

Casey A. Pennock

Curriculum Vitae (February 2023)

Mailing Address:

Department of Watershed Sciences
Utah State University
5210 Old Main Hill-NR210
Logan, UT 84322

E-Mail: casey.pennock@usu.edu

Research Interests:

Conservation of fishes
Community and population dynamics of aquatic organisms
Fish effects on ecosystems
Movement of freshwater fishes

Education:

Kansas State University – December 2019

Ph.D. (Biology), Major Advisor: Dr. Keith B. Gido

Dissertation Title: *Movement, Habitat Use, and Early Life History of Fishes in Novel River-Reservoir Complexes*

Kansas State University – December 2016

M.S. (Biology), Major Advisor: Dr. Keith B. Gido

Thesis Title: *Fragmentation and Fish Passage: Can Fishways Mitigate Discontinuities in Great Plains Fish Communities?*

Kansas State University – December 2014

B.S. (Wildlife, Fisheries, and Conservation Biology)

Hutchinson Community College – May 2010

A.S. (Natural Resource Management)

Appointments:

July 2022-present: Research Assistant Professor, Utah State University

May 2021-March 2022: Research Scientist, Utah State University

April 2020-April 2021: Postdoctoral Research Fellow, Utah State University

Nov 2019-March 2020: Postdoctoral Research Fellow, Kansas State University

Aug 2019-Oct 2019: Graduate Teaching Assistant, Kansas State University

Aug 2018-July 2019: Graduate Research Assistant, Kansas State University

Aug 2017-July 2018: Graduate Teaching Assistant, Kansas State University

Jan 2017-Aug 2017: Research Assistant, Kansas State University

Jan 2015- Dec 2016: Graduate Research Assistant, Kansas State University

Aug 2014- Jan 2015: Undergraduate Research Technician, Kansas State University

2012-2014: Undergraduate Research Technician, Kansas Cooperative Fish and Wildlife Research Unit

2010-2013: Stream Ecologist Technician, Kansas Department of Wildlife, Parks and Tourism

Military Service:

2008-2017: Kansas Army National Guard, Highest Rank Earned: Staff Sergeant.

Professional Memberships:

American Fisheries Society (AFS)
Society for Freshwater Science

Teaching Experience:

Instructor:

Graduate Fish Ecology (WATS 6230/7230), Utah State University (Spring 2021)
Fish Ecology, Wichita State University, Field Ecology Class (Summer 2015-2018)
Stream Ecology, Kansas Department of Wildlife, Parks and Tourism Aquatic
Education (2010, 2012, 2013)

Graduate teaching assistant:

Principles of Biology (BIOL 198), Kansas State University (Fall 2017, 2018)
Fish Ecology (BIOL 682), Kansas State University (Spring 2016)
Ichthyology (BIOL 542), Kansas State University (Fall 2015, Fall 2019)
Ecology Lab (BIOL 632), Kansas State University (Spring 2015)

Undergraduate & Graduate Mentoring:

Chloe Lyles (MS student, **Major Advisor, 2023-present**): Utah State University
Project: River metabolism and basal trophic resources across a gradient of river
alteration

Benjamin Miller (MS student, **Major Advisor, 2021-present**): Utah State
University
Project: Using non-native woody structure to enhance in-stream habitat for native
fishes

Barrett Friesen (MS student, **Co-Advisor, 2022-present**): Utah State University
Project: Characterizing nonnative fish entrainment risk through Glen Canyon Dam

Martinique Chaves (MS student, **Mentor, 2020-present**): Utah State University
Project: Movement dynamics of endangered Rio Grande Silvery Minnow in a
fragmented riverscape

Emily Adler (NSF REU, **Research Advisor, 2021-2022**): Utah State University
Project: Effects of thermokarst failure on zooplankton and benthic
macroinvertebrate densities in arctic lakes.

Hunter Pehrson (undergraduate, **Research Advisor, 2021**): Utah State University
Project: Effects of thermokarst on feeding ecology and diet composition of arctic
grayling and lake trout. (*employed by Anabranch Solutions*)

Daison Weedop (undergraduate, **Research Advisor, 2020-2021**): Utah State
University
Project: Arctic grayling movement dynamics and use of Alaskan lakes. (*MS student
at University of Maine*)

Tansy Remiszewski (MS student, **Mentor, 2020-2022**): Utah State University
Project: Native fish use of desert tributary habitats.

Zach Ahrens (MS student, **Mentor, 2017-2022**): Utah State University
Project: Effects of a pseudo-natural barrier on fish assemblages in the San Juan River. (*employed by Utah Division of Wildlife Resources*)

Matt Bogaard (MS student, **Mentor, 2019-2022**): Kansas State University
Project: Translocation success of Razorback Sucker in a fragmented desert river system. (*employed by Washington Department of Fish and Wildlife*)

Crosby Hedden (MS Student, **Mentor, 2018-2021**): Kansas State University
Project: Predicting success of repatriation efforts for native fish conservation in the Gila River basin. (*employed by Arizona Game and Fish Department*)

Awards & Honors:

