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EDUCATION

Ph.D., 2002, Department of Entomology, Cornell University, Ithaca, N.Y. Dissertation: *Metapopulation biology of the mayfly Callibaetis ferrugineus hageni in high-elevation beaver ponds*. Advisor: Barbara Peckarsky.

M.S., 1995, Department of Zoology, University of New Hampshire, Durham, N.H. Thesis: *Molecular evidence of population genetic differentiation and sibling species in Acartia tonsa (Copepoda: Calanoida)*. Advisor: Ann Bucklin.

B.S., 1991, General Biological Sciences, with Honors in Biology, University of Maryland, College Park.
Advisor: Roger Newell.

PROFESSIONAL EXPERIENCE

Assistant Professor (2013-present) and Director/Lead Scientist, Fish Ecology Research Laboratory (FERL; 2008-present). Department of Fish and Wildlife Sciences, University of Idaho.

Research Assistant Professor, Sept 2009-Aug 2013.

Research Scientist, 2006-2009. Department of Fish and Wildlife Sciences, University of Idaho & FERL.

Research Associate, 2004-2006. Department of Fish and Wildlife Sciences, University of Idaho & FERL.

Postdoctoral Fellow, 2003-2004. Department of Fish and Wildlife Sciences, University of Idaho & FERL.

NSF-IGERT Postdoctoral Fellow and Instructor, 2002-2003. School of Biology, Georgia Institute of Technology, Project title: Susceptibility of chemically-defended aquatic insects to fish predators: determining the relative importance of predator versus prey traits in the outcome of predator-prey interactions. Advisor: Mark Hay.

Instructor, 2002. Rocky Mountain Biological Laboratory (RMBL), Gothic Colorado.

TEACHING EXPERIENCE

Assistant Professor, University of Idaho, 2013-present

Fish Ecology (300-level undergraduate; 4 credit, Fall 2013);

Animal Movement, Dispersal, and Migration (Graduate; 2 credit, Fall 2014);

Statistical Analysis of Ecological Data (Graduate; 1 credit co-taught with M. Wiest, Spring 2015).

Fish and Wildlife in a Changing World (200-level undergraduate for non-majors, 3 credit co-taught with J. Rachlow, Fall 2015)

Climate Change and the Conservation and Management of Populations (Graduate, 1 credit with on-line option, Fall 2015)

Ichthyology (400-level undergraduate; 4 credit with lab, Spring 2016).

Instructor, University of Idaho, 2006-7.

Fish and Wildlife Population Ecology (upper-level undergraduate course co-taught with O. Garton and C. Peery, Fall 2007)

Cumulative Watershed Processes (graduate seminar co-taught with T. Link, Spring 2007).
Limnology (upper-level undergraduate/graduate course with lab co-taught with C. Peery Fall 2006).
Models of Cause and Correlation in Biology: Structural Equation Modeling for Non-experimental Systems (graduate seminar co-taught with O. Garton, Spring 2006).

Instructor, Georgia Institute of Technology, 2002-2003.

Aquatic Chemical Ecology Laboratory (graduate course co-taught with Mark Hay and Julia Kubanek, School of Biology, Fall 2002).

Biological Applications of Fluid Dynamics (graduate course co-taught with Phil Roberts, School of Civil Engineering, Spring 2003).

Instructor, Rocky Mountain Biological Laboratory, 2002.

Ecology and Conservation of Freshwater Invertebrates (upper-level undergraduate course).

Teaching Assistant, Cornell University, 1995-2001.

Stream Ecology, Freshwater Invertebrate Biology, Evolution, Insect Ecology, Insect Biology, Introductory Biology.

Teaching Assistant, University of New Hampshire, 1993-1995.

General Ecology, Marine Biology, Anatomy and Physiology.

MENTORING ACTIVITIES

Post-doctoral advisor:

Geoff Moret, 2009-2014. Project title: Developing long term monitoring protocols for aquatic resources in the Mojave Network of the NPS Inventory and Monitoring Program.

Tracy Bowerman, 2013-present. Project title: Prespawn mortality in Chinook salmon of the Columbia Basin.

Graduate committee chair, current:

James "Channing" Syms, M.S. Civil Engineering (co-advised w/ Daniele Tonina)

Charles Erdman, M.S., Fish and Wildlife Sciences

Matthew Dunkle, M.S., Fish and Wildlife Sciences

Nathan Fuchs, M.S., Fish and Wildlife Sciences

Adam Wicks-Arshack, Ph.D., Water Resources

Graduated:

Brian McIlraith (M.S. 2011; co-advised with B.P. Kennedy)

Adrienne Roumasset (M.S., Water Resources 2012)

Samuel Bourret (M.S. 2013; co-advised with B.P. Kennedy)

Christopher Noyes (M.S. 2013)

Hattie Zobott (M.S. Civil Engineering 2013, co-advised with R. Budwig)

Mark Kirk (M.S. Fisheries Resources 2015)

Graduate committee member: Current: Sammy Matsaw (Ph.D., U.I. Water Resources), Laura Jenkins (Ph.D., U.I. Biology), Francine Mejia (Ph.D., U.I. Fish & Wildlife Sciences), Zachary Beard (M.S., U.I. Fish & Wildlife Sciences), Zach Klein (Ph.D., U.I. Fish & Wildlife Sciences). Past: Adrienne Zuckerman (M.S. 2015, U.I. Fish & Wildlife Sciences), Anthony Prisciandaro (M.S. 2015, U.I. Fish & Wildlife Sciences), K. Marius Myrvold (Ph.D. 2014, U.I. Fish & Wildlife Sciences), Karen Laitala (M.S. 2007, U. I. Plant Science)

Undergraduate research advisees: Keala Bush, supported by UI Office of Undergraduate Research, spring 2016, Robert Hogg, U.I. Environmental Sciences/NSF REU mentor, summer 2007

U.I. McNair Scholar Program mentor (with Ed Galindo and Aaron Haines) for Eva Sebesta, summer 2007.
Project title: Habitat components associated with beaver site selection in central and southern Idaho.

PUBLICATIONS

Peer-Reviewed Publications (*indicates student publication)

52. Kirk, M.L.* , C.C. Caudill, D. Tonina, and J. Syms. Effects of water velocity, turbulence, and obstacle length on the swimming capabilities of adult Pacific lampreys. *In press. Fisheries Management and Ecology*.
51. Benda, S.E.* , M.L. Kent, C.C. Caudill, C.B. Schreck, and G.P. Naughton. 2015. Cool, pathogen free refuge lowers pathogen associated prespawn mortality of Willamette River Chinook Salmon *Oncorhynchus tshawytscha*. **144(6):1159-1172** Transactions of the American Fisheries Society.
50. Keefer, M.L., C.C. Caudill, Estimating thermal exposure of adult summer steelhead and fall Chinook salmon migrating in a warm impounded river. *In press. Ecology of Freshwater Fish*.
49. Kirk, M.A.* , C.C. Caudill, E.L. Johnson, M.L. Keefer, and T.S. Clabough. 2015. Characterization of adult Pacific Lamprey swimming behavior in relation to environmental conditions within large dam fishways. Transactions of the American Fisheries Society **144:998–1012**. DOI: 10.1080/00028487.2015.1059368.
48. Keefer, M.L., T.S. Clabough, M.A. Jepson, G.P. Naughton, T.J. Blubaugh, D.C. Joosten, and C.C. Caudill. 2015. Thermal exposure of adult Chinook salmon in the Willamette River basin. Journal of Thermal Biology **48: 11-20**. DOI 10.1016/j.jtherbio.2014.12.002
47. McIlraith*, B.J., C.C. Caudill, B.P. Kennedy, C.A. Peery, and M.L. Keefer. 2015. Seasonal migration behaviors and distribution of adult Pacific Lamprey in unimpounded reaches of the Snake River basin. North American Journal of Fisheries Management **35: 123-134**. DOI 10.1080/02755947.2014.986344
46. Hess, J.E., C.C. Caudill, D.A. Close, M.L. Keefer, B.J. McIlraith, M.L. Moser, and S.R. Narum. 2014. Genes predict long distance migration and large body size in a migratory fish, Pacific lamprey. Evolutionary Applications **7: 1192-1208**. DOI 10.1111/eva.12203
45. Bourret, S.L.* , B.P. Kennedy, C.C. Caudill, and P.M. Chittaro. 2014. Assessing the Feasibility of Geochemical Signatures to Distinguish Early Freshwater Movement, Habitat Use, and Life History of Chinook Salmon (*Oncorhynchus tshawytscha*). Journal of Fish Biology **85: 1507-1525**. DOI 10.1111/jfb.12505
44. Keefer, M.L., C.C. Caudill, and M.L. Moser. 2014. Bottleneck relief models: prioritizing fishway passage improvements for Pacific lamprey. Transactions of the American Fisheries Society **143(4): 1049-1060**. DOI 10.1080/00028487.2014.911210
43. Caudill, C.C., M.A. Jepson, S.R. Lee, T.L. Dick, G.P. Naughton, and M.L. Keefer. 2014. A field test of eugenol-based anesthesia versus fish restraint in migrating adult Chinook salmon and steelhead. Transactions of the American Fisheries Society **143(4): 856-863**. DOI 10.1080/00028487.2014.892533
42. Zabel, R.W., B.J. Burke, M.L. Moser, and C.C. Caudill. 2014. Modeling temporal phenomena in variable environments with parametric models: an application to migrating salmon. Ecological Modeling **273: 23-30**. DOI 10.1016/j.ecolmodel.2013.10.020
41. Keefer, M.L., C.C. Caudill. Homing and straying by anadromous salmonids: a review of mechanisms and rates. 2104. Reviews in Fish Biology and Fisheries. **24(1): 333-368**. DOI 10.1007/s11160-013-9334-6

