

Brett Roper, PhD
 Forest Sciences Laboratory
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EDUCATION

- **Ph.D.**, Fisheries Management Fall 1995
University of Idaho, Moscow ID
 Dissertation Title: Ecology of anadromous salmonids within the Upper South Umpqua River Basin, Oregon.
- **M.S.**, Forest Resource Management Spring 1989
Utah State University, Logan UT
 Thesis Title: Career development of experienced wildlife/fisheries managers in the Forest Service.
- **B.S.**, Environmental Studies Winter 1986
Utah State University, Logan UT

PROFESSIONAL EXPRIENCE

National Aquatic Monitoring Program Leader (GS-0482-13) April 2001 to present
Forest Service, Washington Office – Detached to Logan, UT

- I oversee a \$1,500,000 large-scale aquatic monitoring program which evaluates the status and trend of stream habitat within the Interior Columbia River Basin and the Upper Missouri River Basin. The ultimate goal of this program is to determine the effectiveness of land management strategies in maintaining high quality fish habitat on public lands.
- I conduct large-scale analysis and publish articles on the results of local, regional, and national efforts evaluating the effects of land management on aquatic and riparian systems.
- I work with Forest Service leadership to provide national direction on the management of aquatic resources on 192 million acres of lands managed by the agency.
- I work with partners inside and outside the agency to evaluate the condition of watersheds managed by the Forest Service (Watershed Condition Framework <http://www.fs.fed.us/publications/watershed/>), write Forest Service planning directives, monitor Best Management Practices, and develop a national inventory, monitoring and analysis program.
- I supervise 7 year-around employees and up to 50 employees during the summer.

Adjunct Assistant Professor June 2004 to present
Utah State University, Logan, UT

- I teach Fisheries Management (since 2003) and Fisheries Analysis in R (since 2010) to undergraduate and graduate students at Utah State University.

- I taught an on-line version of Fisheries Management (2009-12) and Fisheries Analysis in R (2010-2012) for undergraduate and graduate students.
- I serve as a major professor and committee member to students within the Watershed Sciences Department at Utah State University (\approx 2-5 individuals at any given time).
- I have mentored students that evaluated the movement and survival of trout and whitefish, determined the regional effects of grazing on stream systems, evaluated regional stream temperature, and described the effects of anthropogenic fragmentation on the genetics of cutthroat trout.
- I fund studies through grant proposals inside and outside the Forest Service. I have worked with professors within the Watershed Sciences Department to acquire funding from the Forest Service for areas outside my expertise.

Newspaper columnist

September 2009 to present

Herald Journal, Logan UT (circulation 16,000)

- I write a twice monthly column describing hunting, fishing and conservation issues affecting the outdoor enthusiasts within Northern Utah and Southeast Idaho.

Forest Fisheries Biologist (GS-0482-12)

Feb 1997 - April 2001

Forest Service Idaho Panhandle National Forest, Coeur d'Alene ID

- I provided recommendations to the Forest leadership team on how to best manage forest resources in a manner that protected fish but provided for forest products.
- I was the primary contact for Endangered Species Act (ESA) consultation for large projects on the Forest. Consultation efforts not only addressed management impacts to listed fish but terrestrial species including grizzly bear, bald eagle, lynx, and caribou. Most of the analysis of the terrestrial species focused on evaluating fragmentation of habitat.
- I was a team member preparing Geographic Assessments (300,000 hectares scale) for the Forest that prioritized management and restoration activities across competing resource demands that include timber harvest, grazing, access, native species conservation, fire, and recreation.

District Fisheries Biologist (GS-0482-11)

Sept 1994-Jan 1997

Umpqua National Forest, Tiller OR

- I collected data on aquatic species distribution and abundance across the District using a variety of approaches.
- I prioritized and implemented a large scale watershed restoration program intended to benefit ESA listed aquatic species. Management activities I was involved with included road removal, improving fish passage through culverts, introduction of large wood into streams, and reintroduction of fire into the landscape.
- I helped devise the first matrix to evaluate the effects of management activities on aquatic ESA listed species (sea-run cutthroat trout) for consultation between the Forest Service and NOAA Fisheries. A modified form of this matrix is still utilized by these agencies in consultation efforts.

