

CURRICULUM VITAE

University of Idaho

DATE: June 19, 2023

Name: Cosens, Barbara

Rank/Title: University Distinguished Professor Emerita

College: College of Law

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Academic Appointments

University of Idaho College of Law

Employment as Associate Professor, July 1, 2004

Tenure: March 5, 2009

Promotion to Professor, March 2010

Associate Dean of Faculty Affairs 2016-2017

Promotion to Present Rank: University Distinguished Professor, April 2018

Retirement: June 2020

Visiting Professor, ANZOG-Goyder Institute Visiting Professors Program in Public Sector Policy and Management, in the Faculty of Social and Behavioural Sciences, Flinders University, South Australia, Spring 2015.

Visiting Scholar, Utton Center, University of New Mexico School of Law, Spring 2012

Assistant Professor, San Francisco State University, Environmental Studies Program, 2002-2004.

Visiting Professor, University of California, Hastings College of the Law, San Francisco, California, Spring 2001.

Teaching Assistant, University of Washington, Department of Geology, Seattle, Washington, 1979-82.

Research Assistant, Dr. John Delaney, University of Washington, Seattle, Washington, 1982-1983.

Research Assistant, Dr. Paul Johnson, University of Washington, Seattle, Washington, 1982.

Degrees

LL.M., 2002, Northwestern School of Law of Lewis and Clark College, Program in Natural Resources and Environmental Law, Summa Cum Laude

Thesis: The Use of Settlement to Resolve Major Issues of Water Allocation and Water Management in Multi-Jurisdictional Basins

Professional training: Harvard Negotiation Workshop and Advanced Negotiation Workshop, June 1994

- J.D., 1990, University of California, Hastings College of the Law, Magna Cum Laude
Assistant subject matter editor, *Hastings Constitutional Law Quarterly*
National Environmental Moot Court Competition: Semifinalist, 1989
Legal Writing Research Assistant: designing problems for use in Legal Writing Course, 1988
- M.S., 1982, University of Washington, Seattle, Geology
Thesis: Initiation and Collapse of Active Circulation in a Hydrothermal System at the Mid-Atlantic Ridge, 23°N.
- B.S., 1977, University of California, Davis, Geology
Departmental Award for Outstanding Achievement

Licenses

California Bar #156388, Admitted 12/20/1991, Current status: inactive
Colorado Bar #021706, Admitted 9/28/1992, Current status: inactive
Montana Bar #3589, Admitted 10/1/1992, Current status: inactive

Honors and Awards

- UI Alumni Award for Excellence, Inspirational Mentor 2019 [student recipient: Rebecca Witinok-Huber Ph.D.]
UI Alumni Award for Excellence, Inspirational Mentor 2018 [student recipient: Chris Murray J.D.]
UI Alumni Award for Excellence, Inspirational Mentor 2009 [student recipient: Carmen Thomas Morse]
- Distinguished Scholar, National Socio-Environmental Synthesis Center, Change in Social-Environmental Systems Immersion Workshop, April 2016;
URL: <https://www.sesync.org/for-you/educator/programs/immersion>
- Policy Immersion Workshop, Dec. 13-14, 2016.
- Editorial Board, [Ecology and Society](#) *A journal of integrative science for resilience and sustainability*. 2016-Present
- Outstanding Faculty Advisor Award: University of Idaho Environmental Science and Water Resources Programs, 2013
- Mid-Career Award for Excellence: University of Idaho, 2013
- Award for Excellence in Interdisciplinary or Collaborative Efforts: University of Idaho, 2010

Allan G. Shepard Professor: University of Idaho College of Law, 2009-2010

Stegner Scholar: University of Utah College of Law, 2009

William F. and Joan L. Boyd Teaching Award: University of Idaho College of Law, 2008-2009

Faculty Appreciation Award: University of Idaho Law Review, 2005-2006.

Palouse Region STAR Award, for contribution to the region by bringing the Indian Water Rights Settlement Conference to Moscow, Idaho, November, 2005

Montana State Bar Local Professionalism Award, 1999

Award for Outstanding Achievement: University of California at Davis Department of Geology, 1977

Non-Academic Experience

Mediator, Nez Perce Tribe v. Perpetua Resources 2021 - Present

Clean Water Act suit based on the water quality impacts of legacy mining in the Stibnite mine site, Idaho.

Mediator, Walker River 2002-2005

Basin-wide water negotiation among the United States, California, Nevada, Walker River Paiute Indian Tribe, Mono County, Lyon County, Mineral County, Walker Lake Working Group, Walker River Irrigation District

Staff Attorney, Montana Reserved Water Rights Compact Commission, 1991-2001.

Legal counsel to nine-member Commission established to negotiate water right settlements with Indian Tribes and federal agencies including the following settlements:

Compact with the Gros Ventre and Assiniboine Tribes of the Fort Belknap Reservation, 2001.

Compact with the Chippewa Cree Tribe of the Rocky Boy's Reservation, signed by President Clinton on December 9, 1999.

National Park Service - Montana Compact signed by the Secretary of the Interior on January 31, 1994.

Compact with the United States Fish and Wildlife Service approved in 1995 and 1997.

Judicial Clerk, Colorado Supreme Court, Justice George E. Lohr, 1991-1992.

Law Clerk (student), Natural Heritage Institute, Spring 1990.

Research on the legal/policy aspects of solutions to the agricultural drainage problem in the San Joaquin Valley, as part of the San Joaquin Valley Drainage Project. Focus on legal models for regulation of groundwater use to reduce leaching of salts into surface runoff.

Law Clerk (student), McCutchen, Doyle, Brown & Enersen, San Francisco, California, Summer 1989. Research necessary to advise corporate clients on compliance with state and federal environmental laws including CERCLA and RCRA.

Judicial Extern (student), U.S. District Court, Northern California, Judge Robert Peckham, Spring 1989.

Law Clerk (student), California State Attorney General's Office, San Francisco, Environment Division, 1988 & 1989. Research for cases enforcing California laws regarding toxic and hazardous waste. Review of environmental impact statements.

Exploration Geologist and Development Geochemist, Unocal Geothermal, 1982-87. Exploration and development of geothermal energy in California, Japan and the Philippines. Geochemical studies to avoid impact on surface hot springs at the Geysers and Salton Sea geothermal fields, California. Geochemical studies of cold seawater intrusion at Tiwi geothermal field, Philippines.

Scholarship

Law Reviews and Peer Reviewed Interdisciplinary and Scientific Journals:

Pace, Bronson J. and **Cosens, Barbara A.**, Environmental Assessment in a Time of Rapid Change and High Uncertainty: The Addition of Resilience Assessment to NEPA, 47(2) *Environmental Law & Policy Review* 317 (2023), available at <https://scholarship.law.wm.edu/wmelpr/vol47/iss2/2/>

Cosens, Barbara, J. B. Ruhl, Niko Soininen, Lance Gunderson, Antti Belinskij, Thorsten Blenckner, Alejandro E. Camacho, Brian C. Chaffin, Robin Kundis Craig, Holly Doremus, Robert Glicksman, Anna-Stiina Heiskanen, Rhett Larson, and Jukka Similä. Governing complexity: Integrating science, governance, and law to manage accelerating change in the globalized commons. *PNAS* (2021) Vol. 118 No. 36 e2102798118 <https://doi.org/10.1073/pnas.2102798118> available at <https://www.pnas.org/content/118/36/e2102798118>

Cosens, B., JB Ruhl, Niko Soininen and Lance Gunderson (2020) Designing Law to Enable Adaptive Governance of Modern Wicked Problems, 73 (6) *Vanderbilt Law Review* 1687-1732.

Matsaw, Sammy, Hedden-Nicely, Dylan and **Cosens, Barbara A.** (2020) Cultural linguistics and Treaty Language: A modernized approach to interpreting treaty language to capture the Tribe's understanding. 50 *Environmental Law* 415-446.

Stahl, Amanda T., Fremier, Alexander K. and **Cosens Barbara A.** (2020) Mapping legal authority for terrestrial conservation corridors along streams *Conservation Biology*, Volume 00, No. 0, 1-13

Elizabeth P. Anderson, Sue Jackson, Rebecca E. Tharme, Michael Douglas, Joseph E.

- Flotemersch, Margreet Zwarteveen, Chicu Lokgariwar, Mariana Montoya, Alaka Wali, Gail T. Tipa, Timothy D. Jardine, Julian D. Olden, Lin Cheng, John Conallin, **Barbara Cosens**, Chris Dickens, Dustin Garrick, David Groenfeldt, Jane Kabogo, Dirk J. Roux, Albert Ruhi, Angela H. Arthington (2019) Understanding rivers and their social relations: A critical step to advance environmental water management. *WIREs Water* [online]
<https://doi.org/10.1002/wat2.1381>
- Robison, J., **Cosens, B.**, Jackson, S., Leonard, K., McCool, D., (2018) Indigenous Water Justice, 22 *Lewis and Clark Law Review* 841. Available at:
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3013470
and: https://law.lclark.edu/law_reviews/lewis_and_clark_law_review/
- Cosens, B.**, McKinney, M., Paisley, R. and Wolf, A.T. 2018. Reconciliation of development and ecosystems: the ecology of governance in the International Columbia River Basin. *Regional Environmental Change* 18(6): 1679-1692, [online] URL: <https://rdcu.be/OZKU>
<https://doi.org/10.1007/s10113-018-1355-1>
- Cosens, B. A.**, L. Gunderson and B. C. Chaffin. 2018. Introduction to the Special Feature Practicing Panarchy: Assessing legal flexibility, ecological resilience, and adaptive governance in regional water systems experiencing rapid environmental change. *Ecology and Society* 23 (1):4. [online] URL: <https://www.ecologyandsociety.org/vol23/iss1/art4/>
- Givens JE, Padowski J, Guzman CD, Malek K, Witinok-Huber R, **Cosens B**, Briscoe M, Boll J and Adam J (2018) Incorporating Social System Dynamics in the Columbia River Basin: Food-Energy-Water Resilience and Sustainability Modeling in the Yakima River Basin. *Front. Environ. Sci.* 6:104. doi: 10.3389/fenvs.2018.00104. Available at:
<https://www.frontiersin.org/articles/10.3389/fenvs.2018.00104/full>
- Cosens, B. August 2017. Modernization of the Columbia River Treaty: an Opportunity for Idaho. *The Advocate* (a publication of the Idaho State Bar).
- Cosens, B. A.**, R. K. Craig, S. Hirsch, C. (Tony) Arnold, M. H. Benson, D. A. DeCaro, A. S. Garmestani, H. Gosnell, J. Ruhl and E. Schlager. 2017. The role of law in adaptive governance. *Ecology and Society* 22 (1):30. [online] URL:
<http://www.ecologyandsociety.org/vol22/iss1/art30/>
- Gunderson, L., **B. A. Cosens**, B. C. Chaffin, C. A. (T.) Arnold, A. K. Fremier, A. S. Garmestani, R. K. Craig, H. Gosnell, H. E. Birge, C. R. Allen, M. H. Benson, R. R. Morrison, M. C. Stone, J. A. Hamm, K. Nemec, E. Schlager, and D. Llewellyn. 2017. Regime shifts and panarchies in regional scale social-ecological water systems. *Ecology and Society* 22(1):31.
<https://doi.org/10.5751/ES-08879-220131>
- Boll, Jan, Timothy Link, Mary Santelmann, Robert Heinse, **Barbara Cosens**. 2016. Análisis y síntesis de buenas prácticas en la educación socioambiental interdisciplinaria en Estados Unidos. *Interdisciplina* 4(1): 117-146; English translation: Analysis and synthesis of best practices in interdisciplinary social-environmental education in the United States. *Interdisciplina* 4(1) 147-70.
- Allen, Craig R., Hannah E. Birge, Shannon Bartelt-Hunt, Rebecca A. Bevans, Jessica L. Burnett, **Barbara A. Cosens**, Ximing Cai, Ahjond S. Garmestani, Igor Linkov, Elizabeth A. Scott, Mark