40. Caudill, C. C., M. L. Keefer, T. S. Clabough, G. P. Naughton, B. J. Burke and C. A. Peery. 2013. Indirect Effects of Impoundment on Migrating Fish: Temperature Gradients in Fish Ladders Slow Dam Passage by Adult Chinook Salmon and Steelhead. *PLOS One* **8(12)**: 1-13; e85586. DOI 10.1371/journal.pone.0085586
39. Moser, M. L., M. L. Keefer, C. C. Caudill, and B. J. Burke. 2013. Migratory behavior of adult Pacific lamprey and evidence for effects of individual temperament on migration rate. Pages 132-151 in H. Ueda and K. Tsukamoto, editors. *Physiology and Ecology of Fish Migration*. CRC Press, Boca Raton.
38. Keefer, M.L., C.C. Caudill, T.S. Clabough, M.A. Jepson, E.L. Johnson, M. Higgs, and M. Moser. 2013. Fishway passage bottleneck identification and prioritization: a case study of Pacific lamprey at Bonneville Dam. *Canadian Journal of Fisheries and Aquatic Sciences* **70(10)**: 1551-1565. DOI 10.1139/cjfas-2013-0164
37. Keefer, M.L., C.C. Caudill, C.A. Peery, and M.L. Moser. 2013. Context-dependent diel behavior of upstream-migrating anadromous fishes. *Environmental Biology of Fishes* **96**: 691-700. DOI 10.1007/s10641-012-0059-5
36. Keefer, M. L., G. A. Taylor, D. F. Garletts, C. Helms, G. A. Gauthier, T. M. Pierce, and C. C. Caudill. 2013. High-head dams affect downstream fish passage timing and survival in the Middle Fork Willamette River. *River Research and Applications* **29**: 483-492. DOI 10.1002/rra.1613
35. Keefer, M.L., C.T. Boggs, C.A. Peery, and C.C. Caudill. 2013. Factors affecting dam passage and upstream distribution of adult Pacific lamprey in the interior Columbia River basin. *Ecology of Freshwater Fish* **22**: 1-10. DOI 10.1111/j.1600-0633.2012.00586.x
34. Laitala, K. L., T. S. Prather, D. Thill, B. Kennedy and C. Caudill. 2012. Efficacy of Benthic Barriers as a Control Measure for Eurasian Watermilfoil (*Myriophyllum spicatum*). *Invasive Plant Science and Management* **5(2)**: 170-177. DOI 10.1614/IPSM-D-09-00006.1
33. Clabough, T.S., M.L. Keefer, C.C. Caudill, E.L. Johnson, and C.A. Peery. 2012. Use of night video to enumerate adult Pacific lamprey passage at hydroelectric dams: challenges and opportunities to improve escapement estimate. *North American Journal of Fisheries Management* **32(4)**: 687-695. DOI 10.1080/02755947.2012.690820
32. Keefer, M. L., G. A. Taylor, D. F. Garletts, C. K. Helms, G. A. Gauthier, T. M. Pierce and C. C. Caudill. 2012. Reservoir entrapment and dam passage mortality of juvenile Chinook salmon in the Middle Fork Willamette River. *Ecology of Freshwater Fish* **21(2)**: 222-234. DOI 10.1111/j.1600-0633.2011.00540.x
31. Keefer, M.L., R.J. Stansell, S.C. Tackley, W.T. Nagy, K.M. Gibbons, C.A. Peery, and C.C. Caudill. 2012. Use of radiotelemetry and direct observation to evaluate sea lion predation on adult Pacific salmonids at Bonneville Dam. *Transactions of the American Fisheries Society* **141(5)**: 1236-1251. DOI 10.1080/00028487.2012.688918
30. Hyun, S-Y, M.L. Keefer, M.A. Jepson, C.C. Caudill, J.K. Fryer, R. Sharma, J.M. Whiteaker, and G.P. Naughton. 2012. Population-specific escapement of Columbia River fall Chinook salmon: tradeoffs among estimation techniques. *Fisheries Research* 129-130: 82-93. DOI 10.1016/j.fishres.2012.06.013

29. Johnson, E.L., C.C Caudill, M.L. Keefer, T.S. Clabough, C.A. Peery, M.A. Jepson, and M.L. Moser. 2012. Movement of radio-tagged adult Pacific lampreys during a large-scale fishway velocity experiment. Transactions of the American Fisheries Society **141(3)**:571-579 DOI 10.1080/00028487.2012.683468
28. Naughton, G. P., M. L. Keefer, T. S. Clabough, M. A. Jepson, S. R. Lee, C. A. Peery and C. C. Caudill. 2011. Influence of marine mammal injuries on the survival of Chinook salmon and steelhead in the Columbia River basin. Canadian Journal of Fisheries and Aquatic Sciences **68(9)**: 1615-1624. DOI 10.1139/F2011-064
27. Johnson, E.L., T.S. Clabough, C.A. Peery, C.C. Caudill, M.L. Keefer, and M.C. Richmond. 2010. Migration depths of adult steelhead (*Oncorhynchus mykiss*) in relation to dissolved gas supersaturation in a regulated river system. Journal of Fish Biology **76(6)**: 1520-1528. DOI 10.1111/j.1095-8649.2010.02578.x
26. Keefer, M.L., G.A. Taylor, D.F. Garletts, G.A. Gauthier, T.M. Pierce, and C.C. Caudill. 2010. Prespawm mortality in adult spring Chinook salmon outplanted above barriers dams. Ecology of Freshwater Fish **19**: 361-372. DOI 10.1111/j.1600-0633.2010.00418.x
25. Keefer, M.L., C.C. Caudill, C.A. Peery, and S.R. Lee. 2008. Transporting juvenile salmonids around dams impairs adult migration. Ecological Applications **18(8)**: 1888-1900. DOI 10.1890/07-0710.1
24. Keefer, M.L., C.A. Peery, and C.C. Caudill. 2008. Migration timing of Columbia River spring Chinook salmon: effects of temperature, river discharge, and ocean environment. Transactions of the American Fisheries Society **137**: 1120-1133. DOI 10.1577/t07-008.1
23. Keefer, M.L., C.A. Peery, N. Wright, W.R. Daigle, C.C. Caudill, T.S. Clabough, D.W. Griffith, and M.A. Zacharias. 2008. Evaluating the NOAA Coastal and Marine Ecological Classification Standard in estuarine systems: A Columbia River Estuary case study. Estuarine, Coastal and Shelf Science **78**: 89-106. DOI 10.1016/j.ecss.2007.11.020
22. Keefer, M.L, C.T. Boggs, C.A. Peery, and C.C. Caudill. 2008. Overwintering distribution behavior, and survival of adult summer steelhead: variability among Columbia River populations. North American Journal of Fisheries Management **28**: 81-96. DOI 10.1577/m07-011.1
21. Johnson, E. L., T. S. Clabough, C. A. Peery, D. H. Bennett, T. C. Bjornn, C. C. Caudill, and M. C. Richmond. 2007. Estimating adult Chinook salmon exposure to dissolved gas supersaturation downstream of hydroelectric dams using telemetry and hydrodynamic models. River Research and Applications **23**:963-978. DOI 10.1002/rra.1019
20. Caudill, C.C., W.D. Daigle, M.L. Keefer, M. Jepson, B.L. Burke, T.C. Bjornn, and C.A. Peery. 2007. Slow dam passage in Columbia River salmonids associated with unsuccessful migration: delayed negative effects of passage obstacles or condition-dependent mortality? Canadian Journal of Fisheries and Aquatic Sciences **64**: 979-995. DOI 10.1139/f07-065
19. Keefer, M.L, C.T. Boggs, C.A. Peery, and C.C. Caudill. 2008. Non-direct homing behaviours by adult chinook salmon in a large, multi-stock river system. Journal of Fish Biology **71**: 1-18. DOI 10.1111/j.1095-8649.2007.01652.x
18. Parker, J. D., C. C. Caudill and M. E. Hay. 2007. Beaver herbivory on aquatic plants. Oecologia **151(4)**: 616-625. DOI 10.1007/s00442-006-0618-6

17. Naughton, G.P., C.C. Caudill, C.A. Peery, T.S. Clabough, M.A. Jepson, T.C. Bjornn, and L.C. Stuehrenberg. 2007. Experimental evaluation of fishway modifications on the passage behavior of adult Chinook salmon and steelhead at Lower Granite Dam, Snake River, USA. River Research and Applications **23**: 99-111. DOI 10.1002/rra.957
16. Keefer, M.L., C.C. Caudill, T.C. Bjornn, and C.A. Peery. 2006. Route selection in a large river during the homing migration of Chinook salmon (*Oncorhynchus tshawytscha*). Canadian Journal of Fisheries and Aquatic Sciences **63**: 1752-1762. DOI 10.1139/f06-068
15. Naughton, G.P., C.C. Caudill, M.L. Keefer, T.C. Bjornn, C.A. Peery, and L.C. Stuehrenberg. 2006. Fallback by adult sockeye salmon at Columbia River dams. North American Journal of Fisheries Management **26**: 380-390. DOI 10.1577/m05-015.1
14. Keefer, M.L., C.C. Caudill, and C.A. Peery. 2006. Long-distance downstream movements by homing adult Chinook salmon (*Oncorhynchus tshawytscha*). Journal of Fish Biology **68**: 1-7. DOI 10.1111/j.1095-8649.2006.00958.x
13. Johnson, E.L., T.S. Clabough, D.H. Bennett, T.C. Bjornn, C.A. Peery, C.C. Caudill, and L.C. Stuehrenberg. 2005. Migration depths of adult spring and summer Chinook salmon in the lower Columbia and Snake rivers in relation to dissolved gas supersaturation. Transactions of the American Fisheries Society **134**: 1213-1227. DOI 10.1577/t04-166.1
12. Vorosmarty, C.J., C.L. Leveque, C. Revenga, C.C. Caudill, J. Chilton, E.M. Douglas, M. Meybeck, P. Balvanera, S. Barker, R. Bos, M. Maas, C. Nilsson, D. Prager, C.A. Reidy. 2005. Fresh Water. Pages 165-207 in *Ecosystem and Human Well-being: Current State and Trends, Volume 1: Findings of the Conditions and Trends Working Group of the Millennium Ecosystem Assessment*. Edited by R. Hassan, R. Scholes, and N. Ash. Island Press, Washington, D.C. www.millenniumassessment.org.
11. Caudill, C.C. 2005. Trout predators and demographic sources and sinks in a mayfly metapopulation. Ecology **86**: 935-946. DOI 10.1890/03-0411
10. Naughton, G.P., C.C. Caudill, M.L. Keefer, T.C. Bjornn, L.C. Stuehrenberg, and C.A. Peery. 2005. Migration and survival of radio-tagged adult sockeye salmon in the Columbia River. Canadian Journal of Fisheries and Aquatic Sciences **62**: 30-47. DOI 10.1139/f04-147
9. Hay, M.E., J.D. Parker, D.E. Burkepile, C.C. Caudill, A.E. Wilson, Z.P. Hallinan, and A.D. Chequer. 2004. Mutualisms and aquatic community structure: the enemy of my enemy is my friend. Annual Review of Ecology, Evolution, and Systematics **35**: 175-197. DOI 10.1146/annurev.ecolsys.34.011802.132357
8. Caudill, C.C. and A. Bucklin. 2004. Molecular phylogeography and evolutionary history of the estuarine copepod, *Acartia tonsa*, on the Northwest Atlantic Coast. Hydrobiologia **511**:91-102. DOI 10.1023/B:HYDR.0000014032.05680.9d
7. Caudill, C.C. 2003. Empirical evidence for nonselective recruitment and a source-sink dynamic in a mayfly metapopulation. Ecology **84**(8): 2119-2132. DOI 10.1890/0012-9658(2003)084[2119:eefnra]2.0.co;2
6. Caudill, C.C. and B.L. Peckarsky. 2003. Lack of behavioral or developmental responses by mayfly larvae to trout predators. Ecology **84**(8): 2133-2144. DOI 10.1890/0012-9658(2003)084[2133:loabod]2.0.co;2

5. Caudill, C.C. 2003. Measuring dispersal in a metapopulation using stable isotope enrichment: high rates of sex-biased dispersal between patches revealed in a mayfly metapopulation. *Oikos* **101**:624-630. DOI 10.1034/j.1600-0706.2003.12467.x
4. Peckarsky, B.L., A.R. McIntosh, C.C. Caudill, J. Dahl. 2002. Swarming and mating behavior of high altitude populations of *Baetis bicaudatus* (Ephemeroptera, Baetidae): evidence of stabilizing selection for intermediate male size. *Behavioral Ecology and Sociobiology* **51**: 530-537. DOI 10.1007/s00265-002-0471-5
3. Clark, R., and C.C. Caudill. 2001. Females of the marine amphipod *Jassa marmorata* mate multiple times with the same or different males. *Marine and Freshwater Behaviour and Physiology* **34**: 131-138.
2. Peckarsky, B.L., B.W. Taylor, and C.C. Caudill. 2000. Hydrologic and behavioral constraints on oviposition of stream insects: implications for adult dispersal. *Oecologia* **125**: 186-200. DOI 10.1007/s004420000446
1. Bucklin, A., C.C. Caudill, and M. Guarnieri. 1997. Population genetics and phylogeny of planktonic copepods. Pages 303-318 in *Molecular Approaches to the Study of the Ocean*. Edited by K. Cooksey. Chapman and Hall, London.

