Colleen P. Jones

Curriculum Vitae
Utah State University – Uintah Basin Campus
Senior Researcher/Post Doc, Plants, Soils, & Climate Department
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RESEARCH INTERESTS

My professional goal is to work collaboratively with interdisciplinary scholars to advance understanding of environmental chemistry and its application with management of natural resources. I will actively engage in quality educating, advising, and mentoring of undergraduate and graduate students to encourages excellence in education and research that will help make a difference in the world.

EDUCATION

Ph.D. - Ecology - 2014 - Utah State University - Logan, Utah
Dissertation Title: *Biogeochemistry of Selenium in Pariette Wetlands, Utah*
Advisor: Paul R. Grossl

B.S. - Secondary Education, Science Composite - 2003 - Utah State University - Logan, Utah - Summa Cum Laude

M.S. - Zoology - 1999 - Brigham Young University**,** Provo, Utah
Thesis Title: *Genetic Variation Among and Within Native and Non-native Trout (Oncorhynchus) Populations of the Sheep Creek Drainage, Utah* –
Advisor: Dennis Shiozawa

B.S. - Zoology, Pre-Dental - 1987 - Brigham Young University - Provo, Utah

PROFESSIONAL EXPERIENCE

Ecology Center Faculty Associate - 2018 to present - Utah State University, Logan, Utah

USU Contracted Professor - 2016-present - Terra Academy, Vernal, Utah. Courses taught - Astronomy, AP Biology, Biology 1010, Chemistry, Chemistry 1010, Environmental Science, Marine Biology, Wildlife Biology, and Zoology.

Senior Researcher - 2015-present - Bingham Research Center and Plants, Soils, and Climate Department, Utah State University – Uintah Basin, Vernal, Utah

Adjunct Assistant Professor – 2004 to present **-** Utah State University - Plants Soils and Climate Department, Uintah Basin Biology Department, Chemistry Department, and University Studies Department, Vernal, Utah. Courses taught - Biology 1010, Biology 1620, Biology 1625, Chemistry 1010, Chemistry 1220, Chemistry 1225, and USU 1360 Integrated Physical Science.

Post-doctoral Fellow - 2014-present -Plants, Soils, and Climate Department, Utah State University – Uintah Basin, Vernal, Utah

Research Associate - 2013-2014 - Plants, Soils and Climate Department, Utah State University

Earth Systems Science Teacher - 2012-2013 **-** Vernal Junior High School, Uintah School District, Vernal, Utah

Graduate Research Assistant - 2011-2013 - Plants, Soils, and Climate Department, Utah State University - Uintah Basin, Vernal, Utah

Seasonal Biologist – 1996-1999 – Utah Division of Wildlife Recourses – Northeastern Region – Vernal, Utah

AWARDS

4H Volunteer Leader Doorknob Award 2017 – Uintah County
Graduate Researcher of the Year 2013, Utah State University – Uintah Basin
Outstanding Faculty Member 2008 - Utah State University – Uintah Basin

TEACHING/MENTORING ACTIVITIES

Courses Taught

Biology 1010 -Biology and the Citizen – Lecture/Discussion - a 3 credit non-majors course with an average enrollment of 53 students. I have taught 24 times.

Biology 1620 – Biology II – Lecture/Discussion - a 3 credit majors course Spring 2020

Biology 1625 – Biology II Laboratory - Laboratory – a 1 credit majors course, Spring 2020

Chemistry 1010 - Introductory Chemistry – Lecture/Discussion - a 3 credit non-majors course with an average enrollment of 94 students. I have taught 12 times.

Chemistry 1220 - Principles of Chemistry II – Lecture/Discussion - 4 credit majors course. Spring 2019

Chemistry 1225 – Chemical Principles Laboratory II - Laboratory - 1 credit majors course, Spring 2019

USU 1360 – Integrative Physical Science – Lecture/Discussion - a 3 credit breath physical course with an average enrollment of 59 students. I have taught 8 times.

High School Courses- AP Biology, Chemistry, Earth Systems, Environmental Science, Marine Biology, Wildlife Biology, and Zoology.

Professional Development – K-12 Teaching Science using 3-Dimensional Learning and Utah's New State SEEd Standards. Fall 2019-Spring, 2020.