Research Assistant

Jan 1991-Aug 1994

University of Idaho, Moscow ID

- I designed, collected, and analyzed data from fish communities within an 115,000 hectare watershed. My research questions focused on the spatial distribution of fish communities and the movement of salmonids through the basin.
- I taught Applications of Statistics to Fisheries Problems (Spring 1994) and Advanced Fish Management (for Ted Bjornn; Spring 1994).

Research Assistant

Sept 1987-Dec 1989

Utah State University, UT

- I helped design, collect, and analyze data on the job satisfaction of experienced fish and wildlife biologist in the Forest Service. These professions were new to the Forest Service at the time. The intent of this work was to better understand how these individuals could be integrated into the agency.
- I was a teaching assistant for Natural Resource Analysis (Fall 1989), Principles of Forestry, (Winter 1988) and Forest Economics (Fall 1988).

PUBLICATIONS (PEER REVIEWED)

- Wurtsbaugh, W.A., N. A. Heredia, B.G. Laub, C.S. Meredith, H.E. Mohn, S.E. Null, D.A. Pluth, B.B. Roper, W.C. Saunders, D.K. Stevens, R.H. Walker, and K.Wheeler. 2015. Approaches for studying fish production: Do river and lake researchers have different perspectives? *Canadian Journal of Fisheries and Aquatic Sciences* 72: 149–160.
- Irvine, K.M., S.W. Miller, R.K. Al-Chokhachy, E.K. Archer, B.B. Roper, J.L. Kershner 2015. Empirical evaluation of the conceptual model underpinning a regional aquatic long-term monitoring program using causal modelling. *Ecological Indicators* 50:8-23.
- Bennett, S., R. Al-Chokhachy, B.B. Roper and P. Budy. 2014. Annual Variation of Spawning Cutthroat Trout in a Small Western USA Stream: A Case Study with Implications for the Conservation of Potamodromous Trout Life History Diversity, *North American Journal of Fisheries Management*, 34:1033-1046.
- Hough-Snee, N, B. B. Roper, J. M. Wheaton and R. L. Lokteff. 2014. Riparian vegetation communities of the American Pacific Northwest are tied to multi-scale environmental filters *River Research and Applications*. DOI: 10.1002/rra.2815
- Hough-Snee, N, A. Kasprak, B.B. Roper, C.S. Meredith. 2014. Direct and indirect drivers of instream wood in the interior Pacific Northwest, USA: decoupling climate, vegetation, disturbance, and geomorphic setting. *Riparian Ecology and Conservation*. Volume 2: 14-34.
- Meredith C. M., B. Roper and E. Archer. 2014. Reductions in instream wood in streams near roads in the interior Columbia River Basin. *North American Journal of Fisheries Management* 34: 493-506.
- Hough-Snee, N., B.B. Roper, J.M.Wheaton, P. Budy, and R.L. Lokteff. 2013. Riparian vegetation communities change rapidly following passive restoration at a northern Utah stream. *Ecological Engineering*, 58, 371–377.
- Lokteff, R. L., B.B. Roper, and J.M. Wheaton. 2013. Do Beaver Dams Impede the Movement of Trout? *Transactions of the American Fisheries Society*, 142:1114–1125.
- Laine, C.M., K.M. Kettenring, and B. B. Roper. 2013. An assessment of permanent and nonpermanent plots in riparian vegetation monitoring. *Western North American Naturalist* 73: 337-346.