Manuscripts in Review

- Johnson, P.N., C.C. Caudill, E.L. Johnson, T.S. Clabough, C.T. Boggs, W.T. Nagy, and M.L. Keefer. Use of dual-frequency identification sonar (DIDSON) to monitor adult Pacific lamprey at dam fishways: deployments, data interpretation, and inter-observer effects. *Submitted to Northwest Science, June 2015*.
- Bourret, S.L., C.C. Caudill, and M.L. Keefer. Diversity of juvenile Chinook salmon life history pathways. *Accepted pending revisions, Fish Biology and Fisheries, October 2015*.
- Bowerman, T.E., A. Pinson-Dumm, C.A. Peery, and C.C. Caudill. Effects of body size and migration rate on reproductive energy expenditure in a population of Chinook salmon with a long distance migration. *Submitted to Journal of Fish Biology, July 2015*.
- Bowerman, T.E., M.L. Keefer, and C.C. Caudill. Pacific salmon prespawn mortality: patterns, methods, and study design considerations. *Submitted to Fisheries, July 2015; accepted pending revisions*.

Reports in Review

- Keefer, M.L., T.S. Clabough, M.A. Jepson, C.C. Caudill, B.J. Burke, and K.E. Frick. 2015. Overwintering distribution and fallback behavior by adult radio-tagged steelhead in the Federal Columbia River Power System, migration years 2013-2014 and 2014-2015. UI FERL report 2015-15-DRAFT for the US Army Corps of Engineers, Portland District.
- Zobott, H., C.C. Caudill, M.L. Keefer, R. Budwig, K. Frick, M. Moser, S. Corbett. 2015. Design guidelines for Pacific lamprey passage structures. UI FERL report 2015-5-DRAFT for the US Army Corps of Engineers, Portland District.
- Jepson, M.A., M.L. Keefer, C.C. Caudill, T.S. Clabough, C.S. Erdman, T.J. Blubaugh, and C.S. Sharpe. 2015. Migratory behavior, run timing, and distribution of radio-tagged adult winter steelhead, summer steelhead, spring Chinook Salmon, and Coho Salmon in the Willamette River: 2011-2014. UI FERL report 2015-1-DRAFT for the US Army Corps of Engineers, Portland District.

- Naughton, G.P., C.C. Caudill, T.S. Clabough, M.L. Keefer, M.J. Knoff, M.R. Morasch, G.A. Brink, T.J. Blubaugh, and M.A. Jepson. 2015. Migration behavior and spawning success of spring Chinook Salmon in Fall Creek, the North Fork Middle Fork Willamette, and Santiam rivers: relationships among fate, fish condition, and environmental factors, 2014. UI FERL report 2015-2-DRAFT for the US Army Corps of Engineers, Portland District.
- Moret, G., C.C. Caudill, R.J. Qualls, and E.L. Bernard. 2014. Mojave Desert Network Weather and Climate Monitoring Report: Grand Canyon – Parashant National Monument; 2013. Natural Resource Data Series NPS/MOJN/NRDS—2014/XXX. National Park Service, Fort Collins, Colorado.
- Moret, G., C.C. Caudill, and A. O. Whalen. 2014. Mojave Desert Network Weather and Climate Monitoring Report: Grand Canyon – Parashant National Monument; 2013. Natural Resource Data Series NPS/MOJN/NRDS—2014/XXX. National Park Service, Fort Collins, Colorado.

Reports and Other Publications

- Moret, G. J. M., C. C. Caudill, M. E. Lehman, N. Tallent, and L. A. Starcevich. 2016. Mojave Desert Network Inventory and Monitoring selected large springs protocol: Protocol narrative. Natural Resource Report NPS/MOJN/NRR—2016/1108. National Park Service, Fort Collins, Colorado.
- Moret, G. J. M., C. C. Caudill, N. Tallent, M. Lehman, and, L. A. Starcevich. 2016. Mojave Desert Network Inventory and Monitoring selected large springs protocol: Standard operating procedures. Natural Resource Report NPS/MOJN/NRR—2016/1108.1. National Park Service, Fort Collins, Colorado.
- Noyes, C.J., C.C. Caudill, T.S. Clabough, D.C. Joosten, and M.L. Keefer. 2015. Adult Pacific lamprey migration behavior and survival in the Bonneville Reservoir and lower Columbia River monitored using the Juvenile Salmonid Acoustic Telemetry System (JSATS), 2011-2014. UI FERL report 2015-3 for the US Army Corps of Engineers, Portland District.
- Johnson, E.L., T.S. Clabough, M.L. Keefer, C.C. Caudill, S.R. Lee, J. Garnett, L. Layng, C. Noyes, T. Dick, M.A. Jepson, B.J. Burke, and K.E. Frick. 2015. Evaluation of adult salmon passage behavior in relation to fishway modifications at Bonneville Dam, 2013-2014. UI FERL report 2015-6 for the US Army Corps of Engineers, Portland District.
- Keefer, M.L., C.C. Caudill, E.L. Johnson, T.S. Clabough, M.A. Jepson, C.J. Noyes, C.T. Boggs, M.A. Kirk, S.C. Corbett, K.E. Frick, and M.L. Moser. 2015. Adult Pacific lamprey migration in the Columbia and Snake rivers: 2014 radiotelemetry and half-duplex PIT tag studies and retrospective summaries. UI FERL report 2015-12 for the US Army Corps of Engineers, Portland District.
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- Thompson, D., C. Negrea, F. Loge, C. Boggs, C.C. Caudill, and A.E. Evans. 2015. Evaluation of adult fish ladder modifications to improve Pacific Lamprey at McNary Dam, 2015. USACE 2015 Anadromous Fish Evaluation Program Research Review, Walla Wall, WA.
- Zobott*, H., R. Budwig, C.C. Caudill, M.L. Keefer, and W. Basham. 2015. Drag force physical modeling for use in design of Lamprey Passage Structures (LPSs). 145th Annual Meeting of the American Fisheries Society, Portland, OR.
- Kirk, M.A.*, and C.C. Caudill. 2015. Network analyses reveal differences in the behavior of Pacific lamprey and Chinook salmon at a complex migration barrier. 145th Annual Meeting of the American Fisheries Society, Portland, OR.

- Caudill, C.C., S.L. Bourret, M.L. Keefer, B.J. Clemens, B.P. Kennedy, G.A. Taylor, and C.S. Sharpe. 2015. Identifying life history variation to inform recovery planning for upper Willamette River Chinook Salmon (poster). 145th Annual Meeting of the American Fisheries Society, Portland, OR.
- Caudill, C.C., M.L. Keefer, M. Moser, K. Frick. 2015. Upstream migration of adult Pacific Lamprey in the Columbia and Snake rivers. 145th Annual Meeting of the American Fisheries Society, Portland, OR.
- Syms, J*, M.A. Kirk, C.C. Caudill, D. Tonina, and R. Budwig. 2015. The effect of turbulence in hydropower dam fish passageways on Pacific Lamprey passage. 145th Annual Meeting of the American Fisheries Society, Portland, OR (nominated for best student talk).
- Dunkle, M*. C.C. Caudill, A.S. Fremier, J.R. Bellmore. 2015. Using a food web model to explore the ecosystem response to Pacific Lamprey restoration (poster). 145th Annual Meeting of the American Fisheries Society, Portland, OR.
- Bowerman, T., C.C. Caudill, M.L. Keefer, and L. Crozier. 2015. Effects of stream temperature on Chinook Salmon bioenergetics and prespawn mortality in the Columbia River Basin. 145th Annual Meeting of the American Fisheries Society, Portland, OR.
- Frick, K., S. Corbett, M. Hanks, M. Moser, and C.C. Caudill. 2015. Passage options for climbing lamprey: if you build it, they will come. 145th Annual Meeting of the American Fisheries Society, Portland, OR.
- Erdman, C.S.* , and C.C. Caudill. 2015. What a long strange trip it's been: growth history and variability in age at return of steelhead (poster). 145th Annual Meeting of the American Fisheries Society, Portland, OR.
- Zobott, H.* , C.C. Caudill, M.L. Keefer, R. Budwig, K. Frick, and M. Moser. 2015. Design guidelines for Pacific Lamprey passage structures (poster). 2015. 145th Annual Meeting of the American Fisheries Society, Portland, OR.
- Erdman, C.S.* , C.C. Caudill, G.P. Naughton, M.A. Jepson, M. Knoff, and M. Morasch. 2015. Steelhead 'recycling' to improve angler opportunity: how can we alter these programs to maximize harvest and minimize impacts to native populations? 145th Annual Meeting of the American Fisheries Society, Portland, OR.
- Keefer, M.L. M.A. Jepson, G.P. Naughton, T.S. Clabough, T.J. Blubaugh, and C.C. Caudill. 2015. Adult salmon and steelhead in hot water: insights from individual-based biotelemetry and archival temperature loggers (poster). 145th Annual Meeting of the American Fisheries Society, Portland, OR.
- Keefer, M.L., C.T. Boggs, B.J. Burke, T.S. Clabough, T. Dick, K. Frick, M.A. Jepson, D.C. Joosten, S.R. Lee, G.P. Naughton, and C.C. Caudill. 2015. Upstream migration in the Columbia River basin: lessons learned from two decades of adult salmon and steelhead radiotelemetry projects. 145th Annual Meeting of the American Fisheries Society, Portland, OR.
- McIlraith, B., C.A. Peery, D. Statler, J.E. Hess, C.C. Caudill, B.P. Kennedy, and E. Crow Jr. 2015. Distribution and behavior of adult Pacific Lamprey (*Entosphenus tridentatus*) translocated into tributaries of the Snake and Clearwater rivers, ID. 145th Annual Meeting of the American Fisheries Society, Portland, OR.
- Stevens, P. C.A. Peery, T.S. Clabough, D.C. Joosten, I. Courter, and C.C. Caudill. 2015. Evaluation of upstream migration and dam passage by adult Pacific Lamprey in the lower Snake River, 2014. 145th Annual Meeting of the American Fisheries Society, Portland, OR.