- D. Solomon, and Daniel R. Uden. 2016. Avoiding Decline: Fostering Resilience and Sustainability in Midsize Cities. *Sustainability* 8(9), 844; doi:10.3390/su8090844 URL: <http://www.mdpi.com/2071-1050/8/9/844/html>
- Cosens, B. 2016. Water Law Reform in the Face of Climate Change: Learning from Drought in Australia and the Western United States. *33 Environmental and Planning Law Journal* 372 Special Issue: "Rethinking Water Law and Governance" eds. C. Holley and D. Sinclair.
- Carmody, Emma, **Barbara Cosens**, Alex Gardner, Lee Godden, Janice Gray, Cameron Holley, Louise Lee, Bruce Lindsay, Liz Macpherson, Rebecca Nelson, Erin O'Donnell, Lily O'Neill, Kate Owens and Darren Sinclair. 2016. The Future of Water Reform in Australia – Starting the Conversation. *Australian Environment Review* 31.4(1). available at: http://lexisweb.lexisnexis.com.au/JournalOverview.aspx?id=201631AE00400106_00006
- Chaffin, B.C., A.S. Garmestani, L.H. Gunderson, M.H. Benson, D.G. Angeler, C.A. Arnold, B. **Cosens**, R.K. Craig, J.B. Ruhl, and C.R. Allen. 2016 Transformative Environmental Governance. *Annual Review of Environment and Resources* 41: 399-423 (October 2016). <http://www.annualreviews.org/doi/abs/10.1146/annurev-environ-110615-085817>
- Gunderson, Lance, Barbara **Cosens**, and Ahjond S. Garmestani. 2016. Adaptive Governance of Riverine and Wetland Ecosystem Goods and Services. *Journal of Environmental Management* xxx (2016): 1-8. available at <http://www.sciencedirect.com/science/article/pii/S0301479716302730>.
- Cosens, B.** and B. C. Chaffin. 2016. Adaptive Governance of Water Resources Shared with Indigenous Peoples: The Role of Law. Special Issue: "Water Governance, Stakeholder Engagement, and Sustainable Water Resources Management." *Water* 8(3), 97. Editors Sharon B. Megdal, Eylon Shamir, and Susanna Eden. URL: <http://www.mdpi.com/2073-4441/8/3/97/html>
- Corrao, Mark V., Robert Heinse, Jan U.H. Eitel, Timothy E. Link, and **Barbara Cosens**. 2016. Soil Moisture Differences between Terracette Benches and Risers on Semiarid Rangeland Hillslopes. *Vadose Zone Journal* 15 (1): 1-10.
- Cosens, B. 2016. The Columbia River Treaty: An Opportunity for Modernization of Basin Governance. *Colorado Natural Resources, Energy & Environmental Law Review* 27(1): 1-19, available at http://www.colorado.edu/law/sites/default/files/CNREELR-V27-I1-Cosens%20Final_0.pdf.
- Benson, Melinda Harm; Christopher D. Lippitt; Ryan Morrison; **Barbara Cosens**; Jan Boll; Brian C. Chaffin; Alexander K. Fremier; Robert Heinse; Derek Kauneckis; Timothy E. Link; Caroline E. Scruggs; Mark Stone; Vanessa Valentin. Five ways to support interdisciplinary work before tenure. *Journal of Environmental Studies and Sciences*, October 6, 2015, available at <http://link.springer.com/article/10.1007/s13412-015-0326-9>
- Corrao, Mark V., **B. Cosens**, Robert Heinse, Timothy E. Link, and Jan U.H. Eitel, Using Science to Bridge Management and Policy: Terracette Hydrologic Function and Water Quality Best Management Practices in Idaho, *Rangelands* Volume 37, Issue 5, October 2015, Pages 191-199.
- Olivia Odom Green, Ahjond S Garmestani, Craig R Allen, Lance H Gunderson, JB Ruhl, Craig A

- Arnold, Nicholas AJ Graham, **Barbara Cosens**, David G Angeler, Brian C Chaffin, and CS Holling, 2015. Barriers and bridges to the integration of social–ecological resilience and law. *Frontiers in Ecology* 13(6): 332-337.
<http://www.esajournals.org/doi/pdf/10.1890/140294>
- Fremier, Alexander K., Michael Kiparsky, Stephen Gmur, Jocelyn Aycrigg, Robin Kundis Craig, Leona Svancara, Dale Goble, **Barbara Cosens**, Frank W. Davis, & J. Michael Scott. 2015. A Riparian Conservation Network for Ecological Resilience, *Biological Conservation* 191: 29-37. <http://dx.doi.org/10.1016/j.biocon.2015.06.029>
- Cosens, B.**, Gunderson, L. and Chaffin, B. 2014. The Adaptive Water Governance Project: Assessing Law, Resilience and Governance in Regional Socio-Ecological Water Systems facing a Changing Climate. 51 *Natural Resources and Environmental Law Edition of the Idaho Law Review* 1.
- Cosens, B.**, and Fremier, A. 2014. Assessing System Resilience and Ecosystem Services in Large River Basins: a Case Study of the Columbia River Basin, 51 *Natural Resources and Environmental Law Edition of the Idaho Law Review* 91.
- Bankes, N. and **Cosens B.** Columbia River Treaty Options: Protocols for Transboundary Adaptive Management Examined (condensed report on Bankes and Cosens 2014) 129 *The Water Report*, Nov. 15, 2014.
- Cosens, Barbara**; Gunderson, Lance; Allen, Craig; Benson, Melinda H. 2014. "Identifying Legal, Ecological and Governance Obstacles, and Opportunities for Adapting to Climate Change." *Sustainability* 6, no. 4: 2338-2356 URL: <http://www.mdpi.com/2071-1050/6/4/2338>
- Chaffin, B. C., H. Gosnell, and **B. A. Cosens**. 2014. A decade of adaptive governance scholarship: synthesis and future directions. *Ecology and Society* 19(3): 56.
<http://dx.doi.org/10.5751/ES-06824-190356>
- Green, O. O., **B. A. Cosens**, and A. S. Garmestani. 2013. *Resilience in transboundary water governance: the Okavango River Basin*. *Ecology and Society* 18(2): 23.
<http://dx.doi.org/10.5751/ES-05453-180223>
- Cosens B. 2013. *Legitimacy, adaptation, and resilience in ecosystem management*. *Ecology and Society* 18(1): 3. URL: <http://www.ecologyandsociety.org/vol18/iss1/art3/>
- Cosens, B. 2012. *Resilience and Law as a Theoretical Backdrop for Natural Resource Management: Flood Management in the Columbia River Basin*, 42 *Environmental Law* 241.
- Cosens, B. A.** and M. Kevin Williams. 2012. Resilience and Water Governance: Adaptive Governance in the Columbia River Basin. *Ecology and Society* 17 (4): 3. [online] URL: <http://www.ecologyandsociety.org/vol17/iss4/art3/>
- Barbara Cosens**, Fritz Fiedler, Jan Boll, Lorie Higgins, Gary Johnson, Brian Kennedy, Maureen Laflin, Eva Strand and Patrick Wilson, *Interdisciplinary Methods in Water Resources: Communication Across Disciplines*, 29 *Issues in Integrative Studies* 118-143 (2011) available at <http://wwwp.oakland.edu/Assets/upload/docs/AIS/Issues-in-Interdisciplinary-Studies/2011-Volume->

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Allyson Beall, Fritz Fiedler, Jan Boll and **Barbara Cosens**, Sustainable Water Resource Management and Participatory System Dynamics. Case Study: Developing the Palouse Basin Participatory Model, 3 SUSTAINABILITY 5: 720-788.(2011) *available at:*

<http://www.mdpi.com/2071-1050/3/5>

Cosens, B. 2010. *Transboundary River Governance in the Face of Uncertainty: Resilience Theory and the Columbia River Treaty*, 30 UNIVERSITY OF UTAH JOURNAL OF LAND RESOURCES, AND ENVIRONMENTAL LAW 229.

Cosens, B. 2010. *Energy Independence: Challenges Facing the West in Adopting Alternative and renewable Energy Sources*, 46 Idaho Law Review 337.

Katarzyna H. Kucharzyk, Ronald L. Crawford, **Barbara Cosens**, Thomas F. Hess, *Development of drinking water standards for perchlorate ion in the United States*, 19 JOURNAL OF ENVIRONMENTAL MANAGEMENT 303 (2009).

