Civil and Environmental Engineering Department, 2022-present
- Interim Chair, Environmental Systems Graduate Group, Fall 2022
- Member, Senate Committee on Committees, 2020-present
- Member, SNRI Advisory Committee, 2021-present
- Chair, SNRI Advisory Committee, 2019-2021
- Member, Office of Research Limited Submissions Committee, 2021-22
- Member, Chancellor's Advisory Committee on Land Use (CACLU), 2020-2022
- Member, Faculty Promotion/Merit Review, 4 review committees, 2019-2021
- Member, Environmental Systems Graduate Program Executive Committee, 2019-2022
- Chair, Sustainable Infrastructure faculty search committee, 2019-2020 (hired Dr. Sam Markolf)
- Member, School of Engineering Executive Committee, 2019-2021
- Member/Chair, Environmental Analytical Laboratory Advisory Committee, 2018-present
- Chair, Environmental Systems Graduate Program, 2016-2019
- Member, Civil and Environmental Engineering Department Curriculum Committee, 2018-2019
- Member, Transitional Oversight Committee, 2018-2019
- Chair, Engineering Systems faculty search committee, 2017-2018 (hired Dr. Marie Fortier)
- Member, School of Natural Sciences Stable Isotope faculty search committee, 2016/17 (hired Dr. Sora Kim)
- Member, Senate Undergraduate Curriculum Committee, 2017-2018
- Vice-Chair, Environmental Systems Graduate Program, 2015-2016
- Faculty Lead for Environmental Systems Graduate Seminar (ES 291/ESS 190), Spring 2016
- Faculty Presenter, UC Merced Research Development Services "Focus on Faculty Early Career Proposals" Workshop, Spring 2016
- Proposal Reviews: UC Natural Reserve System Mathias graduate fellowship applications (2015); UCLA Proposal for MS and PhD program in Environment and Sustainability (2016); Internal UC Merced review of faculty W.M. Keck Foundation Research Grant program (2016)
- 2020 Design Meeting Faculty Representative, Fall 2015
- ABET-related assessment of writing portfolios for ENVE undergraduates, Fall 2015

University Service (WSU)

- Faculty Senate Representative, Spring 2015
- Water Environmental Faculty Search Committee Chair, Two Positions, 2014-15

- Safety Committee, 2014-present
- Undergraduate Awards Committee, 2014-present
- Undergraduate Advising, 2006-2015
- Water Resources Technician Search Committee, 2013
- Water Resources Search Committee, 2012-2013
- Environmental Engineering Club Faculty Advisor, 2010-2014
- Water Resources Search Committee, 2006-2007
- Graduate Studies Committee, 2005-2008
- Graduate Applicant Coordinator, Water Group, 2005-2008
- Informal advisor, Engineers Without Borders and Senior Project Design Projects, 2005-2010
- Fundamentals in Engineering Review Session, Fluid Mechanics, Fall 2004, Fall 2006, Spring 2011, Fall 2012, Fall 2014, Spring 2015
- Center for Multiphase Environmental Research Cluster Hire Search Committee, 2005-2006
- Environmental Engineering Search Committee (informal member), 2004-2005