- Zobott*, H., R. Budwig, C.C. Caudill, M.L. Keefer, and W. Basham. 2015. Drag force physical modeling for use in design of Lamprey Passage Structures (LPSs). Annual Meeting of the Idaho Chapter of the American Fisheries Society, Boise, ID.
- Syms, J*, M.A. Kirk, C.C. Caudill, D. Tonina, and R. Budwig. 2015. The effect of turbulence in hydropower dam fish passageways on Pacific Lamprey passage. Annual Meeting of the Idaho Chapter of the American Fisheries Society, Boise, ID.
- Keefer, M.L., S.L. Bourret, C.C. Caudill, B.P. Kennedy, G.A. Taylor, B.J. Clemens, and C.S. Sharpe. 2015. Towards reconstructing life history variation, composition and fitness differences among subbasin populations of Upper Willamette River Chinook Salmon. USACE Willamette Fisheries Science Review, Portland, OR.
- Keefer, M.L., G.P. Naughton, C.C. Caudill, T. Clabough, G.A. Taylor, M. Knoff, M. Morasch, and C.S. Sharpe. 2015. Spawning success of spring Chinook salmon in Fall Creek, North Fork Middle Fork Willamette, and South Santiam rivers, 2008-2014. USACE Willamette Fisheries Science Review, Portland, OR.
- Erdman, C*, Keefer, M.L., C.C. Caudill, M.A. Jepson, S.R. Lee, M. Knoff, M. Morasch, and C.S. Sharpe. 2015. Migration behavior and distribution of adult winter and summer steelhead radio-tagged at Willamette Falls and of 'recycled' summer steelhead at Foster and Dexter dams in 2012-2014. USACE Willamette Fisheries Science Review, Portland, OR.
- Keefer, M.L., M.A. Jepson, C.C. Caudill, S.R. Lee, T. Blubaugh, M. Knoff, and M. Morasch. 2015. Migration behaviors and distribution of adult spring Chinook salmon radio-tagged at Willamette Falls in 2011-2014. USACE Willamette Fisheries Science Review, Portland, OR.
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- M. Keefer, C.C. Caudill, M. Jepson, T. Clabough, E.L. Johnson, S.R. Lee, B.J. Burke & K. Frick. 2014. Conversion of radio-tagged adult Chinook salmon and steelhead through the Federal Columbia River Power System (FCRPS), 2013-2014. USACE 2014 Anadromous Fish Evaluation Program Research Review, Portland, OR. 10-11 December, 2014.
- Caudill, C.C., E. Johnson, T. Clabough, M. Jepson, M. Keefer, S. Lee, J. Garnett, L. Layng, T. Dick, B. Burke, and K. Frick. 2014. Evaluation of adult salmon and steelhead passage behavior and success in relation to fishway modifications at Bonneville Dam. USACE 2014 Anadromous Fish Evaluation Program Research Review, Portland, OR.
- Frick, K.E., Burke, B.J., C.C. Caudill, E. Johnson, T. Clabough, M. Jepson, M. Keefer, S. Lee, J. Garnett, L. Layng, and T. Dick. 2014. Evaluation of adult salmon and steelhead passage behavior in relation to fishway modifications at The Dalles and John Day dams, 2013-2014. USACE 2014 Anadromous Fish Evaluation Program Research Review, Portland, OR.
- Keefer, M., T. Clabough, M. Jepson, and C.C. Caudill. 2014. Overwintering distribution and behavior of adult steelhead in the Federal Columbia River Power System (FCRPS): 2013-2014. USACE 2014 Anadromous Fish Evaluation Program Research Review, Portland, OR.
- Keefer, M., C.C. Caudill, M. Jepson, T. Clabough, E.L. Johnson, C. Noyes, S. Corbett, and K. Frick. 2014. The 2014 adult Pacific lamprey migration: HD-PIT and radiotelemetry summaries. USACE 2014 Anadromous Fish Evaluation Program Research Review, Portland, OR.

- Noyes, C., C.C. Caudill, D. Joosten, T. Clabough, and E. Johnson. 2014. Using the Juvenile Salmon Acoustic Telemetry (JSATS) system to evaluate adult Pacific lamprey movements and fate in Columbia River reservoirs, 2011-2014. USACE 2014 Anadromous Fish Evaluation Program Research Review, Portland, OR.
- Corbett, S., K.E. Frick, and C.C. Caudill. 2014. Modification and evaluation of lamprey passage structures (LPSS) at Bonneville Dam and the John Day south fishway collection trap, 2014. USACE 2014 Anadromous Fish Evaluation Program Research Review, Portland, OR.
- Caudill, C.C., H. Zobott, J. Syms, R. Budwig, M. Kirk, C. Noyes, E. Johnson, and S. Lee. 2014. Development and use of lamprey passage structures at the Bonneville Dam Lamprey Flume System and John Day Dam North Fishway Entrance, 2013-2014. USACE 2014 Anadromous Fish Evaluation Program Research Review, Portland, OR.
- Frick, K.E., S. Corbett, M. Hanks, and C.C. Caudill. 2014. If you build it they will come: an experimental vertical climbing wall. USACE 2014 Anadromous Fish Evaluation Program Research Review, Portland, OR.
- Kirk, M. and C.C. Caudill. 2014. Use of network theory to evaluate fish passage behavior at Bonneville Dam. USACE 2014 Anadromous Fish Evaluation Program Research Review, Portland, OR.
- Kirk, M. A., C. C. Caudill, J. Syms, D. Tonina, and N. Hubbard. 2014. Pacific Lamprey swimming behavior and performance in relation to passage barrier velocity, distance and turbulence in an experimental flume, 2014. USACE 2014 Anadromous Fish Evaluation Program Research Review, Portland, OR.
- Loge, F., D. Thompson, and C.C. Caudill. Evaluation of adult fish ladder modifications to improve Pacific lamprey passage at McNary and Ice Harbor dams. USACE 2014 Anadromous Fish Evaluation Program Research Review, Portland, OR.
- Peery, C.A., P. Stevens, T. Clabough, D. Joosten, I. Courter, and C.C. Caudill. 2014. Evaluation of upstream migration and dam passage by adult Pacific lamprey in the lower Snake River, 2014. USACE 2014 Anadromous Fish Evaluation Program Research Review, Portland, OR.
- Caudill, C.C., 2014. Pattern and process in upstream migration of steelhead in the Columbia and Snake rivers. Mid-Columbia Adult Steelhead Bypass Workshop, Walla Walla, WA 19 Nov 2014.
http://www.dfw.state.or.us/fish/CRP/mid_columbia_river_plan_WASTB_workshop.asp
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- Bowerman, T., M.L. Keefer, and C.C. Caudill. 2014. Patterns of spring Chinook prespawn mortality within the Columbia River Basin. Ecological Society of America Annual Meeting, Sacramento, CA.
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- Syms, J.C.*, M.A. Kirk*, D. Tonina, C.C. Caudill. 2014. The effect of turbulence in hydropower dam fish passageways on Pacific lamprey passage. International Conference on Engineering and Ecohydrology for Fish Passage, Madison, WI.

- Keefer, M.L., and C.C. Caudill. 2014. Metrics to identify fishway passage bottlenecks in the multi-species Columbia River. International Conference on Engineering and Ecohydrology for Fish Passage, Madison, WI.
- Kirk, M.A.*, and C.C. Caudill. 2014. Using network theory to formulate behavioral inferences from differences in the movement patterns of Chinook salmon and Pacific lamprey at Bonneville Dam, USA. International Conference on Engineering and Ecohydrology for Fish Passage, Madison, WI.
- Caudill, C.C., M.L. Keefer, T.S. Clabough, G.P. Naughton, B.J. Burke, and C.A. Peery. 2014. Indirect effects of impoundment on migrating fish: temperature gradients in fish ladders slow dam passage by adult Chinook salmon and steelhead. International Conference on Engineering and Ecohydrology for Fish Passage, Madison, WI.
- Herron, C.*, M. Colvin, M. Kent, C.C. Caudill, C.S. Schreck. 2014. *Nanophyetus salminocola* burdens in Chinook salmon (*Oncorhynchus tshawytscha*) prior to spawning in the Willamette Basin. Ecological and Evolutionary Ethology of Fishes, Corvallis, OR.
- Hess, J.E., C.C. Caudill, D. Close, M.L. Keefer, B. McIlraith, M.L. Moser, and S.R. Narum. 2014. Genes That Predict Large-Bodied Pacific Lamprey Go the Distance: An Adaptive Context for Conservation Management Applications. American Fisheries Society Annual Meeting, Quebec City, Quebec.
- Moser, M.L., M.L. Keefer, C.C. Caudill, and B.J. Burke. 2014. Evidence of effects of temperament on lamprey migration rate. Ecological and Evolutionary Ethology of Fishes, Corvallis, OR.
- Keefer, M.L. and C.C. Caudill. 2014. Cold water refuges: critical temporary habitats for migrating salmon and steelhead. 2014 Columbia River Estuary Workshop: Forging Links in the Columbia River Estuary, Lower Columbia River Estuary Partnership, Astoria, OR
- Caudill, C.C., M.A. Jepson, M.L. Keefer, S. Lee, T. Blubaugh, M. Knoff, M. Morasch, and C. Sharpe. 2014. Migration behavior and distribution of adult winter and summer steelhead radio-tagged at Willamette Falls in 2013. USACE Willamette Fisheries Science Review, Portland, OR.
- Caudill, C.C., G.P. Naughton, M.L. Keefer, T. Clabough, G. Taylor, M. Knoff, and C. Sharpe. 2014. Spawning success of spring Chinook Salmon in Fall Creek, North Fork Middle Fork Willamette and South Santiam rivers, 2008-2013. USACE Willamette Fisheries Science Review, Portland, OR.
- Keefer, M.L., M.A. Jepson, C.C. Caudill, S. Lee, T. Blubaugh, M. Knoff, and M. Morasch. 2014. Migration behavior and distribution of adult spring Chinook Salmon radio-tagged at Willamette Falls, 2011-2013. USACE Willamette Fisheries Science Review, Portland, OR.
- Colvin, M.E., J.T. Peterson, C. Sharpe, S. Benda, M. Kent, B. Dolan, C.C. Caudill, and C. Schreck. 2014. Integrating Science, management, and monitoring: a decision tool for optimizing annual spring Chinook Salmon outplanting strategies and prioritizing future research. USACE Willamette Fisheries Science Review, Portland, OR.
- Frick, K., M.L. Moser, C.C. Caudill, and M.L. Keefer. 2014. Improving adult Pacific lamprey passage using Lamprey Passage Structures and refuges. Oregon Division, American Fisheries Society meeting, Eugene, OR.

- Keefer, M.L., C.C. Caudill. 2013. Estimating iteroparity in Columbia River steelhead using records archived in the PIT tag information system (PTAGIS). USACE 2013 Anadromous Fish Evaluation Program Research Review, Walla Wall, WA.
- Caudill, C.C., E. Johnson, T. Clabough, M. Jepson, M. Keefer, S. Lee, J. Garnett, L. Layng, T. Dick, B. Burke, and K. Frick. 2013. Evaluation of adult salmon and steelhead passage behavior and success in relation to fishway modifications at Bonneville Dam. USACE 2013 Anadromous Fish Evaluation Program Research Review, Walla Wall, WA.
- Burke, B., K. Frick, C.C. Caudill, E. Johnson, T. Clabough, M. Jepson, M. Keefer, S. Lee, J. Garnett, L. Layng, and T. Dick. 2013. Evaluation of adult salmon and steelhead passage behavior in relation to fishway modifications at The Dalles and John Day dams. USACE 2013 Anadromous Fish Evaluation Program Research Review, Walla Wall, WA.
- Caudill, C.C., and M. Keefer. 2013. Conversion of radio-tagged adult Chinook salmon and steelhead through the Federal Columbia River Power System (FCRPS). USACE 2013 Anadromous Fish Evaluation Program Research Review, Walla Wall, WA.
- Keefer, M., C.C. Caudill, L. Sullivan, and K. Hatch. 2013. Adult Chinook salmon, sockeye salmon, and steelhead conversion through the lower Snake River: a summary of PIT-tag data from 2002-2013. USACE 2013 Anadromous Fish Evaluation Program Research Review, Walla Wall, WA.
- Caudill, C.C., H. Zobott*, J. Syms*, R. Budwig, M. Kirk*, C. Noyes, E. Johnson, S. Lee, and M. Moser. 2013. Development and use of lamprey passage structures at Bonneville and John Day dams. USACE 2013 Anadromous Fish Evaluation Program Research Review, Walla Wall, WA.
- Keefer, M., C.C. Caudill, S. Corbett, and M. Moser. 2013. General migration and upstream passage patterns in HD PIT-tagged adult Pacific lamprey. USACE 2013 Anadromous Fish Evaluation Program Research Review, Walla Wall, WA.
- Noyes, C. C.C. Caudill, D. Joosten, T. Clabough, and E. Johnson. 2013. Using the Juvenile Salmon Acoustic Telemetry (JSATS) system to evaluate adult Pacific lamprey movements and fate in Columbia River reservoirs. USACE 2013 Anadromous Fish Evaluation Program Research Review, Walla Wall, WA.
- Caudill, C.C. and M.L. Keefer. 2013. Measuring outside the box: an example of delayed effects associated with fish passage in steelhead. International Conference on Engineering and Ecohydrology for Fish Passage, Corvallis, OR.
- Kirk, M.A.*, C.C. Caudill, E. Johnson, P. Johnson, M.L. Keefer, T.C. Clabough, M.A. Jepson, and W. Nagy. 2013. Evaluation of Pacific lamprey behavior in fishway environments of two Columbia River dams using Dual-Frequency Identification Sonar (DIDSON) acoustic imaging. International Conference on Engineering and Ecohydrology for Fish Passage, Corvallis, OR.
- Zobott, H*. C.C. Caudill, M.L. Keefer, and R. Budwig. 2013. Development of 3-D modeling tools to document fish passage information and prioritize improvements at lower Columbia River Dams, 2012. International Conference on Engineering and Ecohydrology for Fish Passage, Corvallis, OR.
- Keefer, M.L., C.C. Caudill, and M. Moser. 2013. Fish passage bottlenecks and prioritization planning: a Pacific lamprey case study. International Conference on Engineering and Ecohydrology for Fish Passage, Corvallis, OR.