Cosens, B. 2008. *Resolving Conflict in Non-Ideal, Complex Systems: Solutions for the Law-Science Breakdown in Environmental and Natural Resource Law*, 48 NATURAL RESOURCES JOURNAL, 257, available at http://lawschool.unm.edu/nrj/volumes/48/2/04_cosens_conflict.pdf

Cosens, B. 2006. *Truth or Consequences: Settling Water Disputes in the Face of Uncertainty*, 42 IDAHO LAW REVIEW 717.

Cosens, B. 2006. *2005 Indian Water Rights Settlement Conference Keynote Address*, 9 DENVER WATER LAW REVIEW, Issue 2.

Cosens, B. 2006. *The Role of Hydrology in the Resolution of Water Disputes*, 133 JOURNAL OF CONTEMPORARY WATER RESEARCH AND EDUCATION: RIVER ADJUDICATIONS 17, May 2006, (10 pgs.), available at <http://onlinelibrary.wiley.com/doi/10.1111/j.1936-704X.2006.mp133001004.x/epdf>

Cosens, B. 2003. *Farmers, Fish, Tribal Power, and Poker: Reallocating Water in the Truckee River Basin, Nevada and California*, 10 U.C. HASTINGS, WEST-NORTHWEST: JOURNAL OF ENVIRONMENTAL LAW AND POLICY 89.

Cosens, B. 2003. *Water Dispute Resolution in the West: Process Elements for the Modern Era in Basin-wide Problem Solving*, 33 ENVIRONMENTAL LAW 949.

Cosens, B. 2003. *A New Approach in Water Management or Business as Usual? The Milk River, Montana*, 18 JOURNAL OF ENVIRONMENTAL LAW & LITIGATION 1.

Cosens, B. 2002. *The Measure of Indian Water Rights: The Arizona Homeland Standard, Gila River Adjudication*. 42 NATURAL RESOURCES JOURNAL 835. available at: http://lawschool.unm.edu/nrj/volumes/42/4/06_cosens_measure.pdf

Cosens, B. 1998. *The 1997 Water Rights Settlement Between the State of Montana and the Chippewa Cree Tribe of the Rocky Boy's Reservation - The Role of Community and of the Trustee*. 16 UCLA JOURNAL OF ENVIRONMENTAL LAW AND POLICY 255. available at http://escholarship.org/uc/search?entity=uclalaw_jelp;volume=16;issue=2

Amman, D., **Cosens, B.**, and Specking, J. *Negotiation of the Montana - National Park Service Compact*, 5 RIVERS 35, January, 1995. (published with co-authors D. Amman and J. Specking).

Cosens Gallinatti, B. 1984. *Initiation and Collapse of Active Circulation in a Hydrothermal System at the Mid-Atlantic Ridge, 23°N* JOURNAL OF GEOPHYSICAL RESEARCH, vol. 89, no. B5, pg. 3275 (1984).

Books, Chapters, edited publications:

Barbara Cosens, Holley Doremus, JB Ruhl, Niko Soininen, and Lance Gunderson, Operationalizing Adaptive Governance Plus: a research agenda, Chapter 2 in Sirkku Juhola (ed.) *Handbook on Adaptive Governance* (Edward Elgar Publishing, 2023)

Niko Soininen, **Barbara Cosens**, J.B. Ruhl and Suvi-Tuuli Puharinen, Adaptive governance, law and regulation, Chapter 3 in Sirkku Juhola (ed.) *Handbook on Adaptive Governance* (Edward Elgar Publishing 2023)

J.B. Ruhl, **Barbara Cosens**, and Niko Soininen (2021) Resilience of Legal Systems – Towards Adaptive Governance, in *Multisystemic Resilience: Adaptation and Transformation in Contexts of Change*, Michael Ungar (editor). Oxford University Press.

Barbara Cosens and Lance Gunderson (2021) Governance for Adaptation and Transformation in North America: a legal perspective on resilience reconciliation, in *Water Resilience: Management and Governance in Times of Change*, Julia Baird and Ryan Plummer (editors) (Springer International Publishing).

Cosens, B. (2021) Social-Ecological Resilience and its Relation to the Social Pillar of Sustainable Development, in *The Cambridge Handbook on Environmental Justice and Sustainable Development*, Edited by Sumudu Atapattu, Carmen G. Gonzalez and Sara Seck.

Cosens, B. (2021) Excluded Uses: Indigenous Rights to Water, in Whittington, D. ed. *Oxford Encyclopedia of Water Resources Management and Policy* (Oxford University Press)

Cosens, B. (2021) Indigenous Rights to Water. Dellapenna, J. W. and Gupta, J. eds. *Water Law*. Edward Elgar Environmental Law Series Volume X.

Cosens, B. and Gunderson, L. (eds) (2018) *Practical Panarchy for Adaptive Water Governance: Linking Law to Social-Ecological Resilience*. Springer Publications

Cosens, B. and Gunderson L. (2018) Chapter 1. An Introduction to Practical Panarchy; Linking Law, Resilience and Adaptive Water Governance of Regional Scale Social Ecological Systems, in *Practical Panarchy for Adaptive Water Governance: Linking Law to Social-Ecological Resilience* 1st ed. 2018 Edition, Kindle Edition by Barbara Cosens (Editor), Lance Gunderson (Editor). Springer Publications.

Gunderson, L. and **Cosens, B.** (2018) Chapter 2. Case Studies in Adaptation and Transformation of Ecosystems, Legal Systems and Governance Systems, in *Practical Panarchy for Adaptive Water Governance: Linking Law to Social-Ecological Resilience* 1st ed. 2018 Edition, Kindle Edition by Barbara Cosens (Editor), Lance Gunderson (Editor) Springer Publications

- Cosens, B.** and Fremier, A. (2018) Chapter 4. Social-Ecological Resilience in The Columbia River Basin: The Role of Law and Governance, in *Practical Panarchy for Adaptive Water Governance: Linking Law to Social-Ecological Resilience* 1st ed. 2018 Edition, Kindle Edition by Barbara Cosens (Editor), Lance Gunderson (Editor), Springer Publications.
- Cosens, B.** and Arthington, A. H. (2018) Chapter 9. Assessing Adaptive Water Governance for Lake Eyre Basin and Linked Portions of the Great Artesian Basin in Australia in *Practical Panarchy for Adaptive Water Governance: Linking Law to Social-Ecological Resilience* 1st ed. 2018 Edition, Kindle Edition by Barbara Cosens (Editor), Lance Gunderson (Editor). Springer Publications.
- Cosens, B.,** Craig, R.K., Hirsch, S., Arnold, C.A., Benson, M.H., DeCaro, D., Garmestani, A.S., Gosnell, H., Ruhl, J.B., Schlager, E. (2018) Chapter 10. Legal Pathways to Adaptive Governance in Water Basins in North America and Australia, in *Practical Panarchy for Adaptive Water Governance: Linking Law to Social-Ecological Resilience* 1st ed. 2018 Edition, Kindle Edition by Barbara Cosens (Editor), Lance Gunderson (Editor), Springer Publications
- Gunderson, L, **Cosens, B.** and Chaffin, B. (2018) Chapter 14. Trajectories of Change in Regional Scale Social-Ecological Water Systems. in *Practical Panarchy for Adaptive Water Governance: Linking Law to Social-Ecological Resilience* 1st ed. 2018 Edition, Kindle Edition by Barbara Cosens (Editor), Lance Gunderson (Editor). Springer Publications
- Cosens, B.** and Gunderson, L. (2018) Chapter 18. Adaptive Water Governance -- Summary and Synthesis. In *Practical Panarchy for Adaptive Water Governance: Linking Law to Social-Ecological Resilience* 1st ed. 2018 Edition, Kindle Edition by Barbara Cosens (Editor), Lance Gunderson (Editor). Springer Publications
- Cosens B. (2018) *Governing the Freshwater Commons: Lessons from Application of the Trilogy of Governance Tools in Australia and the Western United States*, in Holley, C. and Sinclair, D. *Reforming Water Law and Governance: From Stagnation to Innovation in Australia*. Springer Publications.
- Cosens, B.,** A. Fremier, N. Bankes and J. Abatzoglou. 2016. The Columbia River Treaty and the Dynamics of Transboundary Water Negotiations in a Changing Environment: How Might Climate Change Alter the Game? Chapter 10 in *WATER POLICY AND PLANNING IN A VARIABLE AND CHANGING CLIMATE*. K. Miller, A. Hamlet, D. Kenny and K. Redmond eds. (CRC Press).
- Cosens, B. Application of the Adaptive Water Governance Project to the management of the Lake Eyre Basin and its connections to the Great Artesian Basin, 2015, ANZOG-Goyder Institute Visiting Professor Report, available at <http://www.goyderinstitute.org/uploads/FU%20LEB%20GAP%20Report-WEB.pdf>
- Barbara Cosens** and Craig Stow, *Resilience and Water Governance: Addressing Fragmentation and Uncertainty in Water Allocation and Water Quality Law*, SOCIAL-ECOLOGICAL RESILIENCE AND LAW, Ahjond Garmestani and Craig Allen eds. Columbia University Press, 2014.
- COSENS, B. 2012. CHANGES IN EMPOWERMENT: RISING VOICES IN COLUMBIA BASIN RESOURCE MANAGEMENT. IN B. COSENS, EDITOR. *THE COLUMBIA RIVER TREATY REVISITED: TRANSBOUNDARY RIVER GOVERNANCE IN THE FACE OF UNCERTAINTY*. OREGON STATE UNIVERSITY PRESS, CORVALLIS, OREGON, USA.

THE COLUMBIA RIVER TREATY REVISITED: TRANSBOUNDARY RIVER GOVERNANCE IN THE FACE OF UNCERTAINTY, **edited by Barbara Cosens**, A Project of the Universities Consortium on Columbia River Governance (Oregon State University Press, 2012).

Saito, L., Fiedler, F., **Cosens, B.** and Kauneckis, D. *A Vision of Interdisciplinary Graduate Education in Water and Environmental Resources in 2050*. TOWARD A SUSTAINABLE WATER FUTURE: VISIONS FOR 2050 (American Society of Civil Engineers 2012).