- Al-Chokhachy, R., A.M. Ray, B.B. Roper and E. Archer. 2013. Exotic Plant Colonization and Occupancy Within Riparian Areas of the Interior Columbia River and Upper Missouri River Basins, USA. *Wetlands* 2013: 1-12.
- Budy, P., S. Wood, and B. Roper. 2012. A study of the spawning ecology and early life history survival of Bonneville cutthroat trout. *North American Journal of Fisheries Management*, 32:436-449.
- Al-Chokhachy, R., B.B. Roper, E.K. Archer, and S. Miller. 2011. Quantifying the extent of and factors associated with the temporal variability of physical stream habitat in headwater streams in the Interior Columbia River Basin. *Transactions of the American Fisheries Society*, 140:399-414.
- Al-Chokhachy, R. and B.B. Roper. 2010. Different approaches to habitat surveys can impact fisheries management and conservation decisions. *Fisheries* 35: 476-488
- Al-Chokhachy, R, B.B. Roper and E.K. Archer. 2010. Evaluating the status and trends of physical stream habitat in headwater streams within the Interior Columbia River and Upper Missouri River Basin using an index approach. *Transaction of the American Fisheries Society*, 139:1041–1059.
- Kershner, J.L. and B.B. Roper. 2010. An evaluation of management objectives used to assess stream habitat conditions on Federal Lands within the Interior Columbia Basin. *Fisheries*, 35:269-278.
- Roper, B.B. and 14 co-authors. 2010. A comparison of the performance and compatibility of protocols used by seven monitoring groups to measure stream habitat in the Pacific Northwest. *North American Journal of Fisheries Management*, 30:565-587.
- Al-Chokhachy, R, B.B. Roper, T. Bowerman, and P. Budy. 2010. A review of bull trout habitat associations and exploratory analyses of patterns across the Interior Columbia River Basin. *North American Journal of Fisheries Management*, 30:464–480.
- Hawkins, C.P., Y. Cao, B.B. Roper. 2010. Method of predicting reference condition biota affects the performance and interpretation of ecological indices. *Freshwater Biology*, 55:1066–1085.
- Buffington, J.M., B.B. Roper, E. Archer, C. Moyer, and M. Ward. 2009. Reply to discussion by David L. Rosgen - The Role of Observer Variation in Determining Rosgen stream types in Northeastern Oregon mountain streams. *Journal of the American Water Resources Association*, 45:1298-1312.
- Strobel, B., D.R. Shively, and B.B. Roper. 2009. Salmon carcass movements in forest streams. *North American Journal of Fisheries Management*, 29:702-714.
- Heitke, J.D., R.C. Henderson, B.B. Roper, and E.K. Archer. 2008. Evaluating livestock grazing use with streambank alteration protocols; challenges and solutions. *Rangeland Management and Ecology*, 61:647-655.
- Roper B.B., J.M., Buffington, E. Archer, C. Moyer, and M. Ward. 2008. The role of observer variation in determining Rosgen stream types in Northeastern Oregon mountain streams. *Journal of the American Water Resources Association*, 44:417-427.
- Roper, B.B., B. Jarvis, and J.L. Kershner. 2007. The role of natural vegetative disturbance in determining stream reach characteristics in central Idaho and western Montana. *Northwest Science*, 81:224-238.
- Whitacre, H.W., B.B. Roper, and J.L. Kershner. 2007. A comparison of protocols and observer precision for measuring stream attributes. *Journal of the American Water Resources Association*, 43:923-937.

