

CPW Aquatic Research Publications, Reports and Presentations 2017-2018

Publications

- Borin, J. M., M. L. Moser, **A. G. Hansen**, C. Donoghue, D. A. Beauchamp, C. Pruitt, S. C. Corbett, J. L. Ruesink, and B. Dumbauld. 2017. Energetic requirements of the North American green sturgeon (*Acipenser medirostris*) feeding on burrowing shrimp (*Neotrypaea californiensis*) in estuaries: importance of temperature, reproductive investment, and residence time. *Environmental Biology of Fishes* 100:1561-1573.
- Fraser, G. S., D. L. Winkelman, K. R. Bestgen, and **K. G. Thompson**. 2017. Flannelmouth and Bluehead Sucker tributary use in the upper White River Drainage, Colorado. *Transactions of the American Fisheries Society* 146:858-870. doi:10.1080/00028487.2017.1312522
- Hodge, B., K. Battige, and **K. B. Rogers**. 2017. Seasonal and temperature-related movement of Colorado River cutthroat trout in a low-elevation, Rocky Mountain stream. *Ecology and Evolution* 7:2346–2356.
- Hodge, B. W., **E. R. Fetherman**, **K. B. Rogers**, and R. Henderson. 2017. Effectiveness of a fishway for restoring passage of Colorado River cutthroat trout. *North American Journal of Fisheries Management* 37(6):1332-1340.
- Hooley-Underwood, Z.E., S.B. Stevens, and **Thompson, K. G.** 2017. Short-term Passive Integrated Transponder tag retention in wild populations of Bluehead and Flannelmouth suckers. *North American Journal of Fisheries Management* 37:582-586. doi:10.1080/02755947.2017.1303008
- Gibson-Reinemer, D. K., F. J. Rahel, S. E. Albeke, and **R. M. Fitzpatrick**. 2017. Natural and anthropogenic barriers to climate tracking in river fishes along a mountain-plains transition zone. *Diversity and Distributions* 7:761-770.
- Johnson, B. M., W. M. Pate, and **A. G. Hansen**. 2017. Energy density and dry matter content in fish: new observations and an evaluation of some empirical models. *Transactions of the American Fisheries Society* 146:1262-1278.
- Kotalik, C. J., W. H. Clements, and **P. Cadmus**. 2017. Effects of magnesium chloride road deicer on montane stream benthic communities. *Hydrobiologia*. 799:193-202.
- Mandeville, E.G., T.L. Parchman, **K.G. Thompson**, R.I. Compton, K.R. Gelwicks, S.J. Song, and C.A. Buerkle. 2017. Inconsistent reproductive isolation revealed by interactions between *Catostomus* fish species. *Evolution Letters* 1:255–268. doi:10.1002/evl3.29.
- **Richer, E. E., E. R. Fetherman, M. C. Kondratieff**, and T. A. Barnes. 2017. Incorporating GPS and mobile radio frequency identification to detect PIT-tagged fish and evaluate habitat utilization in streams. *North American Journal of Fisheries Management* 37(6):1249-1264.

- Spanjer, A. R., P. W. Moran, K. A. Larsen, L. A. Wetzel, **A. G. Hansen**, and D. A. Beauchamp. 2018. Juvenile coho salmon growth and health in streams across an urbanization gradient. *Science of the Total Environment* 625:1003-1012.
- Walters, D.M., J.S. Wesner, R.E. Zuellig, **D.A. Kowalski**, **M.C. Kondratieff**. 2018. Holy flux: spatial and temporal variation in massive pulses of emerging insect biomass from western U.S. rivers. *Ecology* 99(1): 238-240.