Cosens, B. and J. Royster **eds.** THE FUTURE OF FEDERAL AND INDIAN RESERVED WATER RIGHTS: THE WINTERS CENTENNIAL 2012 (University of New Mexico Press). Chapter: *The Legacy of Winters v. United States and the Winters Doctrine, One Hundred Year Later*

Cosens, B. *A Legal Framework for Water Resources Management in the Palouse Basin*, Harris, C.C. (Compiler.) 2007. Palouse Basin Case Study White Papers. Draft series prepared for the INRA UI-WSU Complementary Water Resources Research Project. UI Water Resources Program, University of Idaho, Moscow. Oct. 2007, available at http://wr.civil.uidaho.edu/cwis/palouse/files/docs/PalouseBasin_whitepapers10-04-07.pdf

Cosens, B. *The Arizona Homeland Standard Measure of Indian Water Rights*, in TRIBAL WATER RIGHTS: ESSAYS IN CONTEMPORARY LAW, POLICY, AND ECONOMICS, John E. Thorson, Sarah Britton, and Bonnie G. Colby eds. University of Arizona Press (2006).

Cosens, B. *Filling the Gaps in Western and Federal Water Law*, in TRIBAL WATER RIGHTS: ESSAYS IN CONTEMPORARY LAW, POLICY, AND ECONOMICS, John E. Thorson, Sarah Britton, and Bonnie G. Colby eds. University of Arizona Press (2006).

Cosens, B. *The Northern Cheyenne Compact: Implementation Achieved*, in: NEGOTIATING TRIBAL WATER RIGHTS, Bonnie G. Colby, John E. Thorson and Sarah Britton, eds. University of Arizona Press (2005).

Cosens, B. *Current Trends and Policies in Water Law*, ABA, Section on Natural Resources, Energy and Environmental Law Publication. Co-editor (1995).

Conference Proceedings and Posters:

Cosens, B., J. Boll, A.K. Fremier. 2012. *Adaptive governance and resilience: The Columbia River Basin*. American Geophysical Union. San Francisco, CA.

The Eternal Quest for Water: Historical Overview and Current Examination of Interbasin Transfers of Water, Proceedings of the 55th Annual Rocky Mountain Mineral Law Foundation Institute, San Francisco, California, July 23-25, 2009, available online at <http://www.rmmlf.org/proceedings.htm>.

Transboundary Governance in the Face of Uncertainty: The Columbia River Treaty: 2014, Natural Resources Law Teachers Conference, Montana, May 27-29, 2009.

The Legacy of Winters v. United States and the Winters Doctrine, One Hundred Year Later, ABA Section on Energy and the Environment, Annual Fall Meeting Proceedings, September 17-20, 2008, Best Paper Award.

Boll, J., B. **Cosens**, F. Fiedler, T. Link, P. Wilson, C. Harris, M. Tuller, G. Johnson, and B. Kennedy. *University of Idaho Water of the West Initiative: Development of a sustainable, interdisciplinary water resources program*. Eos Transactions American Geophysical Union 87(52), Fall Meet. Suppl., Abstract ED31A-1361 (2006).

Overview of Native American Water Rights, Western Water Law, CLE International, Denver, pp. 11-16, September 2004.

Basin Management Upstream: Database and Allocation Coordination on the Milk River, Montana. Universities Council on Water Resources (UCOWR) Proceedings, Living Downstream in the Next Millennium: Reconciling Watershed Concerns with Basin Management, August 1-4, 2000, pp.174-181.

From the Kitchen Table to Congress - a Unique Approach to Dispute Resolution in Water Allocation, Cross Currents in Water Policy, Universities Council On Water Resources (UCOWR) Conference and Proceedings, August 1998.

Initiation and Collapse of Active Circulation in a Hydrothermal System at the Mid-Atlantic Ridge, 23°N, Eos Transactions of the American Geophysical Union, vol. 64, no. 35, pg. 533 (1983).

Initiation and Collapse of Active Circulation in a Hydrothermal System at the Mid-Atlantic Ridge, 23°N, Geological Society of America Abstracts with Programs, vol. 14, no. 7, pg. 67 (1982).

Boiling and Metal Deposition in Submarine Hydrothermal Systems, MARINE TECHNOLOGY SOCIETY JOURNAL, vol. 16, no.3, pg. 62 (1982) (published with co-author J.R. Delaney).

Scholarly Presentations:

Enabling Adaptive Governance: defining the role of government in new governance, 2019: Vanderbilt Law Review Symposium on Governing Wicked Problems, October 24-25, 2019.

Modernization of the Columbia River Treaty, (with Nigel Bankes, U. Calgary) 2019: Lewis and Clark College of Law October 18, 2019.

Critical Reflections on Adaptive Governance Approaches, 2018: Brocher Foundation, Geneva, Switzerland, Workshop on Applying Adaptive Governance to Emerging Technologies in Health, November 12-14, 2018.

Practical panarchy: The Adaptive Water Governance Project, 2018: University Nevada Reno, Hydrology Seminar Series, October 23, 2018.

The Role of Law in adaptive governance, 2018, University of Lapland, Rovaniemi, Finland, BlueAdapt Workshop, September 26, 2018.

Challenges and solutions in regulating river basin management: the Columbia River Basin, 2018, University of Lapland, Rovaniemi, Finland, BlueAdapt Workshop, September 25, 2018.

The Role of Law in Managing Resilience: Incorporating law into resilience assessment, 2018: Stockholm Resilience Centre, September 20, 2018.

Windows of Opportunity for Adaptation: the importance of the front and back ends, Resilience 2017: Resilience Frontiers for Global Sustainability, August 20-23, 2017.

- The role of law in navigating the transition from state-centric environmental governance to new governance of social-ecological systems*, Resilience 2017: Resilience Frontiers for Global Sustainability, August 20-23, 2017.
- Framing Governance for Resilience*, Opening address for Governance for Resilience Workshop, McGill University, March 10, 2017.
- Indigenous Capacity and Self-Determination in the Review of the Columbia River Treaty: The role of law, resilience, and reconciliation*, McGill University Faculty of Law and School of the Environment, March 9, 2017.
- International Water Law and Indigenous Water Justice: Through the lens of the Columbia River Treaty Review*, State of the Rockies Speaker, Colorado College, Feb. 27, 2017.
- The Columbia River and the Columbia River Treaty*, River Restoration Northwest, Skamania Lodge, Washington, Feb. 7-9, 2017.
- Stakeholder Involvement in Decision Making: Lessons from the Big Sky*, Policy Immersion Workshop, SESYNC, December 13-15, 2016.
- Coping with Water Scarcity in River Basins Worldwide: The Columbia River Basin*, Coping with Water Scarcity in River Basins Worldwide: Lessons Learned from Shared Experiences, 2016 Martz Summer Conference, June 9-10, 2016.
- Indigenous Water Justice Panel: Synthesis of Indigenous Water Justice Workshop*, Coping with Water Scarcity in River Basins Worldwide: Lessons Learned from Shared Experiences, 2016 Martz Summer Conference, June 9-10, 2016.
- The Role of Law in Adaptive Water Governance: the adaptive water governance project*, Learning from Drought Crises in Federations: Principles, Indicators and Lessons Learned, University of Colorado Law School, Boulder CO, June 7-8, 2016.
- Indigenous Water Justice in the Columbia River Basin*, Indigenous Water Justice Symposium, University of Colorado Law School, Boulder CO, June 6, 2016.
- Law and Social-Ecological Systems: Barriers and Bridges to Change*, Distinguished Lecture, Socio-Environmental Immersion Program, National Socio-Environmental Synthesis Center, University of Maryland, April 11-15, 2016.
- Adapting Water Law to a Changing Climate: Through the Window of Drought*, Distinguished Lecture, Socio-Environmental Immersion Program, National Socio-Environmental Synthesis Center, University of Maryland, April 11-15, 2016.
- Social-Ecological System Resilience, Climate Change and Adaptive Water Governance: The AWG Project*, Oregon State University, Geography Department, Visiting Scholar 2016.
- Water Reform in Australia through the Lens of Comparative Law*, University of New South Wales, Workshop, Sydney, Australia, Dec. 2015.
- The Columbia River Treaty*, 2015 Martz Summer Conference on Innovations in Managing Western Water: New Approaches for Balancing Environmental, Social and Economic Outcomes, June 11-12, 2015, University of Colorado Law.
- Social-Ecological System Resilience, Climate Change and Adaptive Water Governance:*

The AWG Project, Natural Resources Law Teachers' Conference, University of Utah, June 27-29, 2015.

Assessing Law, Resilience and Governance in Basin Scale Water Systems Facing Changing Climate: The Adaptive Water Governance Project, Arizona State University First Annual Sustainability Conference of American Legal Educators, Tempe, Arizona, May 8, 2015.

Rigney, Daryle, Hemming, Steve, and **Cosens, Barbara**, *Indigenous Governance Capacity Building: Reflections from the western United States and South Australia*, Seminar sponsored by The Goyder Institute and The Yunggoorendi First Nations Centre, Flinders University, April 14, 2015.

The Adaptive Water Governance Project in Australia: Law as a Tool for Adaptation, University of Western Australia, Water Law Forum, Perth, Western Australia, April 8, 2015.

Indigenous Water Rights: Native Americans and the legacy of Winters v. United States, University of South Australia School of Law, Adelaide, South Australia, March 25, 2015.

Resilience of Social-Ecological Systems in the Anthropocene: The Adaptive Water Governance Project, Flinders University School of the Environment, South Australia, March 12, 2015.

Resilience of Social-Ecological Systems in the Anthropocene: The Adaptive Water Governance Project, University of New England, Armidale, New South Wales, February 20, 2015.

International Water Law: The Columbia River Treaty Review, Keynote, Goyder Water Forum, Adelaide, South Australia, February 18, 2015.

The Future of the Columbia River Treaty: Areas of Convergence and Divergence, The Columbia Basin, 2014 Conference: Learning From Our Past to Shape Our Future, Spokane Washington, Oct. 21-23, 2014.

Wilderness and Resilience: Remaining Unimpaired and Untrammelled in the Anthropocene, University of Utah College of Law Wilderness Act at 50 and the Mountain West, Salt Lake City, Utah, September 26, 2014.