- Olsen, D.S., B.B. Roper, J.L. Kershner, R. Henderson, E. Archer. 2005. Sources of variability in conducting pebble counts: their potential influence on the results of stream monitoring programs. *Journal of the American Water Resources Association*, 41:1225-1236.
- Kruzic, L.M., D.L. Scarnecchia, and B.B. Roper. 2005. Effects of electroshocking on macroinvertebrate drift in three cold water streams. *Hydrobiologica*, 539:57-67.
- Kershner, J.L., B.B. Roper, N. Bouwes, and R.C. Henderson, E. Archer. 2004. An analysis of stream habitat conditions in reference and managed watersheds on some federal lands within the Columbia River Basin. *North American Journal of Fisheries Management*, 24:1363-1375.
- Roper, B.B., J.L. Kershner, and R.C. Henderson. 2003. The value of using permanent sites when evaluating stream attributes at the reach scale. *Journal of Freshwater Ecology*, 18:585-592.
- Roper, B.B., J.L. Kershner, E Archer, R. Henderson, and N. Bouwes. 2002. An evaluation of physical stream habitat attributes used to monitor streams. *Journal of the American Water Resources Association*, 38:1637-1646.
- Roper, B.B. and D.L. Scarnecchia. 2001. Pattern of vertebrate diversity, density, and biomass among ten small streams in the South Umpqua River Basin, Oregon. *Northwest Science*, 168-175.
- Kruzic, L.M., D.L. Scarnecchia, and B.B. Roper. 2001. Comparison of midsummer survival and growth of age-0 hatchery coho salmon held in pools and riffles. *Transactions of the American Fisheries Society*, 130:147-154.
- Scarnecchia, D.L. and B.B. Roper. 2000. Large-scale, differential summer habitat use of threeanadromous salmonids in a large river basin in Oregon, USA. *Fisheries Management and Ecology*, 7:1-13.
- Roper, B.B., and D.L. Scarnecchia. 2000. Key strategies for estimating population sizes of emigrating salmon smolts with a single trap. *Rivers*, 7:77-88.
- Roper, B.B., and D.L. Scarnecchia. 1999. Emigration of age-0 chinook salmon (*Oncorhynchus tshawytscha*) smolts from the upper South Umpqua River basin OR. *Canadian Journal of Fisheries and Aquatic Sciences*, 56:939-946.
- Roper, B.B., D. Konhoff, D. Heller, and K. Wieman. 1998. Durability of Pacific Northwest structures following floods. *North American Journal of Fisheries Management*, 18:686-693.
- Ratner, S., R. Landee, and B.B. Roper. 1997. Population viability analysis of spring chinook salmon in the South Umpqua River, Oregon. *Conservation Biology*, 11:879-889.
- Roper, B.B., J.J. Dose, and J.E. Williams. 1997. Stream restoration: is fisheries biology enough? *Fisheries*, 22:6-11.
- Roper, B.B. and D.L. Scarnecchia. 1996. A comparison of trap efficiencies for wild and hatchery age-0 chinook salmon. *North American Journal of Fisheries Management*, 16:214-217.
- Roper, B.B. and D.L. Scarnecchia. 1995. Observer variability in classifying habitat types in stream surveys. *North American Journal of Fisheries Management*, 15:49-53.
- Dose, J.J and B.B. Roper. 1994. Long-term changes in low-flow channel widths within the South Umpqua Watershed, Oregon. *Water Resources Bulletin*, 30:993-1000.
- Roper, B.B., D.L. Scarnecchia, and T.J. La Marr. 1994. Summer Distribution of and habitat use by chinook salmon and steelhead within a major basin of the South Umpqua River, Oregon. *Transactions of the American Fisheries Society*, 123:298-308.

Kennedy, J.J. and B.B. Roper. 1990. The role of mentoring in early career development of Forest Service Fisheries Biologist, *Fisheries* 15(3): 9-13.

Additional agency publications available upon request.

PLANNED AND RECENT PRESENTATIONS

- Wenger, S., D. Isaak, J. Dunham, S. Hostetler, J. Kershner, D. Peterson, E. Peterson, C. Luce, B. Roper, J. Ver Hoef, D. Nagel, D. Hockman, D. Horan, G. Chandler, S. Parkes, and S. Wollrab. 2012. Using the NorWeST regional stream temperature model for high-resolution aquatic vulnerability assessments in the Northwest. U.S. American Geophysical Union. December 3-7, San Francisco, CA.
- Hough-Snee, N., A. Van Wagenen, B.B. Roper. 2012. Multi-scale drivers of riparian vegetation: a case from the upper Columbia and Missouri River Basins. Society of Wetland Scientist, Pacific Northwest Chapter. September 19-21, Boise ID.
- Roper, B. and D. Isaak. 2012. Climate change effects on streams, rivers and fish of the Rocky Mountains. Utah American Fisheries Society, March 26-29th, Bullfrog Marina UT.
- Roper, B.B. 2011. Trends in stream conditions on lands managed by the Forest Service and Bureau of Land Management within the Interior West. American Fisheries Society September 5-8, Seattle WA.
- Lokteff, R., J. Wheaton, B. Roper. 2011. Spatial distribution and species segregation of Bonneville cutthroat trout, brown trout, and brook trout. American Fisheries Society September 5-8, Seattle WA.

I give 5 to 10 presentations a year to a variety of audiences (classes, agency leadership, professionals). A more exhaustive list is available upon request.