- Caudill, C.C. 2013. Migration syndromes and “success” in migratory fishes. NOAA-Northwest Fisheries Science Center “Monster Jam” Invited Seminar, 16 May, 2013, Seattle, WA.
- Caudill, C.C., M.L. Keefer. 2013. A review of adult salmon and steelhead straying in the Columbia River Basin. Annual meeting of the Western Division of the American Fisheries Society, Boise, ID.
- Keefer, M.L., C.C. Caudill, and C.A. Peery. 2013. Adult Pacific salmonids in hot water: behavior and survival studies from the Columbia River basin. Annual meeting of the Western Division of the American Fisheries Society, Boise, ID.
- Keefer, M.L., C.C. Caudill, C.A. Peery, M. Higgs, and M. Moser. 2013. Identifying fishway passage bottlenecks at large dams: a Pacific lamprey case study. Annual meeting of the Western Division of the American Fisheries Society, Boise, ID.
- Caudill, C.C., M.L. Keefer, T. Clabough, E.L. Johnson, M. Jepson, C.T. Boggs, and M. Moser. 2013. Pacific lamprey passage at Columbia River dams: highlights from a 15-year data synthesis. Annual meeting of the Western Division of the American Fisheries Society, Boise, ID.
- Noyes, C.*, C.C. Caudill, D. Joosten, T. Clabough, and E.L. Johnson, 2013. Using the Juvenile Salmon Acoustic Telemetry (JSATS) system to evaluate adult Pacific lamprey movements and fate in Columbia River reservoirs. Annual meeting of the Western Division of the American Fisheries Society, Boise, ID.
- Zobott, H.*, C.C. Caudill, R. Budwig, M.L. Keefer, and M. Moser. 2013. Lamprey passage at migration barriers: Fishway design criteria and biological insights. Annual meeting of the Western Division of the American Fisheries Society, Boise, ID.
- Kirk, M.A.*, C.C. Caudill, E.L. Johnson, P. Johnson, M.L. Keefer, T. Clabough, M.A. Jepson, and W. Nagy. 2013. Evaluation of Pacific lamprey behavior in fishway environments of two Columbia River dams using Dual-Frequency Identification Sonar (DIDSON) acoustic imaging. Annual meeting of the Western Division of the American Fisheries Society, Boise, ID.
- Caudill, C.C., M. Jepson, T. Clabough, S. Lee, T. Dick, M. Knoff, M. Morasch, M. Keefer, and T. Friesen. 2013. Migration behavior and distribution of adult spring Chinook salmon radio-tagged at Willamette Falls in 2012. USACE Willamette Basin Fisheries Science Review, Corvallis, OR.
- Caudill, C.C., M. Jepson, T. Clabough, S. Lee, T. Dick, M. Knoff, M. Morasch, J. Uber, M. Keefer, B. Clemens, and C. Sharpe. 2013. Migration behavior and distribution of adult winter and summer steelhead radio-tagged at Willamette Falls in 2012. USACE Willamette Basin Fisheries Science Review, Corvallis, OR.
- Roumasset, A.* and C. Caudill (presenter). 2013. Prespawn mortality of Upper Willamette River spring Chinook salmon: Associations with stream temperature, watershed attributes and environmental conditions on the spawning grounds. USACE Willamette Basin Fisheries Science Review, Corvallis, OR.
- Keefer, M.L., C. Caudill, G. Naughton, T. Clabough, G. Taylor, M. Knoff, A. Roumasset, C. Schreck, and M. Kent. 2013. Spawning success of spring Chinook salmon in Fall Creek and the North Fork Middle Fork Willamette River, 2008-2012. USACE Willamette Basin Fisheries Science Review, Corvallis, OR.
- Bourret, S.*, B.P. Kennedy, C.C. Caudill, and L. Borgerson. 2013. Characterizing life history patterns in UWR Chinook salmon (*Oncorhynchus tshawytscha*) reared above WVP reservoirs. USACE Willamette Basin Fisheries Science Review, Corvallis, OR.

Schreck, C., M. Kent, M. E. Colvin, S. Benda*, C. Sharpe, J. T. Peterson, B. Dolan, R. Chitwood, J. Unrein, C. C. Caudill, and G. Naughton. 2013. Evaluating potential causes and management of pre-spawning mortality in adult upper Willamette River Chinook salmon. USACE Willamette Basin Fisheries Science Review, Corvallis, OR.

Colvin, M.E., J. T. Peterson, C. Sharpe, S. Benda*, C. Schreck, M. Kent, B. Dolan, and C.C. Caudill. 2013. Upper Willamette River spring Chinook prespawn mortality synthesis and modeling. 2013 Oregon Division of the American Fisheries Society, Bend, OR.

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Keefer, M.L., and C.C. Caudill. 2012. A review of adult salmon and steelhead straying with an emphasis on Columbia River populations. USACE 2012 Anadromous Fish Evaluation Program Research Review, Portland, OR. <http://www.nwd-wc.usace.army.mil/tmt/documents/AFEP/>

Corbett, S., M. Moser, and C.C. Caudill. 2012. Improving adult Pacific lamprey passage at Bonneville Dam using lamprey passage structures (LSPS) and refuges. USACE 2012 Anadromous Fish Evaluation Program Research Review, Portland, OR. <http://www.nwd-wc.usace.army.mil/tmt/documents/AFEP/>

Caudill, C.C., H. Zobott*, M.L. Keefer, and R. Budwig. 2012. Development of 3-D modeling tools to document fish passage information and prioritize improvements at lower Columbia River Dams, 2012. USACE 2012 Anadromous Fish Evaluation Program Research Review, Portland, OR. <http://www.nwd-wc.usace.army.mil/tmt/documents/AFEP/>

Keefer, M.L., C.C. Caudill, E.L. Johnson, T.S. Clabough, M.A. Jepson, S. Corbett, and M.L. Moser. 2012. General migration and upstream passage patterns in HD PIT-tagged adult Pacific lamprey. USACE 2012 Anadromous Fish Evaluation Program Research Review, Portland, OR. <http://www.nwd-wc.usace.army.mil/tmt/documents/AFEP/>

Caudill, C.C., E.L. Johnson, P. Johnson, M.L. Keefer, T.S. Clabough, M.A. Jepson, and W. Nagy. 2012. Evaluation of lamprey behavior at lower fishway sections of Bonneville and John Day dams using DIDSON, 2012. USACE 2012 Anadromous Fish Evaluation Program Research Review, Portland, OR. <http://www.nwd-wc.usace.army.mil/tmt/documents/AFEP/>

Noyes, C.J., C.C. Caudill, D. Joosten, T.S. Clabough, and E.L. Johnson. 2012. Using the Juvenile Salmon Acoustic Telemetry (JSATS) system to evaluate adult Pacific lamprey movements and fate in Columbia River reservoirs. USACE 2012 Anadromous Fish Evaluation Program Research Review, Portland, OR. <http://www.nwd-wc.usace.army.mil/tmt/documents/AFEP/>

Loge, F., C. Negrea, C.C. Caudill, and D. Thompson. 2012. Enumeration and evaluation of adult Pacific lamprey escapement and behavior in underwater video at McNary and Ice Harbor dams with the application of computerized imaging software (AVEDac). USACE 2012 Anadromous Fish Evaluation Program Research Review, Portland, OR. <http://www.nwd-wc.usace.army.mil/tmt/documents/AFEP/>

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2012 Anadromous Fish Evaluation Program Research Review, Portland, OR. <http://www.nwd-wc.usace.army.mil/tmt/documents/AFEP/>

- Caudill, C.C., M.L. Keefer, H. Zobbot*, and R. Budwig. 2012. Lamprey synthesis Studies Review Work Group Meeting Workshop for USACE, Portland District, 30 October 2012. Day-long seminar on adult Pacific lamprey passage issues presented to fisheries manager representatives from the USACE, NWPPC ISRB, tribes, and NOAA-Fisheries. <http://www.nwd-wc.usace.army.mil/tmt/documents/AFEP/>
- Caudill, C.C. 2012. Migratory behavior of adult Pacific lamprey in the Columbia Basin. 2012. Native American Fish and Wildlife Society Pacific Region Conference, Pendleton, OR (invited).
- Caudill, C.C., C. Noyes *, G.P. Naughton, T. Clabough, S.R. Lee, T. Castro-Santos, J. Beeman, and M. Parsley. Spawning migrations of American shad in the Columbia River. 2nd Annual National Conference on Engineering and Ecohydrology for Fish Passage, Amherst, MA.
- Caudill, C.C., M.A. Jepson, T.S. Clabough, S.R. Lee, G.P. Naughton, M.R. Morasch, M.J. Knoff, D.C. Joosten, T.L. Dick, and M.L. Keefer. 2012. Migration behavior, timing, and distribution of spring Chinook salmon radio-tagged at Willamette Falls Dam, 2011. USACE 2011 Willamette Basin Fisheries Science Review, Corvallis, OR.
- Caudill, C.C., G. Naughton, G.A. Taylor, M.L. Keefer, M.J. Knoff, A. Roumasset*, C.B. Schreck, and M. Kent. 2012. Migration behavior and spawning success in spring Chinook salmon in Fall Creek and the North Fork Middle Fork Willamette River: relationships among fate, fish condition, and environmental factors, 2008-2011. USACE 2011 Willamette Basin Fisheries Science Review, Corvallis, OR.
- Roumasset, A* and C.C. Caudill. 2012. Associations between Chinook salmon prespawn mortality rates, environmental factors, and watershed features in sub-basins of the Willamette River Valley. USACE 2011 Willamette Basin Fisheries Science Review, Corvallis, OR.
- Bourret, S*, B.P. Kennedy, C.C. Caudill, and L. Borgerson. 2012. Characterizing juvenile Chinook salmon life history variability in the Willamette Valley using otoliths and scales. USACE 2011 Willamette Basin Fisheries Science Review, Corvallis, OR.
- Schreck, C.B., M. Kent, S. Benda*, J. Unrein, R. Chitwood, C.C. Caudill, and G. Naughton. 2012. Prespawn mortality in spring Chinook salmon in the upper Willamette River: potential causes. USACE 2011 Willamette Basin Fisheries Science Review, Corvallis, OR.
- Schreck, C.B., M. Kent, S. Benda*, J. Unrein, R. Chitwood, C.C. Caudill, and G. Naughton. 2012. Prespawn mortality in spring Chinook salmon in the upper Willamette River: potential management options. USACE 2011 Willamette Basin Fisheries Science Review, Corvallis, OR.