Mentor/Leader of Experiential Learning Projects

Optimizing the Efficiency of Treating Wastewater with the Rotating Algal Biofilm Reactor - Fall 2018 to Spring 2019 – I mentored Hana Buss with her independent research project for the Weber State University's Ritchey Science Fair 2019.

Hawaiian Summer Science Adventure Camp - summer of 2018 - I planned the curriculum, travel, and fundraising for 12 students with a focus on marine biology, environmental science, astronomy, and geology on the Big Island of Hawaii.

Utah Envirothon Competition – Spring of 2016, 2017, 2018, 2019– funded by Terra Academy and Uintah County Soil Conservation District. I train and coach two – 5-member teams each year to compete at the state competition. I teach and train students on the use of natural resource topics of aquatic ecology, forestry, soils and land use, wildlife, and a current issue. The past current issues I taught were: Invasive Species: a Challenge to the Environment, Economy and Society; Agricultural Soil and Water Conservation Stewardship; and Western Rangeland Management: Balancing Diverse Views. Students developed the knowledge and skills needed to address complex issues associated with the management of natural resources.

Summer Water Quality Research - 2017 - funded by the Central Water Conservation District. I recruited 10 high school students to investigate a local water treatment problem. I taught the students how to design a sampling plan, collected water samples, analyzed water samples, and performed jar testing to test treatments. Students then presented results at a community event.

4H Invitational Forestry Competition – 2017, 2018, and 2019 - Weston, West Virginia - funded by USU 4H program. I coached a 4 members team to compete in tree identification, tree measurement, compass and passing, insect and disease identification, topographic map use, forest evaluation, the forestry bowl, and a written forestry exam.

BaBoom USU Summer Science Camp – summer of 2016, 2017 & 2019 - funded by USU. I planned the hands-on curriculum and lead the activities for 30 to 50 students from 6th to 8th grade students.

Undergraduate and Graduate Student Mentoring

Graduate student supervisory committee member

Justin Allred (January 2017 – present): M.S. in Soil Science

Graduate student research mentor (laboratory and field research)

Community Economic Adjustment Assistance for Compatible Use and Joint Land Use Studies - 2017 to 2019 - funded by the Department of Defense. I supervise the research of 2 graduate students.

Flowers Penstemon Monitoring Plan - 2015 to present - funded by The Nature Conservancy (TNC). I supervise the research of 1 graduate student. We established a monitoring plan and monitor sites and report the yearly finds of population growth and habitat conditions to the TNC.

Arid Land Study - 2012 to present - funded by BLM. I supervise the research of 2 graduate students and 5 undergraduate students. We conduct greenhouse and field studies on soil amendments, assess the use of native and non-native plant species interactions in a saline environment. We also study the impacts of physical and chemical soil properties on reclamation in the arid landscape.

Undergraduate student research mentor (laboratory and field research)

Pariette Wetlands Student Internship Bureau of Land Management (BLM) - 2018 to 2022 - funded by the BLM. I supervise the research of 1 undergraduate student per year. We collect and analyze samples and record and transmit data to the BLM.

Hazard Assessment of Selenium and Mercury Summer Internship - summer 2015 - funded by US Fish and Wildlife Service (USFWS)- Ouray Wildlife Refuge. I supervise the research of 2 undergraduate students. We collect and analyze samples and record and transmit data to the USFWS.

Biogeochemistry and bioaccumulation of selenium at Pariette Wetlands – summers of 2010 to 2014 - funded by BLM & UDWWQ: I supervise the research of 5 undergraduate students. We collect and analyze plant, water, soil, fish, and bird egg samples. We also record and transmit data to the BLM.