Publications *In Press* or *In Review*

- Avila, B. W., D. L. Winkelman, and **E. R. Fetherman**. *In review*. Survival of whirling disease resistant rainbow trout fry: a comparison of two strains. Submitted to the *Journal of Aquatic Animal Health*.
- Budy, P., **K. B. Rogers**, Y. Kanno, B. Penaluna, N. P. Hitt, G. P. Thiede, J. Dunham, C. Mellison, W. L. Somer. *In press*. Distribution and status of trouts and chars in North America. Pages in J. L. Kershner, J. E. Williams, R. E. Gresswell, and J. Lobon-Cervia, editors. *Diversity and status of trouts and chars of the world*. American Fisheries Society, Bethesda, Maryland.
- **Cadmus, P.**, H. Guasch, A. T. Herdrich, B. Bonet, G. Urrea and W. H. Clements. *In Press*. Structural and functional responses of periphyton and macroinvertebrate communities to ferric Fe, Cu, and Zn in stream mesocosms. *Environmental Toxicology and Chemistry*. <https://doi.org/10.1002/etc.4070>.
- **Cadmus, P.**, S. F. Brinkman and M. K. May. *In Press*. Chronic Toxicity of Ferric Iron for North American Aquatic Organisms: Derivation of a Chronic Water Quality Criterion Using Single Species and Mesocosm Data. *Archives of Environmental Contamination and Toxicology*. <https://doi.org/10.1007/s00244-018-0505-2>
- **Hansen, A. G.**, J. A. Gardner, K. A. Connelly, M. Polacek, and D. A. Beauchamp. *In Revision*. Trophic compression of lake food webs under hydrologic disturbance. *Ecosphere*.
- Herrmann, S, D. Nimmo, J. Carsella, C. Kennedy, **K. B. Rogers**, J. Wood, L. H. Hoelsing, and B. V. Heuvel. *In press*. Mercury and selenium in tissues of cutthroat trout from pristine lakes in Colorado (USA): A comparison of sites, bioaccumulation factors, molar ratios, and benchmarks. *Archives of Environmental Contamination and Toxicology*.
- Litz, M. N. C., J. A. Miller, R. D. Brodeur, E. A. Daly, L. A. Weitkamp, and **A. G. Hansen**. *In Revision*. Energy dynamics of subyearling Chinook salmon reveal the importance of piscivory to short term growth during early marine residence. *Fisheries Oceanography*.
- **Rogers, K. B.**, K. R. Bestgen, S. M. Love Stowell, and A. P. Martin. *In press*. Cutthroat Trout diversity in the southern Rocky Mountains. *In* P. Trotter, P. Bisson, B. Roper, and L. Schultz, editors. *Evolutionary biology and taxonomy of Cutthroat Trout (Oncorhynchus clarkii)*, American Fisheries Society, Bethesda, Maryland.

- Zeigler, M. P., **K. B. Rogers**, J. J. Roberts, A. S. Todd, K. D. Fausch. *In review*. Predicting persistence of Rio Grande Cutthroat Trout populations in an uncertain future. North American Journal of Fisheries Management.

Special Reports and White Papers

- **Cadmus, P** and A. Jefferson. 2017. Water Pollution Studies. Federal Aid Project F243-R24. Job Progress Report. Colorado Parks and Wildlife, Aquatic Wildlife Research Section. Fort Collins, Colorado.
- **Fetherman, E. R.**, and **G. J. Schisler**. 2017. Sport Fish Research Studies. Federal Aid in Fish and Wildlife Restoration, Job Progress Report. Colorado Parks and Wildlife, Aquatic Wildlife Research Section. Fort Collins, Colorado.
- **Fetherman, E. R.** 2017. Hatchery Feed Experiment. Colorado Parks and Wildlife Fact Sheet. Fort Collins, Colorado.
- **Fetherman, E. R.** 2017. Hatchery Production Research. Colorado Parks and Wildlife Fact Sheet. Fort Collins, Colorado.
- **Hansen, A. G.** 2018. Coldwater lake and reservoir ecology. Colorado Parks and Wildlife, Lake and Reservoir Research Annual Report. Fort Collins, Colorado.
- **Hansen, A.G.** 2017. Fish Bioenergetics Research. Colorado Parks and Wildlife Fact Sheet. Fort Collins, Colorado.
- **Hansen, A.G.** Tiger Trout Research. Colorado Parks and Wildlife Fact Sheet. Fort Collins, Colorado.
- **Kondratieff, M. C.** and **E. E. Richer**. 2017. Stream Habitat Investigations and Assistance. Federal Aid Project F-161-R23. Colorado Parks and Wildlife, Aquatic Research Section. Fort Collins, Colorado.
- **Kowalski, D. A.** 2017. Colorado River Aquatic Resource Investigations. Federal Aid Project F-237-R24. Colorado Parks and Wildlife, Aquatic Wildlife Research Section. Fort Collins, Colorado.
- **Kowalski, D. A.** 2017. Electric Fish Barrier Research. Colorado Parks and Wildlife Fact Sheet. Denver, Colorado.
- **Richer, E. E.** and **M. Kondratieff**. 2018. Whitewater Park Studies. Colorado Parks and Wildlife Fact Sheet. Denver, Colorado.
- **Richer, E. E.**, E. Krone, F. B. Wright III, **M. Kondratieff**, and **A. Treble**. 2018. Evaluation of a rock ramp fishway at the Fossil Creek Reservoir Inlet Diversion (FCRID) on the Cache la Poudre River. Colorado Parks and Wildlife, Fort Collins, Colorado.