2011

- Caudill, C.C., M. Keefer, and M. Moser. 2011. Estimating upstream passage metrics and performance in Pacific lamprey from the Columbia River Hydrosystem. USACE 2011 Anadromous Fish Evaluation Program, Walla Walla, WA.
- Keefer, M. C. C. Caudill, T. Clabough, M. Jepson, E. Johnson, and M. Moser. 2011. Identifying passage bottlenecks for adult Pacific lamprey at Bonneville and The Dalles dams: meta-analysis results. USACE 2011 Anadromous Fish Evaluation Program, Walla Walla, WA.

- Caudill, C.C., E. Johnson, P. Johnson, W. Nagy, M. Keefer, T. Clabough, and M. Jepson. 2011. Pacific lamprey monitoring with DIDSON (Dual-Frequency Identification Sonar) at Bonneville Dam. USACE 2011 Anadromous Fish Evaluation Program, Walla Walla, WA.
- Caudill, C.C., C. Noyes*, G. Naughton, D. Joosten, T. Clabough, E. Johnson, and S. Lee. 2011. Using the Juvenile Salmon Acoustic Telemetry (JSATS) system to evaluate adult Pacific lamprey movements and fate in Columbia River reservoirs. USACE 2011 Anadromous Fish Evaluation Program, Walla Walla, WA.
- M. Keefer, C.C. Caudill, and M. Moser. 2011. Adult lamprey data mining: using models to prioritize sites for fishway passage improvements and to predict lamprey run timing and size. USACE 2011 Anadromous Fish Evaluation Program, Walla Walla, WA.
- Loge, F., C.C. Caudill, D. Thompson, and C. Boggs. 2011. Video Monitoring to Determine Pacific Lamprey Ladder Escapement and Behavior at McNary and Ice Harbor dams. USACE 2011 Anadromous Fish Evaluation Program, Walla Walla, WA.
- Caudill, C.C. 2011. Assessing migration success in altered river corridors. 141st Annual Meeting of the American Fisheries Society, Seattle, WA.
- Moser, M., M. Keefer, and C.C. Caudill. 2011. Impediments to lamprey spawning migration and development of lamprey-specific fishways. 141st Annual Meeting of the American Fisheries Society, Seattle, WA.
- Keefer, M. C.C. Caudill, and C.A. Peery. 2011. Adult Pacific salmonids in hot water: behavior and survival studies from the Columbia River basin. 141st Annual Meeting of the American Fisheries Society, Seattle, WA.
- Mann, R. C.A. Peery, C.C. Caudill, and M. Keefer. 2011. An approach to estimating the effects of high temperature exposure during maternal upstream migration on embryo development and survival in Chinook salmon. 141st Annual Meeting of the American Fisheries Society, Seattle, WA.
- Crozier, L., B.J. Burke, C.C. Caudill, and M. Keefer. 2011. Seasonal variation in the bioenergetic cost of migration in Snake River spring/summer Chinook salmon and potential selection for earlier migration in response to climate change. 141st Annual Meeting of the American Fisheries Society, Seattle, WA.
- Peery, C.A., M. Keefer, C.T. Boggs, and C.C. Caudill. 2011. Developing a PIT-tag detection system for Pacific lamprey in the Columbia River. 141st Annual Meeting of the American Fisheries Society, Seattle, WA.
- Bourret, S.*, C.C. Caudill, B.P. Kennedy, and L. Borgerson. 2011. Feasibility of using otolith and scale techniques to characterize life history variation of spring Chinook salmon in the Willamette Valley. 141st Annual Meeting of the American Fisheries Society, Seattle, WA.
- Roumasset, A.*, C.C. Caudill, R. Mann, M. Keefer, C. Schreck, and M. Kent. 2011. Effects of watershed characteristics, stream temperature, condition and disease on prespawm survival in Upper Willamette River Chinook salmon. 141st Annual Meeting of the American Fisheries Society, Seattle, WA.
- Noyes, C.*, T. Clabough, C.C. Caudill, T. Castro-Santos, J. Beeman, and M.J. Parsley. 2011. Spawning migrations of American shad in the Columbia River. 141st Annual Meeting of the American Fisheries Society, Seattle, WA.

- Benda, S.*, C.S. Schreck, M. Kent, R. Chitwood, V. Watral, C.C. Caudill, and R. Mann. 2011. Prespawm mortality in spring Chinook salmon in the Upper Willamette River: potential causes and management strategies. 141st Annual Meeting of the American Fisheries Society, Seattle, WA.
- Caudill, C.C. 2011. Migration syndromes and “success” in migratory fishes. National Conference on Engineering and Ecohydrology for Fish Passage, Amherst, MA.
- Beeman, J., C.C. Caudill, M.A. Jepson, E.L. Johnson, and M.L. Keefer. 2011. Look out below: juvenile passage operations at Columbia and Snake river dams can slow adult upstream passage. 2011 Oregon Chapter of the American Fisheries Society.
- Beeman, J., S. Juhnke, T. Castro-Santos, C.C. Caudill, and M. Parsley. 2011. Upstream passage of radio-tagged American shad at the lower four Columbia River dams in 2010: not what you might think. 2011 Oregon Chapter of the American Fisheries Society.
- McIlraith, B.J.*, C. C. Caudill, and B.P. Kennedy. 2011. Distribution, timing, behavior, and habitat of spawning adult Pacific lamprey (*Lampetra tridentata*) translocated into tributaries of the Snake and Clearwater Rivers. 2011 Idaho Chapter of the American Fisheries Society
- Baker, G., G.J.M. Moret, C.C. Caudill, and N. Tallent-Halsell. 2011. Year-round hydrologic monitoring of subalpine lakes in Great Basin National Park. 2011 George Wright Society Biennial Meeting on Parks, Protected Areas, and Cultural Sites, New Orleans, LA.
- Keefer, M.L., G.A. Taylor, D.F. Garletts, C. Helms, G.A. Gauthier, T.M. Pierce, and C.C. Caudill. 2011. Downstream fish passage above and below dams in the middle fork Willamette River: a multi-year summary. USACE 2010 Willamette Basin Fisheries Science Review, Grand Ronde, OR.
- Caudill, C.C., B.P. Kennedy, S. Bourret, and L. Borgerson. 2011. Feasibility of using otolith and scale analyses to characterize life history variation in spring Chinook salmon in three Willamette Valley Project reservoirs and tributaries. USACE 2010 Willamette Basin Fisheries Science Review, Grand Ronde, OR.
- Caudill, C.C., R. Mann, G.A. Taylor, M.L. Keefer, A. Roumasset, C.B. Schreck, and M. Kent. 2011. Migration behavior and spawning success in spring Chinook salmon in Fall Creek and the North Fork Middle Fork Willamette River: relationships among fate, fish condition, and environmental factors, 2008-2010.
- Schreck, C.C., M. Kent, S. Benda, K. Berkenkamp, R. Chitwood, V. Watral, L. Lindsay, C.C. Caudill, and R. Mann. 2011. Pathological chances associated with prespawning mortality in Chinook salmon in the Willamette River and management options.
- Caudill, C.C., M. Keefer, and M. Moser. 2010. Estimating upstream passage metrics and performance in Pacific lamprey: overview and patterns from the Columbia River Hydrosystem. 2010 USACE Anadromous Fish Evaluation Program Annual Review, Portland, OR.
- Keefer, M., C. Boggs, E. Johnson, C.C. Caudill, T. Clabough, B. Ho., and M. Moser. 2010. Adult lamprey passage success and behavior in the lower Columbia River, 2010. 2010 USACE Anadromous Fish Evaluation Program Annual Review, Portland, OR.
- Caudill, C.C., E. Johnson, B. Ho, M. Keefer, T. Clabough, and M. Moser. 2010. Fishway use and passage success of adult Pacific lamprey at Bonneville Dam including the modified Cascades Island Entrance, 2010. 2010 USACE Anadromous Fish Evaluation Program Annual Review, Portland, OR.

- Caudill, C.C., M. Jepson, T. Clabough, M. Keefer, and B.J. Burke. 2010. Evaluation of Adult Spring–Summer Chinook Salmon Passage at Lower Columbia River Dams, 2010. 2010 USACE Anadromous Fish Evaluation Program Annual Review, Portland, OR.
- Boggs, C., C.C. Caudill, M. Keefer, M. Moser. 2010. Evaluation of adult Pacific lamprey passage and behavior at McNary Dam, 2010 and multi-year summary of passage metrics. 2010 USACE Anadromous Fish Evaluation Program Annual Review, Portland, OR.
- Caudill, C.C., G. Naughton, D. Joosten, T. Clabough, E. Johnson, S. Lee, and C. Noyes. 2010. Evaluation of adult Pacific lamprey behavior in Columbia River reservoirs using the Juvenile Salmon Acoustic Telemetry (JSATS) system, 2010. 2010 USACE Anadromous Fish Evaluation Program Annual Review, Portland, OR.
- Eder, K., D.T. Thompson, C. Boggs, C. C. Caudill, D. Cline, and F. Loge. 2010. Video monitoring of fish ladder modifications to improve Pacific lamprey passage at the McNary Dam Oregon-shore Fishway, 2010. 2010 USACE Anadromous Fish Evaluation Program Annual Review, Portland, OR.
- Moret, G.J.M., and C.C. Caudill. 2010. A long-term monitoring plan for springs in the Mojave Desert based on aquifer type. 2010 National Park Service Aquatic Professionals Meeting, Fort Collins, Colorado.
- Caudill, C.C. 2010. Migration in the modern world: Tales of concrete, free rides, hot water, blood-sucking natives and delicious exotics. (Invited). Department of Fisheries Biology, Humboldt State University, Arcata, CA.
- Keefer, M.L., G.A. Taylor, D. Gartletts, G.A. Gauthier, T. Pierce, and C.C. Caudill. 2010. Prespawn mortality in spring Chinook salmon outplanted above dams in the Middle Fork Willamette River. U.S. Army Corps of Engineers Annual Research Review, Willamette Basin Anadromous Fish Evaluation Program, Grand Ronde, OR.
- Caudill, C.C., R. Mann, G.A. Taylor, M.L. Keefer, D. Calvert, C.B. Schreck, and M. Kent. 2010. Migration behavior and spawning success in spring Chinook salmon in Fall Creek and the North Fork Middle Fork Willamette River: Relationships among fate, fish condition, and environmental factors. U.S. Army Corps of Engineers Annual Research Review, Willamette Basin Anadromous Fish Evaluation Program, Grand Ronde, OR.
- Schreck, C.B., M. Kent, K. Berkenkamp, V. Watral, R. Mann, and C.C. Caudill. 2010. Pathological changes associated with prespawning mortality in Chinook salmon in the Willamette River. U.S. Army Corps of Engineers Annual Research Review, Willamette Basin Anadromous Fish Evaluation Program, Grand Ronde, OR.
- Keefer, M.L., and C.C. Caudill. 2010. Research needs for Willamette River adult salmon and steelhead: results from a literature review. U.S. Army Corps of Engineers Annual Research Review, Willamette Basin Anadromous Fish Evaluation Program, Grand Ronde, OR.
- Keefer, M.A., C.T. Boggs, E.L. Johnson, C. C. Caudill, T.S. Clabough, B. Ho, and M.A. Moser. Adult lamprey passage success and behavior in the lower Columbia River, 2009. Meeting of the U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Walla Walla, WA.
- Johnson, E.L., C.C. Caudill, M.L. Keefer, T.S. Clabough, and M.A. Moser. Effects of water velocity on fishway entrance success by adult Pacific lamprey and fishway use summaries at Bonneville Dam, 2009.

Meeting of the U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Walla Walla, WA.