Cosens, B. and Gunderson, L., *Adaptive Governance in the Headwaters*, MTNCLIM 2014 Conference, Midway, Utah Sept 17, 2014

Cosens, B. and Griggs, B., *Lessons from Western Water Adjudication & Application: Ogallala Aquifer*, Big Horn Adjudication Symposium, Riverton, Wyoming, September 11-12, 2014.

Moderator: *Snake River Basin Adjudication: Issues of Basin-wide Concern*, Snake River Basin Adjudication Symposium, Boise, Idaho, August 25-26, 2014 .

Cosens, B. and Gunderson, L., Session Chairs: *Social-Ecological Resilience, Climate Change and Adaptive Water Governance of Regional Scale Water Systems in the United States*, Resilience 2014, Montpellier, France, May 2014.

Cosens, B. and Fremier, A. *The Adaptive Water Governance Project: Columbia River Basin Assessment*, Resilience 2014, Montpellier, France, May 2014.

Benson, M., M. Stone, D. Llewellyn, R. Morrison, **B. Cosens**, L. Gunderson, and C Allen, "Adaptive Governance and Social-Ecological System Resilience in New Mexico's Rio

Grande Valley," Association of Environmental Studies as Sciences Annual Meeting, Pace University, New York, New York June 11-14, 2014.

Law: A Discipline or a Profession? University of Idaho Interdisciplinary Colloquia, October 2013.

Benson, M.H. (speaker) and **B. Cosens**. (co-author) *Resilience in water governance: building adaptive capacity within social-ecological systems facing climate change. Transformational Solutions for Water in the West Workshop. Sandia National Laboratories. Albuquerque, New Mexico 5 September 2013.*

Resilience and Water Governance, Session Keynote, 3d International Congress on Sustainability Science & Engineering, Cincinnati, OH, August 15, 2013.

The Role of Indigenous Communities in Transboundary Water Resource Agreements: The Columbia River Treaty Review, Canada and the United States, Lewis and Clark Law School and National Law University in Delhi at a conference on Realizing the Goal of Water for Life: Lessons from Around the World, Delhi, India May 30-31, 2013

Crisis and Resilience and the International Law of Sustainable Development, Panel dialogue, Canadian Council on International Law Annual Conference, Ottawa, Canada, Nov. 9-10, 2012.

Exploring Legal Options and New Cooperative Arrangements: The Future of the Columbia River Treaty 4th Annual Symposium of the Universities Consortium on Columbia River Governance, Polson, Montana, October 10-12.

Review of the US-Canada Columbia River Treaty: a cross-border dialogue facilitated by the Universities Consortium on Columbia River Governance Western Social Science Association and Association of Borderlands Studies Annual Meeting, Houston, TX, April 13, 2012.

Opportunities for Achieving Integrated Water Resources Management in Native American Water Right Settlement Negotiations: The Walker River Mediation, Natural Resources Speaker Series, University of New Mexico School of Law, April 4, 2012.

Resilience and Water Governance: The Issue of Legitimacy in Adaptive Governance in the Columbia River Basin, Resilience 2011: Resilience, Adaptation and Transformation in Turbulent Times, ASU March 11-16, 2011.

Resilience and Administrative Law in Transboundary River Governance, Law for Social-Ecological Resilience Conference, University of Stockholm, November 2010.

Transboundary River Governance in the Face of Uncertainty: Resilience Theory and the Columbia River Treaty, Stegner Young Scholar Lecture, University of Utah College of Law, October 2009.

The Eternal Quest for Water: Historical Overview and Current Examination of Interbasin Transfers of Water, 55th Annual Rocky Mountain Mineral Law Foundation Institute, San Francisco, California, July 23-25, 2009.

The National Park Service – Montana Compact: Yellowstone National Park, Natural Resources Law Teachers Conference, Montana, May 27-29, 2009.

Transboundary Governance in the Face of Uncertainty: The Columbia River Treaty: 2014,

Natural Resources Law Teachers Conference, Montana, May 27-29, 2009.

Conjunctive Management of Water Resources, Northwest Water Law Symposium, ABA and NW Law Schools, Portland, Oregon, Jan. 31, 2009.

The Legacy of Winters v. United States and the Winters Doctrine, One Hundred Year Later", ABA Section on Energy and the Environment, Annual Fall Meeting, Phoenix, Arizona, September 17-20, 2008.

A Post-Winters World, The Winters Centennial: Will its Commitment to Justice Endure?, The University of New Mexico School of Law, Utton Transboundary Resources Center, and The American Indian Law Center, Inc., Albuquerque, New Mexico, June 9-12, 2008.

The Changing Interface Between Law and Science, panel moderator, ABA Annual Water Law Conference, San Diego, February 22-23, 2007.

Who is at the Table and What's on the Table? BEYOND CONFLICT: TRIBAL WATER RIGHTS, SETTLEMENT STRATEGIES, AND ENVIRONMENTAL JUSTICE, Third Annual Northwest Tribal Water Rights, October 26, 2006.

Surface/Ground Water Interaction, Northwest Water Policy & Law Symposium: panel moderator, September 18, 2006.

The Role of Law in Environmental Advocacy, WHAT CAN WE DO FOR NATURE? ACTION, ETHICS, AND RESPONSIBILITY, Inland Northwest Philosophy Conference, Moscow, Idaho, March 2006.

Truth or Consequences: The Role of Uncertainty in Resolving Natural Resource Disputes, Idaho Academy of Science, Annual Symposium, Moscow, Idaho, March 2006.

Keynote Address, Indian Water Rights Settlement Conference, Moscow, Idaho, September 2005.

Western Water Law, panel moderator and presenter, September 2004.

Living Downstream in the Next Millennium: Reconciling Watershed Concerns with Basin Management, Universities Council on Water Resources (UCOWR), August 1-4, 2000.

Negotiation of Indian Water Rights Claims: the Basics, Indian Water Rights Settlement Conference, Missoula, September 1999.

Implementing Settlements, Indian Water Rights Settlement Conference, Stanford, September 1994.

Changing Water Use and Water Law, Rocky Mountain Groundwater Conference, Las Vegas, September 1994.

Identifying Parties and Issues and How Negotiators Bind Larger Groups, Indian Water Rights Settlement Conference, Bismarck, September 1993.

Grants:

NSF/USDA INFEWS T1, 2016-2020

Increasing regional to global-scale resilience in Food-Energy-Water systems through coordinated management, technology and institutions

Award Number: 1639458
Principal Investigator: Jennifer Adam, Washington State University
Award to WSU via NSF: \$2,001,541.00
Award to UI participant Barbara Cosens via USDA: \$275,000

Rocky Mountain Mineral Law Foundation, 2016
Development and editing of book: Practical Panarchy, Linking Law, Resilience and Adaptive Water Governance of Regional Scale Social Ecological Systems
PI: Barbara Cosens
\$3000

NSF IGERT: Adaptation to change in water resources: science to inform decision-making across disciplines, cultures and scales. 2014-2020

PI: Tim Link
co-PI: Barbara Cosens
Award Id: 1249400
\$3.1 million

IWG Grant: Building Resilience in Water Governance, 2012
PI: Melinda Harm Benson
co-PI: Barbara Cosens and others
Western Tri-State Consortium EPSCoR
\$7,785

Watershed Integrated Systems Dynamics Modeling (WISDM), 2013-2016
PI: Cailin Huyck Orr, WSU
co-PI: Barbara Cosens (and numerous WSU faculty)
USDA
\$1.5 million (\$11,442 to UI)

Yakima Basin Integrated Plan Benefit Cost Study, 2013-2014
PI: Jonathan Yoder, WSU
Participant: Barbara Cosens and numerous WSU faculty
\$400,000 (2 weeks summer salary and 120 hours law RA to UI)

Native American Water Right Settlement Database, 2012
PI: American Indian Law Center
co-PI: Barbara Cosens UI, Darcy Bushnell, Utton Center, Karl Benedict, UNM
BIA
\$50,000

Native American Water Right Settlement Database, 2012
PI: Barbara Cosens
Rocky Mountain Mineral Law Foundation

\$5000, \$2500 UI Law match

Publication of book on Columbia Symposium, 2009

PI: Cosens

Rocky Mountain Mineral Law Foundation

\$2500

Lapwai Creek Integrated Analysis, \$59,301

PI: Cosens

EPA §319 Grant

Idaho Department of Environmental Quality

July 2008

Summer Research Grant,

PI: Cosens

University of Idaho College of Law

Summer 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016

\$10-15,000 each summer

Natural Resource and Environmental Law Symposium: Columbia River Treaty, Spring 2008

PI: Cosens

Co-PIs: Dale Goble, Jerrold Long

University of Idaho College of Law Grant

\$17,500,

Developing Tools to Minimize Jurisdictional Barriers To Achievement of Fishery and Water Resources Goals In Lapwai Creek, Idaho, 2008

PI: Dr. Brian Kennedy

Co-PI: Cosens

USGS 104B Grant

\$20,000

Waters of the West Strategic Initiative, 2006

PI: Dr Jan Boll

Co-PIs: Cosens, Dr. Fritz Fiedler, Dr. Gary Johnson, Dr. Timothy Link, Dr. Charles Harris, Dr. Barbara Williams, Dr. Brian Kennedy, Dr. Eric Coats, Dr. Patrick Wilson

University of Idaho, Strategic Initiative

\$1.6 million over a 5 year period

Research Development:

As part of the mission of the new Waters of the West program to develop team based interdisciplinary research in which faculty and students work together, the following research projects are under development:

Palouse Basin Water Supply Integrated Analysis, Spring 2007-2012

Analysis of means to achieve sustainable use of a declining sole-source interstate aquifer.

Lapwai Creek Watershed Integrated Analysis, Spring 2008-2012

Analysis of opportunities for, and barriers to, recovery of steelhead spawning and rearing habitat in a multi-jurisdictional watershed.