- **Rogers, K. B.**, J. White, and M. Japhet. 2018. Rediscovery of a lost Cutthroat Trout lineage in the San Juan Mountains of southwest Colorado. Colorado Parks and Wildlife report, Steamboat Springs.
- **Thompson, K. G.** 2017. Western Slope Native Fish. Colorado Parks and Wildlife Fact Sheet. Denver, Colorado.
- **Treble, A. J.** 2017. Statewide Fisheries Assessments and Surveys. Federal Aid Project F-86-R-22. Colorado Parks and Wildlife, Aquatic Wildlife Research Section. Fort Collins, Colorado.
- **Treble, A. J.** 2017. Aquatic Data Analysis. Federal Aid Project F-239-R-24. Colorado Parks and Wildlife, Aquatic Wildlife Research Section. Fort Collins, Colorado.

Internal Presentations

- Atkinson, B., **E. R. Fetherman**, and **M. C. Kondratieff**. 2018. Comparative survival of whirling disease resistant catchable and fingerling rainbow trout stocked in restored versus impaired reaches of the Yampa River. Colorado Parks and Wildlife 2018 Aquatic Biologist Meeting. Gunnison, Colorado. January 16, 2018.
- **Cadmus, P.**, A. L. Jefferson, M. K. May and S. F. Brinkman. 2018. CPW's Unconventional Heavy Metal Toxicology Research: creating tools and pushing for policy that is protective of fish. Colorado Parks and Wildlife 2018 Aquatic Biologist Meeting. Gunnison, Colorado. January 17, 2018.
- **Fetherman, E. R.**, and J. Ewert. 2018. Fry stocking in the upper Colorado River. Colorado Parks and Wildlife 2018 Aquatic Biologist Meeting. Gunnison, Colorado. January 17, 2018.
- **Fetherman, E. R.**, **B. Neuschwanger**, **C. Praamsma**, and **T. Davis**. 2017. Comparison of basic trout feeds for rainbow trout. Colorado Parks and Wildlife Hatchery Managers Meeting. Frisco, Colorado. May 9, 2017.
- **Hansen, A. G.**, and E. I. Gardunio. Biological effectiveness of incentive-based harvest tournament for smallmouth bass in Ridgway Reservoir, Colorado. Aquatic Biologist Meeting, Gunnison, Colorado. January 17, 2018.
- **Kowalski, D. A.** 2018. Surveying Colorado's Sport Fisheries for *R. salmoninarum*, the Causative Agent of Bacterial Kidney Disease. Colorado Parks and Wildlife Aquatic Biologist Meeting, Gunnison, Colorado, January 17, 2018.
- **Kondratieff, M.**, J. McCarthy, and **E. Richer**. 2018. Colorado Stream Quantification Tool: biology overview. CPW Aquatic Biologist Meeting, Gunnison, Colorado. January 17, 2018.

- **Richer, E. E.** 2017. Fish passage discussion for Area 4. CPW Area 4 Meeting, Johnstown, Colorado. April 6, 2017.
- **Rogers, K. B.** 2017. A history of the Flat Tops Wilderness and its native trout. DWM pack training. Bellaire, Colorado, August 10, 2017.
- **Rogers, K. B.** J. White, and M. Japhet. 2018. Not dead yet! Rediscovery of the San Juan lineage cutthroat trout. Statewide Biologists meeting, Gunnison, Colorado Gunnison, Colorado, January 17, 2018.
- **Thompson, K. G.** 2018. Roubideau Creek: A tale of a native fish spawning tributary. Area 9 meeting, Hot Sulphur Spring, Colorado. January 3, 2018.
- **Thompson, K. G.** 2018. Roubideau Creek: A tale of a native fish spawning tributary. Area 18 meeting, Montrose, Colorado. January 11, 2018.
- **Thompson, K. G.** 2018. Roubideau Creek: A tale of a native fish spawning tributary. Area 16 meeting, Gunnison, Colorado. January 29, 2018.
- **Treble, A. J.** 2018. Data Management Update and Training Session. Annual CPW Biologist's Meeting, Gunnison, Colorado. January 17, 2018.
- **Treble, A. J.** 2017. Proposal to develop a decision tool and data sharing web application. September Aquatic Senior Biologist Meeting, Gunnison, Colorado. September 11-12, 2017.