- Caudill, C.C., E.L. Johnson, C.T. Boggs, M.L., Keefer, M.A. Jepson, and B.J. Burke. Evaluation of adult spring-summer Chinook salmon and adult Pacific lamprey passage at the Cascade Island fishway after entrance modifications, 2009. Meeting of the U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Walla Walla, WA.
- Boggs, C.T., C.C. Caudill, and M.A. Moser. Evaluation of adult Pacific lamprey passage and behavior at McNary Dams including preliminary evaluation of a reduced nighttime flow velocity operation, 2009. Meeting of the U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Walla Walla, WA.
- Caudill, C.C., T.S. Clabough, E.L. Johnson, D.C. Joosten, and C.A. Peery. 2009. Use of video to quantify adult lamprey passage at night at Bonneville and The Dalles dams on the Columbia River. American Fisheries Society Western Division Annual Meeting, Albuquerque, New Mexico.
- Keefer, M.L., M. Moser, C.A. Peery, C. Boggs, E.L. Johnson, and C.C. Caudill. 2009. Size Matters: adult Pacific lamprey migration in the Columbia River. American Fisheries Society Western Division Annual Meeting, Albuquerque, New Mexico.
- Mann, R., G.A. Taylor, C.A. Peery, and C.C. Caudill. 2008. An assessment of energetic condition for two populations of adult summer Chinook salmon in the Willamette Valley of central Oregon. Meeting of the U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Portland, OR.
- Keefer, M.A., C.T. Boggs, E. Johnson, C.A. Peery, C. C. Caudill, and M.A. Moser. 2008. Adult lamprey passage success and behavior in the lower Columbia River, 2008. Meeting of the U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Portland, OR.
- Ho, B., C.A. Peery, E. Johnson, and C.C. Caudill. Relationship between energetic status and migratory behavior and success in Pacific Lamprey: Preliminary results. Meeting of the U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Portland, OR.
- Johnson, E., C.A. Peery, C.C. Caudill, and M. Moser. 2008. Effects of water velocity on fishway entrance success by Pacific lamprey and fishway use summaries at Bonneville Dam, 2008. Meeting of the U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Portland, OR.
- Boggs, C.T., C.A. Peery, C.C. Caudill, and M. Moser. 2008. Evaluation of adult Pacific lamprey passage and behavior at McNary and Ice Harbor Dams. Meeting of the U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Portland, OR.
- Clabough, T.S. E. Johnson, D.C. Joosten, C.C. Caudill, and C.A. Peery. 2008. Use of night video to quantify adult lamprey passage at Bonneville and the Dalles dams, 2007 and preliminary 2008 results. Meeting of the U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Portland, OR.
- Jepson, M.A., C.A. Peery, and C.C. Caudill. 2008. Adult Chinook salmon passage at Little Goose Dam in relation to spill operations, 2008. Meeting of the U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Portland, OR.
- Clabough, T.S., G.P. Naughton, C.C. Caudill, M.A. Jepson, C.A. Peery, and B.J. Burke. 2008. Adult salmon and steelhead passage at Lower Granite Dam with a modified transition pool and in relation to ladder

temperature. Meeting of the U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Portland, OR.

- Caudill, C.C., C.A. Peery, C.T. Boggs, M.L. Keefer, and M.L. Moser. 2008. Down the river and back up again: toward conservation of Pacific lamprey in the Columbia Basin, USA. Society for Conservation Biology, Chattanooga, Tennessee.
- Caudill, C.C., and M. Parsley (symposium co-organizers). 2008. Overview of shad in the Columbia Basin: history and current status. American Fisheries Society Western Division Annual Meeting, Portland Oregon.
- Caudill, C.C., C.A. Peery and S.R. Lee. 2008. Up and down and back again, adult biology of American shad in the Columbia basin. American Fisheries Society Western Division Annual Meeting, Portland Oregon.
- R. Hogg*, and C.C. Caudill. Relationships between recent ocean growth, condition, spawning history, and adult migration behavior in American shad. 2008 American Fisheries Society Western Division Annual Meeting, Portland Oregon. *Undergraduate researcher.
- M.J. Parsley & C.C. Caudill. What's that small shad doing here? 2008. Evidence of multiyear freshwater residence by juvenile American shad. American Fisheries Society Western Division Annual Meeting, Portland Oregon.
- Caudill, C.C., L. Garrett, E. Starkey, T. Rodhouse, R. K. Steinhorst, and K.M. Irvine. 2008. Integrated water quality monitoring plan for the Upper Columbia Basin Network (poster). 2008 National Park Service Aquatic Professionals Meeting, Fort Collins, Colorado.
- Caudill, C.C., A. Chung-MacCoubrey, and D. Hughson. 2008. Establishing a long term monitoring plan for aquatic resources of the National Park Service Mojave Desert Network (poster). 2008 National Park Service Aquatic Professionals Meeting, Fort Collins, Colorado and the 56th Annual Meeting of the North American Benthological Society, Salt Lake City, Utah.

FUNDING & AWARDS (amounts are direct award to CCC)

Current:

- Caudill, C.C. 2015. The role of Pacific lamprey marine-derived nutrients in freshwater food webs, Year 1. \$34,334 awarded from Columbia River Intertribal Fisheries Commission.
- Loge, F. and C.C. Caudill. 2015. Evaluation of adult fish ladder modifications to improve Pacific lamprey passage at McNary Dam, 2015. \$78,203 awarded from USACE Walla Walla District.
- Courter, I. et al. 2015. Evaluation of adult Pacific lamprey passage at lower Snake River dams, 2015. \$105,966 awarded from USACE Walla Walla District.
- Caudill, C.C. 2015. USACE-U. Idaho CESU Columbia River Fish Mitigation 2015 Steelhead closeout. \$33,601 awarded from USACE Portland District.
- Caudill, C.C. and C. Sharpe (ODFW). 2015. Monitoring upstream migration and potential causes of prespawn mortality in adult UWR Chinook, 2015. \$475,931 awarded from USACE Portland District.
- Caudill, C.C. 2015. Evaluation of upper Columbia River steelhead adult migration and overwintering behavior. \$144,884 awarded from Washington Division of Fish and Wildlife.

- Courter, I. et al. 2014. Evaluation of adult Pacific lamprey passage at lower Snake River dams, 2014. Walla Walla District USACE: \$56,576.
- Caudill, C.C (Lead PI), K. Frick (NOAA-Fisheries), B. Burke (NOAA-Fisheries), R. Budwig, D. Tonina, T. Friesen (ODFW), and C. Sharpe (ODFW). 2014. USACE-Univ. Idaho Cooperative Ecosystems Study Unit (CESU) Agreement: Columbia River Fish Mitigation, 2014. Multi-component research grant investigating fish migration passage and survival in the Columbia and Willamette rivers with seven major tasks currently awarded and one anticipated: Task 1: Evaluation of Adult Lamprey Passage Behavior in Relation to Lower Columbia River Dam Modifications – 2014; Task 2: Evaluation of adult Pacific lamprey behavior and fate in the lower Columbia River using acoustic telemetry, 2014; Task 3: Development of Adult Lamprey Passage Structures at Lower Columbia and Snake River Dams – 2014; Task 4: Evaluation of Adult Salmon and Steelhead Passage Behavior and Success in the lower Federal Columbia River Hydrosystem – 2014; Task 5: Migration and Passage Behavior of Overwintering Summer Steelhead in the Lower Columbia and Snake Rivers – 2014; Task 6: Evaluation of adult UWR winter steelhead and summer steelhead upstream migration, distribution, survival, and life history, 2014; Task 7: Characterization and return rates of different juvenile UWR Chinook life history types; Task 8: Monitoring upstream migration and potential causes of prespawn mortality in adult UWR Chinook, 2014 total: \$1,995,743.
- Caudill, C.C., M.L. Moser (NOAA-Fisheries), B. Burke (NOAA-Fisheries), R. Budwig, D. Tonina, C. Schreck (OSU), M. Kent (OSU), T. Friesen (ODFW), and C. Sharpe (ODFW). 2013. USACE-Univ. Idaho Cooperative Ecosystems Study Unit (CESU) Agreement: Columbia River Fish Mitigation, 2013. Multi-component research grant investigating fish migration passage and survival in the Columbia and Willamette rivers with six major tasks: Task 1: Improving Adult Pacific Lamprey Passage and Survival at Lower Columbia River Dams – 2013; Task 2: Evaluation of adult Pacific lamprey behavior and fate in Columbia River reservoirs using acoustic telemetry, 2013; Task 3: Synthetic evaluation of adult Pacific lamprey passage, 2013; Task 4: Design and Fabrication of a Lamprey Passage Structure Modifications at Bonneville Washington Shore and John Day North fishways; Task 5: Monitoring upstream migration and potential causes of prespawn mortality in adult UWR Chinook, Middle fork Basin of the Willamette River; Task 6: Monitoring upstream migration, distribution, and pre- and post-spawn survival of adult UWR winter steelhead and summer steelhead. 2013 Total: \$2,630,074
- Caudill, C.C. and R. Qualls. 2012-2016. Development of water quality and climate monitoring plan and protocols for the Mojave Desert Network. \$160,332 (2012) & \$120,522 (2013) awarded for continuing development of sample design, statistical analysis, and initial implementation of a long term monitoring plan for groundwater, spring, lake, and stream resources for seven national park units covering 3,292,732 hectares (8,136,518 acres) as part of the NPS Vital Signs program (<http://science.nature.nps.gov/im/units/mojn/>).
- Evans, A., C.C. Caudill, and M.L. Keefer. 2015. Summary of adult Steelhead passage and conversion in the Federal Columbia River Power System. \$69,886 awarded from the U.S. Army Corps of Engineers, Walla Walla District.
- Awarded 2010-2014:**
- Loge, F. and C.C. Caudill. 2014. Evaluation of Adult Fish Ladder Modifications to Improve Pacific Lamprey Passage at McNary and Ice Harbor Dams, 2014. \$200,606 awarded from the U.S. Army Corps of Engineers, Walla Walla District.