Additional research projects:

SESYNC Award 2013T5-006 "[Social-Ecological System Resilience, Climate Change and Adaptive Water Governance](#)" Fall 2013 - 2015

co-chairs: Barbara Cosens and Lance Gunderson, Dept. of Environmental Studies, Emory University

Referred to as the Adaptive Water Governance project for short, the project brings together an interdisciplinary group of legal scholars, ecologists, resilience scholars, social scientists, climate scientists and hydrologists from across the U.S. to explore the concept of Adaptive Governance in five north American water basins.

Universities Consortium on Columbia River Governance, Fall 2007-present

University of Idaho representative on a core team from Oregon State University, University of Washington, University of Montana, University of Calgary and University of British Columbia, developing research to inform re-negotiation of the Columbia River Treaty between the United States and Canada. The treaty comes up for re-consideration in 2014.

Native American Water Right Settlement Repository (NAWRS) Spring 2012 - Present

Developed in partnership with the American Indian Law Center, and the Utton and Earth Data Analysis Centers at the University of New Mexico

Outreach

Outreach Publications:

Kiparsky, M., D. Owen, N. G. Nylan, J. Christian-Smith, **B. Cosens**, H. Doremus, A. Fisher, and A. Milman. February 2016. Designing Effective Groundwater Sustainability Agencies: Criteria for Evaluation of Local Options. Report of the Wheeler Water Institute, Center for Law, Energy and the Environment, University of California, Berkeley, School of Law, Berkeley, CA, USA. URL: <https://www.law.berkeley.edu/research/clee/research/wheeler/groundwater-governance-criteria/>

Barbara Cosens, Lance Gunderson & Brian Chaffin, Assessing Law, Resilience and Governance in Basin Scale Water Systems Facing Changing Climate: The Adaptive Water Governance Project, Special Edition Newsletter of the ABA International Environmental Law

Committee, No. 3, Summer 2015 on Water Impacts of Climate Change.

Bankes, N. and **Cosens, B.** Protocols for Adaptive Water Governance: The Future of the Columbia River Treaty, October 21, 2014, research project for the Program on Water Issues, Munk School of Global Affairs, University of Toronto, <http://powi.ca/wp-content/uploads/2014/10/Protocols-for-Adaptive-Water-Governance-Final-October-14-2014.pdf> .

Cosens, B. and Bankes, N. *Protocols for Adaptive Water Governance: The Future of the Columbia River Treaty*, Pacific Northwest Economic Region Annual Summit, Whistler, BC, Canada, July 23, 2014.

Bankes, N. and **Cosens, B.** The Future of the Columbia River Treaty, research project for the Program on Water Issues, Munk School of Global Affairs, University of Toronto, October 2012, available at <http://munkschool.utoronto.ca/research/the-future-of-the-columbia-river-treaty/> .

Outreach Presentations:

The Columbia River of our Vision: Setting the Stage for Reconciliation, One River, Ethics Matter Conference, hosted by the Okanagan Nation Alliance and The University of British Columbia's Okanagan campus, November 17-18, 2021.

Modernization of the Columbia River Treaty, Legislative Council on River Governance, Lewiston, Idaho, August 23, 2021.

History of the Columbia River Treaty, 2020, Creative Solutions for a New World: Climate and Artists Series, British Columbia via Zoom,

Co-Moderation of the Water Governance Panel, 2019 [with Kathy Eichenberger, lead BC negotiator for the Columbia River Treaty], Transboundary Columbia River Conference: One River, One Future, Kimberley, British Columbia, Canada; September 12-14, 2019.

The Role of Adaptive Governance in Adaptive Management of the Columbia River, 2019, Workshop of the Working Group on Columbia River Governance hosted by Columbia Basin Trust, July 29, 2019, Vancouver, BC, Canada.

Adaptive Governance: The Future of the Columbia River Treaty, 2019 UC Berkeley Workshop on Adaptive Management and the Columbia River Treaty, May 9-11, 2019.

Setting the State for Reconciliation: Modernization of the Columbia River Treaty, 2018, One River, Ethics Matter Conference, Missoula, MT, April 11, 2018.

Transboundary Water Law and the Benefits of Collaboration, Spokane River Forum, Coeur d'Alene Resort, November 15, 2017.

The Columbia River Treaty, April 28, 2017, Distance Presentation to Workshop on The Columbia River Treaty Renewal: A Conversation About the Future of Trans---Boundary Integrated Water Resource Management in the Columbia Basin April 28---29 2017, University of California, Berkeley.

Adapting Water Law to a Changing Climate: Through the Window of Drought, Water in Idaho and the West Conference, Smithsonian WaterWays, Burley, Idaho, Feb. 16, 2017

The Columbia River Treaty, Opening Address, Columbia River Treaty Symposium, NorthWest Indian College and Western Washington University, Bellingham, Washington, Feb. 22-23, 2017.

An Analysis of US Perspectives on the Columbia River Treaty and Its Potential Future, Columbia River Treaty: Past, Present and Future workshop convened by the Canadian Water Resources Association and the Adaptation to Climate Change Team from Simon Fraser University, Sonora Centre in Osoyoos, British Columbia, October 7, 2015.

The Columbia River Treaty: Analysis of the Stakes for the U.S. Interests, In Deep: A Conversation about Water, sponsored by The Whyte Museum of the Canadian Rockies, Banff Centre, Alberta, Canada, Oct. 3 2015.

Issues of Basin-Wide Concern, Snake River Basin Adjudication Symposium, Boise, Idaho. Panel moderator. August 25, 2014.

The Native American Water Rights Settlement Project, Western States Water Council and Native American Rights Fund Symposium on the Settlement of Indian Reserved Water Rights Claims, Santa Fe, NM, August 13, 2013.

Resilience and Water Governance, Dividing the Waters, National Judicial College, October 17-18, 2013, Reno, NV.

Columbia River Treaty Review, National Hydropower Association Fall Meeting, Sept. 8-11, 2013, Spokane, WA.

The Columbia River Treaty Review, Oregon Public Radio live broadcast on Thinking Outloud, December 17, 2013.

The role of law in interdisciplinary research: Is law a discipline or a profession? UI Interdisciplinary Colloquium, Oct. 15, 2013

The Columbia River Treaty: Background and Legal Mechanisms, Tribal-Environmental Workshop, Portland OR, April 3, 2013.

The Columbia River Treaty, Idaho Water Users Association, Boise ID, Jan. 24, 2013

Resilience and Sustainable Development, Crisis, Panel on Resilience and the Reformation of the International Law on Sustainable Development at the Canadian Council on International Law Conference, Ottawa, Nov. 8-10, 2012

Native American Water Rights and the Settlement Process, Ninth Annual New Mexico Judicial Water Law Seminar, Nov. 2, 2012.

U.S. and Canada Domestic Law in International Law, Universities Consortium on Columbia River Governance 4th Symposium, Polson, MT Oct. 10-12, 2012.

The Columbia River Treaty, Pacific Northwest Climate Conference, Boise, ID October 1, 2012

The Columbia River in Context, Washington Section of the American Water Resources Association, Ellensburg, WA. Sept. 12, 2012.

- Native American Water Right Settlement Negotiations: Fort Belknap and Nez Perce*, Federal Water Law, University of New Mexico School of Law, April 17, 2012.
- Transboundary River Governance in the Face of Uncertainty: the Columbia River Treaty*, Problems in Natural Resources Seminar, School of Law at University of New Mexico, March 24, 2012.
- Resilience and Law*, Natural Resources Management Seminar in Geography Dept. at University of New Mexico, Feb. 29, 2012.
- The Eternal Quest for Water: Historical Overview and Current Examination of Interbasin Transfers of Water*, Continuing Legal Education Luncheon as part of Stegner Scholar lectures, University of Utah College of Law, October 2009.
- Interstate Cooperation and Local Land use Planning in the Palouse Basin of Idaho and Washington*, Resolving Interstate Water Conflicts, Law Seminars International, Spokane, WA, Sept. 21, 2009.
- Getting Settlements Through Congress: Response to Congressional Staff Panel*, Indian Water Rights Settlement Conference, Ferndale, WA, Aug. 26, 2009
- The Law of Riparian Zones*, University of Idaho, Fish 430: Riparian Ecology, Instructor Dr. Alex Fremier, April 13, 2009.
- Adapting Idaho Law to Variable Water Supply and Increasing Water Demand*, Idaho Water Users Association, Boise, Idaho, Nov. 7, 2008.
- Water Resources Education at the University of Idaho*, President's Sustainability Symposium, Oct. 21, 2008.
- Shared Resources: Is Shared Management in Our Future?* Panel Moderator, Palouse Basin Water Summit, Oct. 7, 2008.
- Adapting Idaho Law to Variable Water Supply and Increasing Water Demand*, Idaho Council on Industry and the Environment, Boise, Idaho, Oct. 1, 2008.
- Participatory Modeling and Adaptive Governance of Water Resources in the Palouse Basin*, with Dr. Allyson Beall, Washington State University, Graduate Environmental Science Seminar, Instructor Dr. Andrew Ford, April 17, 2008.
- Changes to Idaho Water Law to Adapt to Climate Variability and Population Growth*, Idaho Senate Resources and Environment Committee, Invited Testimony, January 18, 2008.
- Water Sustainability and the Colorado River* Law and science presentation with Dr. Timothy Link, University of Idaho College of Natural Resources, Natural Resource Sustainability, Instructor Dr. Lauren Sims, Nov. 3 and 5, 2008, Mar. 31 and April 2, 2008, April 2 and 4, 2007, Oct. 19 and 31, 2007, October 30 and November 1, 2006.
- The Use of Science and Public Participation to Improve Water Resource Dispute Resolution*, Washington State University, Environmental Engineering Graduate Seminar, Instructor Dr. David Younge, November 26, 2007.
- Settlement of Indian Water Rights*, University of Idaho, BioRegional Planning Seminar, Instructor Dr. Tamara Laninga, October 9, 2007.