External Presentations

- Avila, B. W., D. L. Winkelman, and **E. R. Fetherman**. 2018. Manipulating rearing density as a strategy for increasing survival of rainbow trout fry pre- and post-stocking. Colorado Cooperative Fish and Wildlife Research Unit Coordinating Committee Meeting, Fort Collins, Colorado. February 22, 2018.
- Avila, B. W., D. L. Winkelman, and **E. R. Fetherman**. 2018. Factors affecting survival of hatchery-reared Rainbow Trout fry in the wild. 2018 Annual Meeting of the CO/WY Chapter of the American Fisheries Society. Laramie, Wyoming. March 1, 2018.
- Brauch, D. and **A. G. Hansen**. 2018. Riding a salmon "high": factors contributing to a rebound of Colorado's premier kokanee salmon fishery. Colorado-Wyoming Chapter of the America Fisheries Society Annual Meeting, Laramie, Wyoming. February 28, 2018.
- Duggan, S. B., W. H. Clements, P. Schaffer and **P. Cadmus**. 2017. An ecotoxicology approach to researching petroleum spills through mesocosms, field observations and bioassays. Society of Environmental Toxicology and Chemistry. North America 38th Annual Meeting. Minneapolis, Minnesota. November 14, 2017.

- Duggan, S. B., W. H. Clements, P. Schaffer and **P. Cadmus**. 2018. An ecotoxicology approach to researching petroleum spills through mesocosms, field observations and bioassays. Rocky Mountain Chapter of the Society of Environmental Toxicology and Chemistry 30th Annual Meeting. Golden, Colorado. April 14, 2018.
- **Fetherman, E. R.** 2017. Salmonid disease research in Colorado. Guest lecture, Introduction to Fisheries. Front Range Community College. Fort Collins, Colorado. March 22, 2017.
- **Fetherman, E. R.** 2018. Salmonid disease research in Colorado. Guest lecture, Introduction to Fisheries. Front Range Community College. Fort Collins, Colorado. March 21, 2018.
- **Fetherman, E. R.** 2017. Colorado Parks and Wildlife sport fish research studies. Guest lecture, FW260 – Principles of Wildlife Management. Department of Fish, Wildlife, and Conservation Biology. Colorado State University. November 9, 2017.
- **Fetherman, E. R., B. Neuschwanger, T. Davis, D. Karr, and C. Praamsma.** 2018. Comparison of basic trout feeds for rainbow trout. 2018 Annual Meeting of the Colorado Aquaculture Association. Mt. Princeton Hot Springs Resort, Nathrop, Colorado. February 2, 2018.
- **Fitzpatrick, R. M.** 2018. Plains fish ecology and conservation. Guest lecture, Introduction to Fisheries. Front Range Community College. Fort Collins, Colorado. March 30, 2018.
- Gibson-Reinemer, D. K., F. Rahel, A. Casper, J. Chick, **R. M. Fitzpatrick**, and K. Bouska. 2018. Response to climate change varies by river morphology and fish zonation. Colorado/Wyoming Chapter of the American Fisheries Society annual meeting, Laramie, Wyoming. March 1, 2018.
- **Hansen, A. G.,** E. I. Gardunio, and T. Eyre. 2018. Biological effectiveness of incentive-based harvest tournaments for controlling nonnative piscivores in fluctuating coldwater reservoirs. Upper Colorado River Basin Endangered Fish Recovery Program Annual Researchers Meeting, Vernal, Utah. January 24, 2018.
- **Hansen, A. G.** 2017. How will altered or more demanding water use regimes affect reservoir food webs and fisheries? North American Lake Management Society Conference, Westminster, Colorado. November 7, 2017.
- **Hansen, A. G.** 2017. CPW sponsored harvest tournaments: collaborating with anglers to reconcile native fish conservation and warm water sport fishing in western Colorado. Invited speaker for Colorado State University student subunit of the American Fisheries Society, Fort Collins, Colorado. October 19, 2017.
- **Hansen, A. G.,** J. G. Gardner, K. A. Connelly, M. Polacek, and D. A. Beauchamp. 2017. A bioenergetic-based food web evaluation of factors affecting bull trout and kokanee production in Kachess and Keechelus Reservoirs. Yakima Basin Science and Management Conference, Ellensburg, Washington. June 14, 2017.