RESEARCH ACTIVITIES

Grants

Total awarded as PI: $395,600
Total awarded as co-PI: $2,392,594

Hill Airforce Base Compatible Land Use Experience. Collaboration with Patrick Small at Matrix Design Group. Co/PI's Marc Mansfield, **Colleen Jones**, and Selma Sierra. City of Layton and the Department of Defense. $250,000 for 1 year. Awarded

Hazard Assessment of Selenium after Decades of Fill and Drain Cycles of Stewart Lake, Utah. Bureau of Reclamation. PI - **Colleen P. Jones**. $300,000 for 3 years. Not Funded

3-Dimensional Learning Professional Development: Improving Air Quality in Rural Northeastern, Utah (3D Learning for AQ). EPA – Environmental Justice Grant. Deborah Burney-Sigman, **Colleen P. Jones,** & Dawn Monson. $30,00 for 1 year. Not Funded

Ecological Assessment of Management Practices of Stewart Lake Wildlife Management Area. Mark Chynoweth & **Colleen P. Jones.** USU- Public Lands Initiative Grants Program. $60,000. Not funded

Improving STEM Education in Underserved Rural Communities of Utah by Connecting Authentic Research Experiences to Secondary Students and Teachers. National Science

Foundation - Directorate for Education & Human Resources. **Colleen P. Jones**, Mark W. Chynoweth, Marilyn M. Cuch, and Amy Piotrowski. $423,080 for 3 years. Not funded

Connecting Students and Teachers in Rural Communities of Northeastern Utah with Applied Air Quality Research. Utah Agricultural Experiment Station - Utah State University. **Colleen P. Jones**, Seth Lyman, Huy Tran, and Trang Tran. $73,700. Not funded

Community Economic Adjustment Assistance for Compatible Use and Joint Land Use Studies, 2017 to 201, funded by Department of Defense: Co/PI's Marc Mansfield, **Colleen Jones**, and Selma Sierra. Awarded: 2017 to 2018 - $857,529. Funded

Assessment of soil health and soil erosion after the Musket Shot Springs fire of the Bureau of Land Management. Co/PI **Colleen Jones** and Paul Grossl. $15,000. Not Funded

Monitoring of Flowers Penstemon for The Nature Conservancy. PI **Colleen Jones**. Awarded: 2015 - $5,000, 2016 - $5,000, 2017 - $5,000, 2018 - $5,000, & 2019 - $5,000. Funded

Pariette Wetlands Internship for the Bureau of Land Management. Co/PI's Charles Hanifin, Becky Williams, and **Colleen Jones**. Awarded 2018 to 2022 - $100,000/year. Funded

Arid Land Study for Bureau of Land Management. Co/PI – Paul Grossl and **Colleen Jones**. Awarded: 2015-2020 - $450,000. Funded

Hazard Assessment of Heavy Metals of Pariette Wetlands Complex, Utah, for Bureau of Land Management. PI – **Colleen Jones**. Awarded: 2016 - $20,000. Funded

Hazard Assessment of Selenium of Pariette Wetland Complex, Utah for Utah Department of Environmental Quality/Division of Water Quality. Co/PI – Astrid Jacobson **and Colleen Jones**. Awarded: 2013-2015 - $165,394. Funded

Hazard Assessment of Selenium of Ouray NWR, Utah for US Fish and Wildlife Service. Co/PI - Astrid Jacobson and **Colleen Jones**. Awarded: 2015 - $24,671. Funded

Making "Sense" of Hydrologic Effects: Using Remote Sensing and Geospatial Techniques to Determine Hydrologic Effects of Oil & Gas Development in the Semi-Arid West. National Science Foundation – Hydrologic Sciences. PI- **Colleen Jones** in Collaboration with Megan Walsh and Christine Pomeroy of the University of Utah. 2014 - $300,000. Not Funded

Publications

Peer-reviewed

Jones, Colleen P., Amacher, M.C.; Grossl, P.R; and Jacobson, A.R.. 2019. Selenium Mass Balance and Flux in Water of Pariette Wetlands, Utah (USA). Applied Geochemistry, p. 104517.

Lyman, S.N., M.L. Mansfield, H.N.Q. Tran, J.D. Evans, **C. Jones**, T. O'Neil, et al. 2018. Emissions of organic compounds from produced water ponds I: Characteristics and speciation. Science of The Total Environment 619–620: 896-905. doi:https://doi.org/10.1016/j.scitotenv.2017.11.161.

Lyman, S.N., C. Watkins, **C.P. Jones**, M.L. Mansfield, M. McKinley, D. Kenney, et al. 2017. Hydrocarbon and Carbon Dioxide Fluxes from Natural Gas Well Pad Soils and Surrounding Soils in Eastern Utah. Environmental Science & Technology. doi:10.1021/acs.est.7b03408.