- The Discussion Begins – Tribal and Stakeholder Interests*, panel moderator at *The Spokane Valley—Rathdrum Prairie Aquifer Study Results and Policy Summit*, Spokane Valley, May 9, 2007.
- Toward Sustainability: Achieving Sustainable Water Use on the Palouse*, panelist, Palouse Water Conservation Network; Palouse Group of the Sierra Club; Protect Our Water; Friends of the Clearwater; and Moscow League of Women Voters, broadcast on Moscow Free Radio, April 30, 2007.
- Natural Resources Law and Policy at the University of Idaho College of Law*, Environment and Natural Resources Section of the Idaho State Bar, presentation with Dean Donald Burnett, January 23, 2007.
- Environmental Conflict Resolution*, Environment and Natural Resources Section of the Idaho State Bar, January 23, 2007.
- Tribal Water Right Settlements*, Idaho Water Resources Research Institute Seminar Series, November 8, 2006.
- Balancing the Stakeholder Interests on the Walker River*, Dividing the Waters X: Conference for Judges, Masters, and Referees involved in western general stream adjudications and other complex water litigation: Presenter, October 16, 2006.
- Transboundary Cooperative Agreements for Water Management*, Panel moderator, Second Annual Palouse Basin Water Summit, October 3, 2006.
- General Water Law, Tribal Water Law, Groundwater Law, the Nez Perce Settlement, Interstate Allocation, and Q&A*, Invited expert on field trip/seminar, Institutes for Journalism and Natural Resources: Blue Mountain Institute Learning Expedition, May 2006.
- The Legal Aspects of Managing an Interstate Water Basin, Palouse Basin Aquifer Committee Retreat*, Invited Presenter, April 2006.
- Resource Wars*, University of Idaho, Borah Symposium, Panel moderator, March 2006.
- Settlement of Indian Water Rights*, University of Idaho, Agricultural Economics 477, Law, Ethics, & the Environment, AgEc 477, Instructor Dr. J.D. Wulfhorst, October 10, 2006, September 2005, September 2004.
- Indian Water Rights: the Nez Perce Settlement*, Conservation Leadership RRT 481, Instructor Tom Lamar, April 2006.
- Water Conservation*, Panel moderator, Palouse Basin Water Summit, Moscow, ID, October 2005
- Water Negotiation and Mediation*, Invited speaker, Idaho Mediation Association, Local Chapter, June 2005.
- Science, Policy and Law in Tribal Water Right Settlements*, Washington State University, Environmental Science and Regional Planning Graduate Seminar, Environmental Science and Regional Planning 593, Instructor Dr. Andrew Ford, April 2005.
- International Water Law*, University of Idaho International Environmental Law, Environmental Science 504, Instructor Russell Miller, April 2005.

Citizen Suits Under the Clean Water Act: Idaho Sportsman's Coalition v. Browner, Conservation Leadership RRT 481, Instructor Tom Lamar, March 2005.

Native American Water Rights, Geography Graduate Seminar, San Francisco State University, Spring 2004, Fall 2003.

Native American Water Rights, Environmental Studies Seminar, San Francisco State University, Spring 2003.

Water Negotiation Workshop, Invited Participant, University of Colorado, Summer 2003.

Yellowstone Controlled Groundwater Area: A Reserved Right to Protect the Hydrothermal System, Invited speaker and organizer, Dividing the Waters, Science Workshop, April 2003.

National Park Service Compact, Invited speaker, Dividing the Waters V, April 1999.

Chippewa Cree of the Rocky Boy's Settlement Indian Water Rights Settlement Act of 1999, Testimony, United States House of Representatives, Committee on Natural Resources, Subcommittee on Water and Power, October 1998.

Determination of Federal Reserved Water Rights, Invited speaker Dividing the Waters IV, October 1997.

Practical Aspects of Negotiating Federal Reserved Water Rights, Montana Water Law Conference, Invited speaker, Helena, September 1995.

Professional Service:

Inaugural Member Resilience Task Force, IUCN Commission on Ecosystem Management
Global Faculty Member, UNESCO Centre for Water Law, Policy and Science, University of Dundee

Committees:

Advisor to Pacific NorthWest Economic Region Idaho Council, Governor's appointee, 2015-Present

Idaho Snake River Basin Adjudication Conference Planning Committee 2013-2014

2008 Winters 100th Anniversary Conference Planning Committee, Fall 2006 – 2008.

American Bar Association, Section on Energy, Environment and Resources, Water Committee Vice-Chair of Public Service, 2005 -2006.

American Bar Association, Planning Committee, Annual Water Law Conference, Fall 2004-present.

Dividing the Waters, Science and the Law Workshop Planning Committee Member, Organization for education and information exchange among judges and special masters handling water disputes, 2002-03 and 2006.

Dividing the Waters advisee, 2011 to present

Montana Bar Dispute Resolution Committee, 1997-2000.

Consulting and ProBono:

Water legislation development and review, exempt wells, Kootenai Environmental Alliance, (pro bono) Summer 2008

Land use ordinance litigation review, Blaine County, (pro bono) Summer 2008.

Water Mediation, Mediator for Walker River water allocation dispute among the United States, Nevada, California, the Walker River Paiute Tribe, Mono County, Lyon County, Mineral County and the Walker Lake Working Group, (compensated) January 2003-September 2006 (paid).

Outreach Projects:

Native American Water Rights Settlement Database development, Summer 2008-present

The database will gather Indian water right settlements and their implementing documents online. There are currently twenty settlements, with the majority of documents unavailable to those seeking to negotiate new settlements. The database project will provide access to information for tribes, states and federal representatives involved in negotiation.

Palouse Basin Water Supply Integrated Analysis, Spring 2007-2012

Coordination with:

Palouse Basin Aquifer Committee

Citizen's Advisory Committee

Lapwai Creek Watershed Integrated Analysis, Spring 2008-2012

Coordination with:

Nez Perce Tribe

Nez Perce County Board of Commissioners

Lewiston Orchards Irrigation District Board

Nez Perce Conservation District

Columbia River Treaty Project: Universities Consortium on Columbia River Governance

UI Representative for coordination with:

Oregon State University

University of Montana

Washington State University

University of British Columbia

Community Service:

Lewis and Clark County Search and Rescue, 1999-2001

Board Member, Montana River Action Network, 1996-98

Montana Race for the Cure
Helena Big Brothers and Big Sisters, 1991-93
Denver Rape Crisis Hotline, 1990
Mile High Council, Girl Scouts of America, 1990

Teaching

Areas of Specialization:

Water Law and Policy
Integration of Water Law and Science
Native American Water Rights
Environmental and Natural Resource Law
Water Dispute Resolution
Law, Resilience and Adaptive Governance

Courses Taught:

University of Idaho College of Law:

Water Law, Law 942, Fall 2004, 2005, 2006, 2007, 2008
Water Law I, Law 942, Fall 2009, 2010, 2011, 2012, 2014, 2015, 2017
Water Law II, Law 969, Fall 2009, 2010, 2011, 2012, 2014, 2015, 2017
Property I, Law 807, Fall 2004, 2005, 2006, 2019
Property II, Law Spring 2005, 2006, 2007, 2008, 2009, 2010, 2011
Environmental Law, Law 947, 2005, 2006, 2007, 2008
Interdisciplinary Methods in Water Resources, WR 506, Fall 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017
Law of the Columbia River, WR 504, Fall 2019
Water Law and Energy Policy Seminar: 2008, 2010
Law, Science, and the Environment Seminar: 2009, 2011, 2014, 2016, 2018
Water Law Practicum: 2013
Writing the Environment: Fall 2011, 2015, 2016

San Francisco State University, Environmental Studies Program:

Introduction to Environmental Studies, ENVS 300, 2002-2004

Environmental Law and Policy, ENVS 450, 2002-2004

Environmental Studies Internship, ENVS 680, 2002-2004

University of California, Hastings College of the Law

Environmental Law, Spring 2001

Environmental Law Clinical, Spring 2001

University of Washington, Department of Geology, Seattle, Washington:

Geology 101, Introductory Geology for non-majors, 1979

Geology 202, Introductory Geology for majors 1980, 1981

Economic Geology, 1982

Geology Summer Field Camp Summer, 1982

Teaching Materials Developed:

University of Idaho,

Mock case study for deposition, oral argument and negotiation skills component of Water Law II: because the base for a new course: Water Law Practicum

Idaho Water Law Reader for Water Law I (updated from Idaho Water Law Supplement prepared by Dale Goble)

Case Studies in Water Law for Water Law II

Integration Projects for Interdisciplinary Methods in Water Resources

Steelhead Recovery Project: developed with Brian Kennedy, Lorie Higgins, and Fritz Fiedler

Declining Aquifer Project: developed with Fritz Fiedler and Allyson Beall

Conjunctive Management Project: developed with Gary Johnson and Bryce Contor

University of California, Hastings College of the Law

Course Reader for Environmental Law Clinical

San Francisco State University, Environmental Studies Program

Course Reader for Environmental Law and Policy

Internship database for Environmental Studies

Graduate Student Advising:

Major Professor:

M.S.

Ted Jeckering, JD/MS WoW, Completed spring 2016: Paradise Creek and the Clean Water Act: History, Law, Management, Science, and Policy

Patrick Johnson, JD/MS WoW, completed spring 2016: A Comprehensive Integrated Water Resource Assessment of Potential Changes to Columbia River Basin Flood Risk Management Policy

Matt Janz, JD/MS WoW, completed spring 2013: Resolving Uncertainty in Legal and Economic Interests in Hard Rock Mining: A case study regarding large scale copper mining in Alaska

Veronica Hirsch, PSM, completed fall 2012: Watering Tribal Homelands: Examining Water Rights Settlement Agreement Criteria

Sandra Richartz, concurrent JD/MS WoW, completed Spring 2011: Opportunities for Collaboration: A Situational Assessment of the Palouse Basin

Luke Marchant, concurrent JD/MS WoW, completed Fall 2010: Land Use Planning and Water Allocation: Bridging the Jurisdictional Divide

Matt Darrington, concurrent JD/MS WoW, completed Fall 2010: Legal Tools for Managing the Transboundary Palouse Basin Aquifers

Ph.D.