- Hardee, T.L., P.A. Nelson, **M. C. Kondratieff**, and B.P. Bledsoe. 2017. Evaluation of Fish Passage at Whitewater Parks Using 2D and 3D Hydraulic Modeling. Rocky Mountain Stream Restoration Conference, Breckenridge, Colorado, June 28, 2017.
- Hodge, B. W., and **K. B. Rogers**. 2017. Preliminary findings of a PIT tag study at Trappers Lake. Colorado River Cutthroat Trout Annual Conservation Team meeting, Grand Junction, Colorado. December 6, 2017.
- **Kondratieff, M. C.** 2017. What makes a healthy trout stream? Guest lecturer for Dr. Kristoph Kinzli's CEEN 381-Hydrologic and Water Resource Engineering. Colorado School of Mines, Golden, Colorado, April 13, 2017.
- **Kondratieff, M. C.** 2017. Post-flood reconstruction activities on Colorado Front Range streams: Implications for fish and fisheries. Guest lecturer for Jennifer Lee's Aquatic Fisheries course, Front Range Community College, Fort Collins, Colorado. April 17, 2017.
- **Kondratieff, M. C.** 2017. Guest speaker on fish passage and assisted with fish passage field tour for Dr. Chris Myrick's FW 204 Introduction to Fisheries Biology. Colorado State University, Fort Collins, Colorado. August 31, 2017.
- **Kondratieff, M. C.** 2018. Restoring Colorado Rivers and Introduction to Fisheries Science and Management. Wildlife Management Short Course 2018, Colorado State University, Colorado State University, Fort Collins, Colorado. March 27, 2018.
- **Kondratieff, M., E. Fetherman**, B. Fox, N. Kolden, and K. Kinzli. 2017. Whitewater parks: Implications for fish habitat and fish passage. 2017 Annual Meeting of the Western Division of the American Fisheries Society. Missoula, Montana. May 23, 2017.
- Kotalik, C. J., W. H. Clements and **P. Cadmus**. 2017. Stream community responses to direct and indirect metals stressors using stream mesocosms. Rocky Mountain Chapter of the Society of Environmental Toxicology and Chemistry 30th Annual Meeting. Golden, Colorado. April 14, 2017.
- Kotalik, C. J., W. H. Clements and **P. Cadmus**. 2017. Community responses to direct and indirect effects of metals stressors using stream mesocosms. Society of Freshwater Science. Raleigh, North Carolina. June 5, 2017.
- Litz, M. N. C., J. A. Miller, R. D. Brodeur, E. A. Daly, L. A. Weitkamp, and **A. G. Hansen**. 2017. Energy dynamics and growth of juvenile Chinook salmon reveal the importance of piscivory during early marine residence. 3rd PICES/ICES Early Career Scientist Conference, Busan, Korea. May 31, 2017.
- Miller, M., E. Cristan, K. Paik, A. Smith, J. Wyer, K. Hall, C.A. Myrick, and **A. G. Hansen**. 2018. What is limiting the growth of northern pike *Esox lucius* in College Lake? A bioenergetics approach. **Poster submission** for Colorado-Wyoming Chapter of the American Fisheries Society Annual Meeting, Laramie, Wyoming. February 28, 2018.

