Institute for Water and Watersheds
Oregon State University

Annual Technical Report
2018

General Information

Products

2019

Caruso, P., C.G. Ochoa, W.T. Jarvis and T. Deboodt, 2019, A Hydrogeologic Framework for Understanding Local Groundwater Flow Dynamics in the Southeast Deschutes Basin, Oregon, USA, Geosciences, volume 9, No. 2, p. 57, 11 pp., https:// doi:10.3390/geosciences9020057

Counihan, M., 2019, Sage-Grouse Collaborative Efforts: A Look at 11 Western States, [Unpublished M.S. Thesis] University of Oregon

Ochoa, C.G., P. Caruso, G. Ray, T. Deboodt, W.T. Jarvis and S.J. Guldan,, 2018, Ecohydrologic Connections in Semiarid Watershed Systems of Central Oregon USA, Water, volume 10, no. 2, 181, 19 pp. https://doi.org/10.3390/w10020181

Jarvis, W.T., 2019, Book Review/ Transboundary Hydro-Governance: From Conflict to Shared Management, Groundwater, volume 57, No. 2, p. 199.

Robinson, K.S., 2019, A case study on the unsustainable use of the High Plains Aquifer, [Unpublished M.S. Thesis] Oregon State University

Wolf, A., and M. Sterrit, 2019, GGRETA Groundwater Hydro-diplomacy Toolkit, prepared for UNESCO, Paris.

2018

Bonini, A., 2018, The Hammer and the Hand: Pluralistic Groundwater Governance and Conflict Transformation in Oregon's Malheur Lake Basin. [Unpublished M.S. Thesis] University of Oregon https://scholarsbank.uoregon.edu/xmlui/handle/1794/23780

Jarvis, W.T., 2018, Scientific Mediation Through Serious Gaming Facilitates Transboundary Groundwater Cooperation, Water Resources IMPACT, volume 20, No. 3, p. 21-22.

Jarvis, W.T., 2018, Cooperation and conflict resolution in groundwater and aquifer management. Book Chapter in Advances in Groundwater Governance (eds.) Villholth, K.G., López-Gunn, E., Conti, K., Garrido, A., van der Gun, J., CRC Press, London.

Wiley, J.S., 2018, Collective Aquifer Governance: It's the Water, and a "Hole" Lot More, [Unpublished M.S. Thesis] Oregon State University
https://ir.library.oregonstate.edu/concern/graduate_projects/pn89dd30b?locale=en

Information Transfer Program

Hosted visiting scholar on groundwater knowledge transfer from January to June, 2019

Julie Ruiz
Professeure, Département des sciences de l'environnement
Chaire de recherche UQTR 2013 en écologie du paysage et aménagement
Université du Québec à Trois-Rivières,
CP 500, Trois-Rivières, Québec, G9A 5H7

Grand Ronde Natural Resources Director meeting about students and internships, June, 2018

Clean and Sustainable Water Technology Initiative Workshop on August 5 and 6, 2018 focusing many topics related to clean water, from watershed management to the reuse of treated wastewater.

Institute of Continued Learning - Presentation on Pudding River Watershed, Willamette University, October 4, Salem, OR

Marine Technology Summit - Presentation on Offshore Groundwater, October 11, 2018, Newport, OR

Deschutes Water Summit - Invited participant in a 10 year retrospective on water management in the Deschutes River Basin, October 21-22, 2018, Redmond, OR

WRGP Seminar series - The theme of the Spring seminar series, held jointly at OSU and PSU on Wednesdays and Tuesdays, respectively, was “Rivers and their context in space and time”. The number of attendees at each seminar was about 20 to 30. March to June, 2019, Corvallis, OR and Portland, OR

Environmental Conflict Management through Serious Gaming, Oregon Mediation Association Workshop, November 9, 2018, Eugene, OR

Oregon Groundwater Sustainability DIPLOMA Framework, First Annual Western Groundwater Congress, September 25, 2018, Sacramento, CA

Collective Aquifer Governance Through Contracts, International Water Rights Forum, December 17-18, 2018, Nanjing, PRC.