Service to Broader Scientific and Academic Community

- Co-Editor in Chief, Journal of Ecological Design, the new journal of the American Ecological Engineering Society, 2021-present
- University of Vermont, Rubenstein School of the Environment, External reviewer of faculty tenure packet, 2021
- California Water Resources Control Board, 2019 TMDL Scientific Review for Lake Elsinore.
- Session Co-Chair, *Fate and Effects of Metals: Advances in Metals Risk Assessment and Regulatory Guidance,* SETAC Europe, Helsinki, Finland, May 2019
- Co-Guest Editor, 2019-present, *International Journal of Environmental Research and Public Health* special issue "Anthropocene Challenges: Exploitation of Resources vs. Preservation of Natural Systems"
- Session Chair, *Lake and Reservoir Management,* American Ecological Engineering Society Annual Conference, Ashville NC, June 2019
- Editorial Board, 2018-present, *Lake and Reservoir Management*
- California Water Resources Control Board, 2016 TMDL Scientific Review: Site-Specific Water Quality Objectives for Copper and Zinc in Chollas Creek, San Diego, California
- SUNY ESF, Department of Environmental and Forest Biology, 2015 External reviewer of faculty tenure packet
- Editorial Board, 2015-present, *Ecological Engineering*
- Managing Guest Editor, 2015 Special Edition of *Ecological Engineering*, American Ecological Engineering Society 2013 Annual Conference
- SUNY ESF, Department of Environmental Resource Engineering, 2013 External reviewer of faculty tenure packet
- MERCURY 2013 Conference, Session Co-chair, *Reducing Mercury Bioaccumulation in Reservoirs and Other Managed Aquatic Ecosystems*, Edinburgh, Scotland, 2013
- American Ecological Engineering Society, Session Chair, *Water and Wastewater*, AEES Annual Conference, Syracuse NY, 2012
- California Water Resources Control Board, 2012 TMDL Scientific Review: Nitrogen Compounds and Orthophosphate Lower Salinas River and Reclamation Canal Basin, and the Moro Cojo Slough Subwatershed, Monterey County, California Draft Project Report; Algae, Eutrophic Conditions, and Nutrients TMDL for Ventura River and its Tributaries
- National Science Foundation Proposal Reviewer: Division of Earth Sciences, Geobiology and Low-Temperature Geochemistry, ad-hoc reviewer, 2016; Hydrological Sciences ad-hoc reviewer; Environmental Engineering ad-hoc reviewer; Sustainability CAREER proposals (Washington DC,

November 2009); Environmental Engineering unsolicited proposals (Washington DC, July 2010 and April 2012)

- Proposal Reviewer: 2016 Washington State University Grand Challenges Grant Program; National Institute for Water Resources, 104(G) program; Connecticut Institute of Water Resources, 104(B) program; Hudson River Foundation; Ohio Sea Grants Program and Ohio State SEEDS Program
- North American Lake Management Society, Session Chair, *Mercury II* and *Lake Fisheries*, NALMS Annual Conference, Spokane WA, 2011
- American Ecological Engineering Society, Secretary/Treasurer, 2007-2009; Chair of Membership Committee, 2006-2007
- Session Chair, *Water and Wastewater Management at Dairies, Feedlots and Fish Farms*, PNWIS Annual Conference, Boise ID, 2007
- North American Lake Management Society, Session Chair, *Lake Aeration*, NALMS Annual Conference, Victoria, Canada, 2004
- North American Lake Management Society, Session Chair, *Hypolimnetic Oxygenation*, NALMS Annual Conference, Reno NV, 1999

Manuscript Review for Journals

Ecological Engineering (Editorial Board); Lake and Reservoir Management (Editorial Board); Environmental Science and Technology; Water Research; Bioresource Technology; J. Environmental Quality; Science of the Total Environment; Hydrobiologia; J. Environmental Engineering (ASCE); J. Environmental Engineering and Science; International Review on Hydrobiology; Limnology; Archiv für Hydrobiologie; Applied Geochemistry; Wetlands; Water Environment Research; PLoS ONE; Environmental Research

Memberships

Association of Environmental Engineering and Science Professors (AEESP); American Ecological Engineering Society (AEES); North American Lake Management Society (NALMS); California Lake Management Society (CALMS); American Society of Civil Engineers (ASCE); Society of Environmental Toxicology and Chemistry (SETAC)

Licenses

Professional Civil Engineer, California, C65783

Professional Development

2018, Chairs Training, Vice Provost of Faculty, Merced, CA
2016, NSF-AEESP Grand Challenges Workshop, Redefining Environmental Engineering and Science in the 21st Century, University of Southern California, Los Angeles, CA
2015, American Ecological Engineering Society Certified Ecological Designer workshop, Berkeley, CA