GRANTS

- 2013 - \$50,000: Evaluated the use of NDVI in evaluating livestock disturbance in riparian area. (CO PI w/Fee Busby, Utah State University).
- 2012 – \$65,000: Evaluate metapopulation dynamics of cutthroat trout in the Logan River. Funding sources were the United States Geological Society, Cache Valley Anglers, Forest Service and Utah State University (Co PI w/ P. Budy at Utah State University/USGS).
- 2012 – \$116,000: Development of a regional stream temperature models for mapping thermal habitats and understanding effects of climate change in Pacific Northwest streams. Funding source was Great Northern Landscape Conservation Cooperative (Co PI w/ D. Isaak at US Forest Service and 7 other co-Primary Investigators).
- 2012 – \$88,000: Establishing aquatic monitoring programs for large-scale restoration projects: building understanding for watershed conservation. Funding source was Great Northern Landscape Conservation Cooperative (Co PI w/ A. Carlson at the Wilderness Society and 5 other co-Primary Investigators)
- 2011 – \$122,500: Development of a regional stream temperature model for mapping thermal habitats and understanding effects of climate change in Pacific Northwest streams.

- Funding source was Great Northern Landscape Conservation Cooperative (Co PI w/ D. Isaak at US Forest Service and 7 other co-Primary Investigators).
- 2010 – \$70,000: Grant to evaluate the effect of livestock grazing on streambanks within the Pacific Northwest. Funding sources were the Forest Service, Bureau of Land Management, NOAA Fisheries, and US Fish and Wildlife Service. (Co PI w/ C. Luecke Utah State University)
- 2009 – \$60,000: Grant to evaluate the effects of movement on the growth and survival of cutthroat trout. Funding sources were the Forest Service and Utah State University (Co PI w/ C. Luecke at Utah State University/USGS).
- 2007 – \$75,000: Evaluate the effects of irrigation diversions on whitefish populations within the Big Lost River, ID. Funding sources were Idaho Fish and Game, Bureau of Land Management, Forest Service, and Utah State University.
- 2007 – \$80,000: Survey spawning conditions of cutthroat trout within the Logan River Basin, UT. Funding sources were the United States Geological Society, Cache Valley Anglers, Forest Service and Utah State University (Co PI w/ P. Budy at Utah State University/USGS).
- 2006 – \$120,000: Develop a fish survey manual. Funding sources were the Forest Service and Utah State University.
- 2005 – \$350,000: Compare stream habitat protocols used to measure habitat within the Pacific Northwest. Funding sources were Environmental Protection Agency, Oregon Department of Environmental Quality, Oregon Department of Fish and Wildlife, Oregon State University, Washington Department of Environmental Quality, National Marine Fisheries Society, California Fish and Game, Bonneville Power Authority, Northwest Indian Fisheries Commission, Bureau of Land Management, and the Forest Service.
- 2003 – \$50,000; Study the spread of rainbow trout within Teton River Basin, Idaho. Funding sources were Idaho Fish and Game, Friends of the Teton River, Forest Service, and Utah State University (Co PI w/ J. Kershner at Utah State University).
- 2003 – \$70,000; Compare stream habitat protocols used to measure habitat within the Forest Service. Funding sources were US Forest Service, Bureau of Land Management, and Utah State University (Co PI w/ J. Kershner at Utah State University).

ADDITIONAL ACHIEVEMENTS

- I am currently the faculty sponsor of the student chapter of the American Fisheries Society at Utah State University.
- I review manuscripts for North American Journal of Fisheries Management, Transactions of the American Fisheries Society, and Journal of American Water Resources Association. Occasional reviewer of other journals.
- I am on the selection committee for the best paper of the year for the Transactions of the American Fisheries Society (2009 to present).
- I have taught short courses in R to fish biologist associated with Utah American Fisheries Society and Idaho Fish and Game.
- I was the associate Editor for the North American Journal of Fisheries Management 2006-2008.

- I served on the regional technical recovery team for ESA listed salmonid within the Interior Columbia River Basin and on the technical advisory team for bull trout within the Clark Fork Basin.
- I have been an expert witness in two court cases (related to water diversions and grazing).
- I was awarded the University of Idaho Mid-Career Alumni Achievement Award (2005).
- I was the Idaho American Fisheries Society President (2002).

REFERENCES

Mark Hudy (Past Supervisor)
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The names of additional references are available upon request.