- Caudill, C.C., F. Loge, and M. Timko. 2013. Adult Steelhead and Chinook Salmon Passage, Survival, and Conversion through the Lower Snake River. \$395,670 awarded from the U.S. Army Corps of Engineers, Walla Walla District.
- Loge, F. and C.C. Caudill. 2013. Underwater video monitoring of adult fish ladder modifications to improve Pacific lamprey passage at McNary, Ice Harbor and Lower Monumental dams, 2013. \$194,869 awarded from the U.S. Army Corps of Engineers, Walla Walla District.
- Caudill, C.C., M.L. Moser (NOAA-Fisheries), R. Budwig, D. Tonina, C. Schreck (OSU), M. Kent (OSU), T. Friesen (ODFW), and C. Sharpe (ODFW). 2012. USACE-Univ. of Idaho Cooperative Ecosystems Study Unit (CESU) Agreement: Columbia River Fish Mitigation, 2012. Multi-component research grant investigating fish migration passage and survival in the Columbia and Willamette rivers with six major tasks: Task 1: Improving Adult Pacific Lamprey Passage and Survival at Lower Columbia River Dams – 2012; Task 2: Evaluation of adult Pacific lamprey behavior and fate in Columbia River reservoirs using acoustic telemetry, 2012; Task 3: Synthetic evaluation of adult Pacific lamprey passage, 2012; Task 4: Design and Fabrication of a Lamprey Passage Structure Modifications at Bonneville Washington Shore and John Day North fishways; Task 5: Monitoring upstream migration and potential causes of prespawn mortality in adult UWR Chinook, Middle fork Basin of the Willamette River; Task 6: Monitoring upstream migration, distribution, and pre- and post-spawn survival of adult UWR winter steelhead and summer steelhead. Total: \$1,568,570.
- Loge, F. and C.C. Caudill. 2012. Underwater video monitoring of adult fish ladder modifications to improve Pacific lamprey passage at McNary, Ice Harbor and Lower Monumental dams, 2012. \$300,325 awarded from the U.S. Army Corps of Engineers, Walla Walla District.
- Caudill, C.C. and M. L. Keefer. 2011. Review of Pacific Salmon and Steelhead Straying in the Columbia River Basin. \$52,883 awarded to UI. U.S. Army Corps of Engineers, Walla Walla District.
- Loge, F. and C. C. Caudill. 2011. Underwater video monitoring of adult fish ladder modifications to improve Pacific lamprey passage at McNary and Ice Harbor dams, 2011. \$304,941 awarded to UI. U.S. Army Corps of Engineers, Walla Walla District.
- Caudill, C.C. and M.L. Moser. 2011. Improving adult Pacific lamprey passage and survival at Lower Columbia River Dams , 2011. \$613,693.
- Caudill, C.C., C. Schreck, and M. Kent. 2011. Monitoring upstream migration and potential causes of prespawn mortality in adult UWR Chinook, Middle fork Basin of the Willamette River, 2011. \$355,0491. U.S. Army Corps of Engineers, Portland District.
- Fremier, A.F., B.P. Kennedy, and C.C. Caudill. 2011. Integrated data-driven spatial analysis to support life cycle modeling for effectiveness monitoring in the Columbia Basin 2011. \$499,808 awarded from Bureau of Reclamation to A. Fremier.
- Caudill, C.C. Development of a long-term water quality monitoring plan and protocol for the Mojave Network. National Park Service. \$380,414 (2007-2012). Development of sample design, statistical analysis, and initial implementation of a long term monitoring plan for groundwater, spring, lake, and stream resources for seven national park units covering 3,292,732 hectares (8,136,518 acres) as part of the NPS Vital Signs program (<http://science.nature.nps.gov/im/units/mojn/>).
- Caudill, C.C., B.P. Kennedy, and L. Borgerson. 2011. Comparing the Effectiveness of Head-of-Reservoir Collection and Transport with Direct Reservoir and Dam Passage: Estimating relative abundance and

production of Chinook salmon life history types in select Willamette River tributaries, 2011. \$150,015. U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Portland District.

Caudill, C.C., and B.J. Burke. 2010. Evaluation of adult salmon and steelhead delay and fallback at Snake and Columbia river dams, 2010. \$518,301 awarded to U.I. U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Portland District.

Caudill, C.C. and M.L. Moser. 2010. Evaluation of adult Pacific lamprey passage success at McNary and Ice Harbor dams, 2010. \$187,595 awarded to UI. U.S. Army Corps of Engineers Walla Walla District.

Caudill, C.C., C.B. Schreck, and M. Kent. 2010. Condition and spawning success of adult spring Chinook salmon in the Willamette River, 2010. \$119,748 awarded to UI. U.S. Army Corps of Engineers Portland District.

Caudill, C.C. and F. Loge. 2010. Video monitoring of adult fish ladder modifications to improve Pacific lamprey passage at the McNary Dam Oregon shore fishway, 2010. \$56,405 awarded to UI. U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Walla Walla District.

Caudill, C.C. 2010. Evaluation of adult Pacific lamprey behavior and fate in Columbia River reservoirs using acoustic telemetry, 2010. \$89,088 awarded to UI. U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Portland District.

Caudill, C.C., and M.L. Moser. 2010. Improving adult Pacific lamprey passage and survival at lower Columbia River dams, 2010. \$315,908 awarded to UI. U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Portland District.

2008 and earlier:

Comparative survival of reservoir reared and reservoir bypassed spring Chinook salmon in the Willamette River basin: Phase 1: Use of otolith and scale analyses to characterize life history variation in spring Chinook salmon in three Willamette Valley Project reservoirs and tributaries. 2009. Caudill, C.C. and B.P. Kennedy. \$146,680 awarded to UI. U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Portland District.

Migration of adult Chinook salmon and Steelhead in Hood River, Oregon, 2009. C.C. Caudill. \$41,631. Confederated Tribes of the Warm Springs Reservation of Oregon.

Juvenile fall Chinook telemetry monitoring (continuation of Telemetry evaluation of habitat use by juvenile Snake River Fall Chinook salmon in reservoirs). 2009. Caudill, C.C. \$177,530. U.S. Army Corps of Engineers, Walla Walla District.

Condition and spawning success of adult spring Chinook salmon in the Willamette River-2009. 2008. Caudill, C.C., C.B. Schreck, and M. Kent. \$156,501 awarded to U.I. U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Portland District.

Evaluation of adult salmon and steelhead delay and fallback at Snake and Columbia river dams, 2009. 2008. Caudill, C.C., and B.J. Burke; \$306,260 awarded to U.I. U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Portland District.

Improving adult Pacific lamprey passage and survival at lower Columbia River dams, 2009. 2008. Caudill, C.C., and M.L. Moser. \$314,943. U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Portland District.

- Evaluation of adult Pacific lamprey passage success at McNary and Ice Harbor dams, 2009. 2008. Caudill, C.C. and M.L. Moser. \$221,608. U.S. Army Corps of Engineers Anadromous Fish Evaluation Program, Walla Walla District.
- Telemetry evaluation of habitat use by juvenile Snake River Fall Chinook salmon in reservoirs as part of Aquatic Monitoring of Navigation Channel Maintenance Sites, Snake River, WA. (FY 2008-2009). Caudill, C.C. & D. Bennett. \$292,034. U.S. Army Corps of Engineers, Walla Walla District.
- Improvement in estimates of Columbia River fall Chinook salmon (*Oncorhynchus tshawytscha*) escapements. \$70,218 (FY2009-2010). Collaborative with Columbia River Inter-tribal Fisheries Commission (S.-Y. Hyun, lead CRITFC P.I.), funded by Pacific Salmon Commission.
- Development and implementation of water quality monitoring protocols for the National Park Service I&M program: Upper Columbia Basin Network (UCBN). Caudill, C.C., \$109,100 (FY 2005- 2007).
- Ecology and distribution of migratory fishes in the Mekong River. Hogan, Z, G.P. Naughton, C.A. Peery, and C.C. Caudill. 2005. \$70,000, IUCN World Conservation Union Mekong Wetlands Biodiversity Program.
- Habitat use and migration behavior of adult salmon in the Columbia River Estuary as a test of the National Marine and Estuary Classification. C. Peery, N. Wright, and C.C. Caudill. 2004-2006. \$196,000, NOAA Coastal Services Program.
- National Science Foundation Dissertation Improvement Grant. 1998-2000. \$9,000.
- Research and travel grants during Ph.D. training, 1996-2000. Fifteen awards totaling \$6,856. Sources: Sigma Xi Grants-in-Aid of Research (National and Cornell Chapters), North American Benthological Society Student Travel Award, Cornell University Rawlins Endowment, Cornell University Griswold Endowment, Cornell Graduate School, RMBL Lee R.G. Synder Fund.
- Research and travel grants during M.S. training, 1993-1995. Four awards totaling \$2,400. Sources: University of New Hampshire Center for Marine Biology and UNH Graduate School.

AWARDS

- 2013 American Fisheries Society Fisheries Engineering Committee Distinguished Project in Fisheries Engineering and Ecohydrology, Honorable Mention for *Lamprey passage at migration barriers on the Columbia River* (multiagency award shared with 32 other federal and tribal biologists and engineers including 2 graduate advisees, H. Zobbot and C. Symms).
- 2005 Zayed International Prize for the Environment, co-recipient as participant in the Millennium Ecosystem Assessment.

PROFESSIONAL SERVICE, DEVELOPMENT AND OUTREACH

University Service:

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| 2016-present | University of Idaho Common Read selection committee. |
| 2015 | Faculty search committee (Wildlife Ecology Management), Department of Fish and Wildlife Sciences. |
| 2015 | Search committee, CNR Director Graduate Studies |
| 2014 | Faculty search committee, Department of Fish and Wildlife Sciences. |
| 2014 | Faculty search committee, Department of Fish and Wildlife Sciences. |

- 2014 College of Natural Resources ad hoc committee reviewing service performance of CNR Fiscal Services.
- 2014 Promotion and Tenure review committee, Department of Forestry, Rangeland, and Fire Sciences.
- 2013-present University of Idaho Research Council, Faculty Representative for College of Natural Resources.
- 2013-2014 University-wide committee to review compensation time policy, Faculty Representative for College of Natural Resources.
- 2013 College of Natural Resources ad hoc committee faculty representative on CNR internal accounting policy

Scientific outreach:

- Caudill, C.C. 2015. Pink fish for blackfish: A short history of Pacific Northwest Salmon. American Society for Literature and the Environment Biennial Meeting, University of Idaho, Moscow, Idaho (Invited speaker and panel member).
- Organizer of screening of *Blackfish* at the Kenworthy Theater, Moscow, ID and host/moderator for panel discussions with three cast members of the movie. October 16-17 2014, Moscow, ID. Co-sponsored by UI Fish and Wildlife Sciences and the Moscow Food Co-op.
- Caudill, C.C. 2014. Snake River Steelhead: Trials and tribulations of migration in the modern world. Clearwater Flycasters, Moscow, ID.
- Caudill, C.C. 2014. Pink fish for blackfish: A short history of Pacific Northwest Salmon. Super Pod Three, The Whale Museum, Friday Harbor, WA (Invited).
- Caudill, C.C. and M.L. Keefer. 2014. Conversion of radio-tagged adult salmon and steelhead through the Federal Columbia River Power System. Bilateral Okanagan Technical Work Group, 27 March 2014.
- Conference Advisory Board Member (invited), National Conference on Engineering and Ecohydrology for Fish Passage, June 27-29, 2011, Amherst, MA.
- Participant, Lamprey Technical Work Group and Lamprey Passage Metrics Standards Subcommittee, both subcommittees of the Columbia Basin Fish and Wildlife Authority's Anadromous Fish Advisory Committee, 2009-2010.
- Co-organized and moderated "Overview of shad in the Columbia Basin: history and current status". 2008 American Fisheries Society Western Division Annual Meeting, Portland Oregon.
- Organized and moderated "Migration in a Changing World" Evening Session at 2005 Ecological Society Meetings, Montreal, Quebec.
- Manuscript reviewer for 2015: *River Research and Applications*; *Journal of Applied Ecology*; *Fisheries*; *Hydrobiologia*; *Springer (Edited Volume Book Proposal)*; *Book chapter for Jawless Fishes of the World*; *Ecological Engineering*; *Environmental Biology of Fishes*; 2014: *Freshwater Science (review recognized as Excellent by Editor)*; *Environmental Science and Policy*; *Ecological Engineering*; 2013: *PLOS One*, *Fisheries*, *River Research and Applications*, *Transactions of the American Fisheries Society (2)*, *Canadian Journal of Fisheries and Aquatic Sciences*; 2012: *Conservation Letters*, *North American Journal of Fisheries Management (2)*; 2011: *Animal Behaviour*, *Physiological and Biochemical Zoology*, *North American Journal of Fisheries Management*, *American Fisheries Society Books*. 2008-2010: *Ecology*, *Ecological Applications*, *Hydrobiologia*, *Journal of Animal Ecology*, *Journal of Applied*

Ecology, Journal of the North American Benthological Society, North American Journal of Fisheries Management, Oikos, Transactions of the American Fisheries Society, USFWS, and USGS.

Proposal reviews for the National Science Foundation, Canadian Natural Sciences and Engineering Research Council (NSERC), Great Lakes Fishery Commission.

Attended Leading and Sustaining Your Research Program, weeklong workshop on “business for scientists” jointly presented by University of Idaho Institute of Bioinformatics and Evolutionary Studies and the College of Business and Economics. June 2-6, 2014, Moscow Idaho.