- **Richer, E. E.** 2017. Death by a thousand cuts: the impact of habitat fragmentation on Colorado fisheries and approaches to restoration. Rocky Mountain Stream Restoration Conference. June 28, 2017.
- **Richer, E. E.** and E. A. Gates. 2017. Using long-term monitoring to inform adaptive management for the Upper Arkansas River habitat restoration project. Sustaining Colorado Watersheds Conference. October 11, 2017.
- **Richer, E. E.** 2017. Using long-term monitoring to inform adaptive management for the Upper Arkansas River habitat restoration project. Restoration Webinar Series, National Conservation Training Center, US Fish and Wildlife Service. December 7, 2017.
- Roberts, J. J., K. D. Fausch, **K. B. Rogers**, M. B. Hooten, D. P. Peterson, T. S. Schmidt, A. S. Todd, D. M. Walters, M. P. Zeigler. 2017. Climate change and Cutthroat Trout conservation in the southern Rocky Mountains: the paradox of connectivity. Society for Freshwater Science, Raleigh, North Carolina. June 6, 2017.
- Roberts, J., **K. B. Rogers**, M. Zeigler, K. Fausch. 2018. The influence of nonnative species, connectivity, and a changing climate on Cutthroat Trout in the Southern Rocky Mountains: Implications for conservation. Colorado/Wyoming Chapter of the American Fisheries Society annual meeting, Laramie, Wyoming. March 1, 2018.
- **Rogers, K. B.** 2017. South Hayden Creek and the east slope greens. Greenback Recovery Team meeting, Lakewood, Colorado, May 11, 2017.
- **Rogers, K. B.** 2017. Cutthroat Trout conservation in Colorado: current and future projects. Colorado State University AFS Student Subunit, Fort Collins, Colorado. November 16, 2017.
- **Rogers, K. B.** and **A. Treble.** 2017. Pinging after the fall: Colorado's "not sonar" program. Hydroacoustic Mobile Survey workshop, Dutch John, Utah, June 28, 2017.
- **Rogers, K. B.** 2017. Hydroacoustic Kit (HAcK): Colorado's data processing software. Hydroacoustic Mobile Survey workshop, Dutch John, Utah, June 29, 2017.
- **Rogers, K. B.** 2017. Cutthroat Trout conservation in Colorado: current and future projects. Trout Unlimited board of directors meeting. Estes Park, Colorado, October 21, 2017.
- Rosgen, D. and **M.C. Kondratieff.** 2017. Linking Ecological Functions and Physical Habitat with River Restoration. Rocky Mountain Stream Restoration Conference, Breckenridge, Colorado, June 27, 2017.
- **Schisler, G. J.** 2017. Colorado Parks and Wildlife Aquatic Research Section: Scientific Solutions for Fisheries Management. Glacier View Meadows Ecological Committee. September 12, 2017.

- **Schisler, G. J.**, and D. Isaak. 2017. Fisheries management in Colorado: Implications of climate change. South Platte Forum. Loveland, Colorado, October 26, 2017.
- **Schisler, G. J.**, and D. Isaak. 2018. Fisheries management in Colorado: Implications of climate change. Colorado Natural History Partners Meeting. Fort Collins, Colorado, March 9, 2018.
- **Thompson, K. G.** 2017. Roubideau Creek: A tale of a native fish spawning tributary. CSU Student Chapter of AFS, Colorado State University, Fort Collins, Colorado. November 30, 2017.
- Townsend, A., W. H. Clements, C. Myrick and **P. Cadmus**. 2018. The effect of maternally transferred selenium on the survival, hatch success and performance of Brown Trout fry. Colorado/Wyoming Chapter of the American Fisheries Society annual meeting, Laramie, Wyoming. March 1, 2018.
- **Thompson, K. G.**, P. Jones, and L. Bailey. 2017. Estimating boreal toad occurrence via stream sampling. CSU Student Chapter of AFS, Colorado State University, Fort Collins, Colorado. November 30, 2017.
- **Thompson, K. G.**, Z. E. Hooley-Underwood, **K. B. Rogers**, and S. B. Stevens 2018. The cost of spawning: Weight loss in Bluehead and Flannelmouth suckers. Colorado-Wyoming chapter of American Fisheries Society, Laramie, WY. March 1, 2018.
- **Treble, A. J.** 2018. Introduction to the new CPW Boreal Toad Monitoring Database. Annual Meeting of the Boreal Toad Recovery Team. Colorado Springs, Colorado. March 5-6, 2018.
- Vigil, E., D. Winkelman, C. Myrick, and **G. Schisler**. 2018. Influence of habitat type on gill lice infection rates between two trout species. Colorado-Wyoming chapter of American Fisheries Society, Laramie, WY. March 1, 2018.
- Zeigler, M. P., **K. B. Rogers**, J. J. Roberts, A. S. Todd, K. D. Fausch. 2018. Predicting persistence of Rio Grande Cutthroat Trout populations in an uncertain future. Arizona/New Mexico Chapter of the American Fisheries Society annual meeting, Flagstaff, Arizona. February 2, 2018.