Governance of Groundwater Resources in Transboundary Aquifers (GGRETA) Phase 2 Workshop, Tashkent, UZ, November 19-24, 2018.

WRRI-Sea Grant Collaboration Workshop, Portland, OR. Meeting designed to encourage WRRI and Sea Grant Programs to collaborate. Three attempts initiated in 2018-2019: (1) Oregon WRRI and Sea Grant submit proposal to NSF INFEWS Research Coordination Network capitalizing on Columbia River Basin WRRIs and Pacific Northwest Sea Grant Programs; (2) SESYNC Pursuit for Oregon WRRI and Sea Grant for Offshore Groundwater; and (3) Concept note for NSF EAGER for CoPE. None selected.

ADR Workshop, Students Engaged in Dialogue and Discourse (SEDD), Public Interest Environmental Law Conference, March 3, 2019, Eugene, OR

Joint Programme in Water & Peace course in Applied Field Methods using the Deschutes River Basin as a model of regional governance with participants primarily from Central Asia sponsored by Rotary International, January to June, 2019, Corvallis, OR and Deschutes Basin, OR

Student Support

Undergraduate Honors Thesis in Environmental Sciences - Poster Session at WRGP Hydrophiles Symposium
• Objectives of this study are to: 1) determine various land use influence on stream water-anion concentration along the Oak Creek longitudinal gradient; 2) assess stream-aquifer interaction potential effects on nutrient concentration of stream water; and, 3) determine potential origins of surface water and groundwater flows influencing streamflow-water quality relations in Oak Creek. The undergraduate student collected water samples quarterly, analyzed for anion concentration using an ion chromatograph at the Institute for Water and Watersheds’ Collaboratory. Samples were also analyzed for stable water isotope composition using a mass spectrometer at the EPA. This project is part of a broader long-term study aimed to investigate land use - water quantity/quality relations within the Oak Creek watershed near Corvallis, OR.

Graduate student in Environmental Communications
• Outcomes H2Oregon Monthly Newsletter - https://us11.campaign-

archive.com/home/?u=32faec97510a9e9b00eec116d&id=d590859a8f

Graduate student in Water Resources Policy and Management
• Rather than doing research for a formal publication, one graduate student assisted the Pudding River Watershed Council with research and writing content for their website. The research was about the risks to salmonids in the Pudding River/Mollala River systems, focusing on how some fish are reaching their thermal limits with warming waters. No formal articles were developed; however, the graduate student helped write content and design the Pudding River Watershed Council website: https://puddingriverwatershed.org/

• The graduate student also helped coordinate and implement a tree planting project to improve watershed health by giving away approximately 1,500 trees to farmers/land owners/schools/community groups along the Pudding River and Molalla River. This was in partnership with the One Tree Planted Program.

Graduate student in Water Resources Science
• A study of the nature of tide gates in estuarine environments in altering the patterns of water quality affecting connectivity between fresh and saltwater environments in estuaries of the Oregon coast. Primary initial findings of the research indicate that differences in tide gate structure have substantial influence on the intensity and length of time that aquatic species (including native salmonids) experience fragmentation between freshwater creeks and the channels leading into the estuary. The fish experience discontinuities in water temperature, salinity and flow regimes that vary in time and intensity.

• Two presentations were given on the outcome of this work: (1) a poster presentation by Master's student Aubrey Myers at the Pacific Northwest Research Symposium April 2019, Corvallis Oregon; and (2) 2019 oral presentation by Dr. Rebecca Flitcroft entitled: Critical Connections; Freshwater-Estuary Habitat for Salmon and Marine Fishes, Salmon Restoration Federation Annual Meeting, Santa Rosa, CA.

Graduate student in joint Water Law, Policy and Management
• This study explores the implications of the transition to aquifer governance, including a review of case studies showing a distinct direction in governance development. Unitization contracts are introduced, translated into the aquifer context, and applied to an example basin: the Harney Valley of Oregon.

• Outcomes - one MS thesis, and coauthorship of presentation at International Water Law Conference in China

Notable Achievements and Awards

None