Jones, Colleen P., P.R. Grossl, M.C. Amacher, J.L. Boettinger, A.R. Jacobson, and J.R. Lawley. 2017. Selenium and salt mobilization in wetland and arid upland soils of Pariette Draw, Utah (USA). Geoderma 305: 363-373. doi:http://dx.doi.org/10.1016/j.geoderma.2017.06.028.

Lyman, S., **C. P. Jones**, T. O'Neil, T. Allen, M. Miller, M.S. Gustin, et al. 2016. Automated Calibration of Atmospheric Oxidized Mercury Measurements. Environmental Science & Technology 50: 12921-12927. doi:10.1021/acs.est.6b04211.

Jones, C.P., S.N. Lyman, D.A. Jaffe, T. Allen, and T.L. O'Neil. 2016. Detection and quantification of gas-phase oxidized mercury compounds by GC/MS. Atmos. Meas. Tech. 9: 2195-2205. doi:10.5194/amt-9-2195-2016.

Manuscripts in Preparation

Amakor, X.N., Grossl, P.R., Jacobson, A.R, Cardon, G.E. and **Jones, C.P.**: Use of Electromagnetic Induction Sensing to Assess Potentially Limiting Factors for Well-Site Restoration.

Jones, Colleen P.; Amacher, M.C., Grossl, P.R, and Jacobson, A.R.: Selenium in Water and Plant Tissue Water and its Volatilization in Pariette Wetlands, Utah (USA).

Jones, Colleen P.; Isanhart, J.; and Jacobson, A.R.: Spatially Explicit Exposure Modeling of Selenium in Biota of Pariette Wetlands, Utah (USA).

Final Reports

Lisa Boyd and **Colleen Jones:** 2018 Flowers Penstemon Monitoring Report. Final Report submitted to The Nature Conservancy, February 2019.

Lisa Boyd and **Colleen Jones:** 2017 Flowers Penstemon Monitoring Report. Final Report submitted to The Nature Conservancy, February 2018.

Lisa Boyd and **Colleen Jones:** 2016 Flowers Penstemon Monitoring Report. Final Report submitted to The Nature Conservancy, February 2017.

Jones, Colleen P.; Cline, C.; Isanhart, J.; and Jacobson, A.R.: Hazard Assessment of Selenium of Birds in Wetlands from Sheppard Bottom of the Ouray National Wildlife Refuge, Utah. Final Report submitted to U.S. Fish and Wildlife Service, January 2017.

Jones, Colleen P.; Isanhart, J.; and Jacobson, A.R.: "Hazard Assessment of Born, Mercury, and Selenium in Biota for Pariette Wetland Complex, Utah." Final Report submitted to Utah Division of Water Quality, October 2015.

Lisa Boyd and **Colleen Jones:** Monitoring Plan for Flowers Penstemon (*Penstemon flowersii*). Monitoring Plan submitted to The Nature Conservancy, May 2015.

Presentations and Posters

Graduate student co-authors; undergraduate student co-authors

Paul Grossl and **Colleen Jones.** Soil Salinity Workshop. BLM Reclamation Workgroup Spring Meeting. Vernal, Utah. May 2, 2018.

Jones, Colleen P., and Chynoweth, M. Citizen Science in classrooms provide students with authentic research experience. Uintah Basin Education Summit. Vernal, Utah. March 24, 2018.

Justin Bjerke, DeciDeDawn Rochelle, Gelvin Rochelle, Isaac Rochelle, Leslie Smith, and **Colleen Jones.** What's plugging the filter? Ashley Valley Water Treatment Plant. Central Utah Water Conservation District - Open House. Vernal, Utah. September 11, 2017.

Jones, Colleen P. and Grossl, P.R. Reclamation of Abandoned Oil and Gas Well Pads in Arid Environments. Utah Weed Control Association Annual Meeting, Vernal, Utah. February 17, 2016.

Lyman, S.S.; **Jones, Colleen P.;** Allen, T.; and O'Neil, T. Progress in Identifying and Quantifying Oxidized Mercury Compounds Using GC/MS. ICMGP Meeting, Jeju, Korea. June 14-19, 2015.