Rebecca Witinok-Huber, Ph.D. WoW/IGERT, completed Fall 2019: Science Transcending Boundaries: The Roles of Gender, Power, and Place in Community-Based Research and Adaptive Capacity

Co-Major Professor:

Mark Solomon, Ph.D. WoW, completed Fall 2012: Minimizing Barriers to Achievement of Water Resource Objectives in Jurisdictionally Complex Watersheds: The Case of the Federal Trust and Allotted Indian Reservations of the Upper Columbia River Basin

Committee Member:**Ph.D.**

Bronson Pace, JD/Ph.D. WoW, completed Fall 2021, It's About Time: A Sociolegal Approach to Intergenerational Climate Justice in the United States, with Developments in Environmental Justice Scholarship, Climate Change Litigation, and Climate Adaptation Law

Julie Poysenby, Ph.D. Education, completed Spring 2021, Telling Our Stories: schitsu'umsh Undergraduates Explore Place-Attachment and Identity Through Visual Narratives

Sammy Matsaw, Ph.D. UI IGERT WoW, completed Spring 2021, Centering Indigeneity of 21st Century Shoshone-Bannock & Oglala Lakota Worldviews Through Science & Policy

Amanda Stahl Ph.D. School of the Environment, WSU completed Spring 2020, Bridging the gaps in riverine corridor conservation to enhance social-ecological resilience

Paris Edwards Ph.D. WoW IGERT completed Spring 2019, Preparing for Water Change in the Columbia River Basin: An Integrated Analysis of Vulnerability & Climate Research Review

Alycia Bean, Ph.D. UI Geography, completed Fall 2018: Understanding Idaho's Adaptive Capacity to Future Water Resource Change: A Legal and Political Analysis of Climate Informed Drought Planning

Shana Hirsch, Ph.D. WoW IGERT completed Spring 2018: Adaptive Epistemologies: Scientific Practice and Environmental Restoration in a Changing Climate

Spencer Plumb, Ph.D. WoW, completed Fall 2016: Collective Action, a Complimentary and/or Counteracting Force on Payments for Ecosystem Services? A case study of the role of irrigation districts in environmental water transactions in Oregon

Kim Ogren, Ph.D. OSU, completed Summer 2015: Water Governance Process Assessment: Evaluating the Link between Decision Making Processes and Outcomes in the Columbia River Basin

Mark Corrao, Ph.D., completed Spring 2015: Terracette Soil Moisture Patterns in Semiarid Rangelands as a Tool to Inform Sustainable Best Management Practices and Bridge Water Resource Science, Management, and Policy

Brian Chaffin, Ph.D. OSU, completed Spring 2014: Reallocating Resources, Rebuilding Community: The Klamath Basin Agreements and the Emergence of Adaptive Governance

Stephanie Smith, Ph.D., ENVS, completed Spring 2014: Identification and Survival of Isolates Collected from the Mars Rover, Curiosity Under Simulated Martian Conditions and Identification of a Selenite Reduction Pathway in a Novel Dechloromonas Isolate

Aleksandra Checinska, Ph.D. ENVS, completed fall 2013: Development of Supercritical Fluid CO₂-H₂O₂ Sterilization Method and Elucidation of Bacilli Endospores' Tolerance to Hydrogen Peroxide and Heat

Jim Capurso, Ph.D. WoW, IF, completed Fall 2011: Achieving Instream Flows in Idaho: Case Studies and Recommendations

Katie Kucharzyk, Ph.D. ENVS, completed Spring 2011: Using Genetic Algorithms to Optimize Perchlorate Biodegradation

Allyson Beall, Ph.D. Environmental and Regional Planning, WSU, completed Fall 2007: Participatory Environmental Modeling: Using System Dynamics to Integrate Natural Resource Science and Social Concerns

Adam Wicks-Arshack, JD/Ph.D. UI IGERT expected Spring 2023

Laura Laumatia, Ph.D. UI expected Spring 2022

M.S.

- Dakota Goodman, MS WR Spring 2021, Protecting the Footprints of Rivers in the United States during the Anthropocene: A Personhood Proposal for the Columbia River Watershed and a Recognition of Genius Loci in Water Resources Management
- Tyler Hubbard, MS WR Spring 2020, California's Sustainable Groundwater Management Act: The Paradox of Local Control of a Precious Public Resource
- Sarah Gilmore, MS WR, Spring 2019, Assessing the Adaptive Capacity of Idaho's Magic Valley As a Complex Social-Ecological System
- Jon Rezabek, JD/MS WoW, completed April 2018: Coeur d'Alene Lake Relationships: An interdisciplinary study of how two communities' relationships with a lake drive larger policy decisions, disputes and what those relationships tell us about the proposition of collaboration
- Madison Moore, MS Applied Economics, completed Dec. 2017: Valuing Irrigation Water and Irrigation Water Security in the Columbia Basin Project: A Hedonic Analysis of Agricultural Land Sales
- Megan Kernan, JD/MS WoW, completed Spring 2014: At the confluence of law and history: an investigation of water rights in Nez Perce country
- Amy Swoboda, JD/MS, WoW completed Spring 2014: The Fruits of Development in a Desert Ecology: Investigating Egypt's Export-Based Agricultural Economy and Its Implications on Ecology and Water Availability in an Arid Region
- Trevor Watson, MS. ENVS, completed Spring 2014: Yellowstone River Hydrograph Trends, Water Rights and Usage
- Mark Cecchini Beaver, JD/MS WoW, completed Spring 2013: Transboundary Columbia River Operational Alternative Analysis in a Collaborative Framework
- Dylan Hedden Nicely, JD/MS WoW, completed Fall, 2012: A Water Balance Model to Assess the Technical, Legal, and Administrative Constraints on Lake Coeur d'Alene, ID
- Tybee Wall, M.S. WoW, completed Spring 2011: A Comparative Analysis of the Vulnerability of Small Municipal Water Systems to Climate Change using the Social-ecological System (SES) Framework
- Ashley Williams, M.S. WoW, completed Spring 2011: Floodplain Delineation Methodology Utilizing Lidar Data With Attention to Urban Effects, Climate Change, and Habitat Connectivity in Lapwai Creek, Idaho
- Irene Shaver, M.S. WoW, completed Spring 2010: Conflict and the Formation of Inequity in Idaho's Salmon Fisheries: as Investigation of Indian/White Relations
- Kristyn Scott, M.S. WoW, completed Spring 2010: Modeling Energy Implications of Water Management Decisions in the Upper Snake River Basin
- Rob Harris, concurrent JD/MS ENVS, completed Fall 2006: The Surface Water Coalition Water Call

of 2005

Todd Anderson, MS ENVS, completed Spring 2006: Relating permeability and structural setting of Mickey Hot Springs, southeast Oregon

Gilberto Flores, MS ENVS, completed Spring 2006: Microbial oxidation of inorganic arsenic in geothermal waters of the Alvord Basin, Oregon: field and laboratory investigations

Undergraduate Student Advising:

James Holt, McNair Scholar, graduated Spring 2009

Student Publications: Unlike other disciplines, it is not customary for law professors to attach their name as an author to papers written by students under their direction. The following papers have been published by students under my direction (papers published in the University of Idaho Law Review are not included):

Jacqueline Papez, *Native (Hydro) Power: Alternate Avenues for Achieving Native Control of Natural Resources on Tribal Lands, with Focus on Hydropower Dams*, received the second place award in the 2009 Chief Justice John B. Doolin Writing Competition. The paper was published in the proceedings of the 22nd annual Sovereignty Symposium to be held in Oklahoma City in June 2009.

Kirk T. O'Reilly, *Science, Policy, and Politics: The Impact of the Information Quality Act on Risk-Based Regulatory Activity at the EPA*, 14 Buffalo Environmental Law Journal 249 (2007).

L. Waldron Davis, *Reversing the Flow: International Law and Chinese Hydropower Development on the Headwaters of the Mekong River*, 19 NY International Law Review 1 (2006)

Service to the University

Major Committee Assignments, University of Idaho:

University Committees:

IRIC Facilities Committee, 2016-Present

Water Resources Task Force, Chair 2015-Present

Search Committee, Vice President of Research and Economic Development, 2016

University Promotions Committee 2013-2014

University of Idaho Strategic Planning Committee, Summer 2010-Spring 2011

President's Sustainability Symposium Planning Committee, Summer 2008-Fall 2008

University Research Council, Fall 2007-2012

Water Resources Program Planning Committee, 2006-2007

CNR Hiring Committee, Limnology position, Fall 2006-Spring 2007

Water of the West Strategic Initiative, 2005-present

Steering Committee

Curriculum Committee

Coordination of Concurrent Degree Program

Steering Committee Chair: Environmental Science Concurrent MS/JD, 2005-present

Biohazards Committee, 2004-2007

Interdisciplinary Programs

Water Resources Institute Board, 2011, 2012

PSM Faculty, 2011-2015

Water Resources Program Steering Committee, 2007-2018

Water Resources Concurrent Degree Advising and Recruitment, 2007-2018

Environmental Science Concurrent Degree Advising and Recruitment, 2007-2018

PSM advising and recruitment, 2012-2015

Environmental Sciences Director Search Committee (Chair), Spring 2007 – Spring 2008

Environmental Science Faculty, 2004-present

EPSCoR MILES Steering Committee, 2013 – 2014

College of Law:

Appointments, 2016-2017

Curriculum, *ex officio*, 2016-2017

Law Dean Hiring Committee, 2013-2014

Committee on Committees (Chair), 2013-2014

Ad Hoc Committee on Law School Strategic Planning, 2013-2014

Third Year Review Committee (Chair), 2012/2013

Tenure Criteria Review, 2012/2013

College of Law Dual Location Meeting Moderator, Fall 2012

College of Law Dean Review Committee (Chair), Spring 2011

College of Law Accreditation Self-Study, Spring 2011, Fall 2012

Natural Resources and Environment Emphasis Development and Advising, Spring 2008 --
2018

Admissions, Fall 2007-Spring 2008

Faculty Tenure Committee, Fall 2006, 2012, 2013

Faculty Hiring Committee, Fall 2006

Interdisciplinary Initiatives, 2005-2018

 Coordination of WoW Concurrent Degree Program

 Coordination of ENVS Concurrent Degree Program

Strategic Directions and Outreach Task Force, 2005-Spring 2006

 Environmental Moot Court Competition Advisor, 2005, 2007

Honor Court, 2005-Spring 2006

 Library, 2004- Spring 2006

San Francisco State University:

 Curriculum Committee, 2003-04

 Environmental Studies Director Search Committee, 2002-04