Jacobson, A.R.; **Jones**, **Colleen P.**; Vasudeva, P.; Powelson, D. and Grossl P.R. "Partitioning of Total Dissolved Salts, Boron and Selenium in Pariette Wetland's Water, Sediments and Benthic Organisms." American Geophysical Union's Annual Meeting, San Francisco, California. December 15-19, 2014.

Jacobson, A.R., **C.P. Jones**, P. Vasudeva, D. Powelson, and P.R. Grossl. November 2014. Distribution of Boron and Selenium in Pariette Wetland Sediments and Benthic Organisms. Soil Science Society of American Annual Meeting Poster Session. Long Beach, California, November 2-5, 2014.

Jones, C.P., T. Allen, T. O'Neil, and S. Lyman. November 2014. Developing New Detection and Verification Methods for Oxidized Mercury. USTAR Confluence Meeting Poster Session, Salt Lake City, November 3-4, 2014.

Jones, C.P., P.R. Grossl, A.R. Jacobson, & C. Cline. September 2013. Hazard Assessment of Selenium in Pariette Wetland Complex, Utah. Stakeholder Meeting. Roosevelt, Utah.

Jones, C.P., and P.R. Grossl. April 2012. Introduction to Selenium Biogeochemistry of Pariette Wetlands, Utah. Uintah Basin Research Conference, Vernal, Utah.

Allred, H., **Jones, C.P.,** and P.R. Grossl. April 2012. Methods for Selenium Accumulation Detection in Pariette Wetlands, Utah. Uintah Basin Research Conference, Vernal, Utah.

O'Neil, T., H. Allred, **Jones, C.P.,** and P.R. Grossl. April 2012. Selenium Biogeochemistry in the Pariette Wetlands, Utah. Uintah Basin Research Conference, Vernal, Utah.

Jones, C.P., and P.R. Grossl. October 2011. Selenium Biogeochemistry in the Pariette Wetland. 2011 International Annual Meetings of American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America. San Antonio, Texas.

Jones, C.P., L.K. Hatfield, R.P. Evans, and D.K. Shiozawa. April 1997. A cutthroat trout metapopulation study in Sheep Creek – an overview of mtDNA investigations. Meeting of fisheries biologist from Region 4 of the U. S. Forest Service. Vernal, Utah.

Jones, C. P., D.K. Shiozawa, R.P. Evans, and L.K. Hatfield. November 1997. Genetic variations of Colorado River Cutthroat Trout (*Oncorhynchus clarki pleuriticus*) populations of the Sheep Creek Drainage in the Uinta Mountains near Vernal, Utah. Desert Fishes Council, 29th Annual Meeting. Death Valley, California.

Jones, C. P., L. K. Hatfield, R. P. Evans, and D. K. Shiozawa. March 1998. A cutthroat trout metapopulation study in Sheep Creek – an overview of mtDNA investigations. Joint meeting of the Colorado/Wyoming and Bonneville Chapters of the American Fisheries Society. Grand Junction, Colorado.

Jones, C. P., D. K. Shiozawa, R. P. Evans, and L. K. Hatfield. November 1999. Genetic Variation Among and Within Native and Non-native trout (*Oncorhynchus*) Populations of the Sheep Creek Drainage, Utah. Uintah Mountain Club, Monthly Meeting Vernal, Utah.

SERVICE ACTIVITIES

Professional Society Memberships

Utah Science Teachers Association
American Geophysical Union
Soil Science Society of America
Society of Wetland Scientist
American Fisheries Society
Desert Fishes Council
Sigma Alpha Lambda Honor Society

Professional Service

Lead with SEEd Team – Utah Office of Education 2019
Ritchey Science Fair Judge 2019 – Ogden, Utah
Writer for the Utah Secondary Education Science Core Standard Committee 2018/2019
Environmental Science Judge - Intel International Science and Engineering Fair 2018 - Pittsburg, Pennsylvania

University Service

4H Environmental Science Club Leader 2017-present
BaBoom USU Summer Science Camp committee member 2016, 2017, 2019
USU Uintah Basin Campus Science Fair committee member 2017-2018

Department Service

Graduate Committee for Justin Allred
Plant, Soils and Climate Department Curriculum committee member 2017-present