2019 Kansas State University College of Arts and Sciences Travel Award \$800
2019 Kansas State University Graduate School Travel Award \$400
2019 Western Division of AFS, Student Travel Scholarship \$500
2018 Robert J. Robel Graduate Student Award in Wildlife Biology and Ecology \$1000
2018 Introduced Fish Section, AFS, Student Travel Scholarship \$500
2018 Kansas State University College of Arts and Sciences Travel Award \$800
2018 Kansas State University Graduate School Travel Award \$400
2018 John E. Skinner Memorial Travel Grant Honorable Mention, AFS \$250
2018 Desert Fishes Council Student Travel Scholarship \$200
2017 Best Student Paper Award, KS AFS (co-authors: David Bender, Jordan Hofmeier, Jessica Mounts, Ryan Waters, Vaughn Weaver and Keith Gido)
2016 John E. Skinner Memorial Travel Grant Honorable Mention, AFS \$180
2016 Otto Tiemeier-Frank Cross Graduate Student Scholarship, KS AFS \$300
2015 Best Student Paper Award, KS AFS (co-author: Keith Gido)
2014 President's Honor Roll (Spring, KSU)
2013 Klaassen Award, KSAFS \$300.00
2013 Undergraduate Student Travel Grant, Education Section, AFS \$500.00
2013 Enloe Undergraduate Scholarship in Wildlife Conservation, KSU \$1500.00
2012 Duffy Student Travel Grant, KS AFS \$450.00

Grants Received or Pending:

Funded

2022-2023. Literature review and data synthesis to inform nonnative fish management in the San Juan River (Phase 1). (USFWS San Juan River Basin Recovery Implementation Program and US Bureau of Reclamation, **\$126,034, PI**).

2022-2023. Lower White River Conservation, Restoration, and Monitoring (Utah's Watershed Restoration Initiative, **\$273,716, Co-PI**)

2021-2023. Using non-native vegetation to enhance in-stream habitat for native fishes. (USFWS San Juan River Basin Recovery Implementation Program and US Bureau of Reclamation, **\$250,000, PI**).

- 2021-2023. Dispersal, behavior and habitat use of stocked age-1 and established age-2 and age-3 Colorado pikeminnow in the San Juan River.(USFWS San Juan River Basin Recovery Implementation Program and US Bureau of Reclamation, **\$260,000, Co-PI**).
- 2021-2023. Characterizing the fish assemblage of the Lake Powell forebay: identifying the potential for non-native fish escapement and entrainment into Glen Canyon Dam and potential for establishment in Glen, Marble, and Grand Canyon. (US Bureau of Reclamation, **\$250,000, Co-PI**).
- 2021-2023. Estimating ecosystem production across gradients of river alteration in the Colorado River basin; could contemporary productivity be a limiting factor for native fishes? (Utah Agricultural Experiment Station SEED; USGS Grand Canyon Research and Monitoring Center, **\$153,000, PI**).
- 2021-2022. Science panel for assessment of stocking Razorback Sucker in Grand Canyon. (US Bureau of Reclamation, **\$55,000, Co-PI**).
- 2020-2022. Arctic Long-Term Ecological Research, Collaborative Grant, An exploration of the direct and indirect effects of climatic warming on arctic lake ecosystems. (National Science Foundation, **\$29,212, Research Faculty**).
- 2019-2022. Facilitated fish passage for enhancing populations of endangered fishes in the San Juan River. (USFWS San Juan River Basin Recovery Implementation Program and US Bureau of Reclamation, **\$625,558, Co-PI**).

Submitted

- Seasonal movement patterns of Roundtail Chub in the upper San Juan River watershed. (Jicarilla Apache Nation, **\$44,250, PI**).
- White River conservation and restoration: Beaver mimicry and associated native fish habitat use. (National Fish and Wildlife Foundation, **\$276,920, PI**).

Professional Service:

- 2022-2021 Best Paper Committee, North American Journal of Fisheries Management
- 2022-Professional and student presentation judge, Utah Chapter of the American Fisheries Society
- 2020-2021 Fish Pass Advisory Group, Percheron Power, LLC
- 2017-2018 Seminar Committee, Biology Graduate Student Association, KSU
- 2015-2016 Vice President, Biology Graduate Student Association, KSU
- 2015-2016 Graduate Student Recruitment Committee, Division of Biology, KSU
- 2013-2014 President, Kansas State Student Subunit of the AFS
- 2012-2015 Student Representative, Fundraising Committee, Kansas Chapter AFS

Proposal reviews: Silvery Minnow Fish Passage at Angostura Isleta, and San Acacia Diversion Dam 2017, US Bureau of Reclamation

Journal referee: *Journal of Animal Ecology*, *Behavioral Ecology*, *Limnology and Oceanography Letters*, *Freshwater Biology*, *Hydrobiologia*, *Ecological Engineering*, *Royal Society Open Science*, *PLOS ONE*, *Frontiers in Environmental Science*, *Urban Ecosystems*, *Canadian Journal of Fisheries and Aquatic Sciences*, *Transactions of the American*

Fisheries Society, Ecology of Freshwater Fish, North American Journal of Fisheries Management, Journal of Fish Biology, Environmental Biology of Fishes, Neotropical Ichthyology, American Midland Naturalist, Journal of Applied Ichthyology, Journal of Limnology, Aquaculture Research, Transactions of the Kansas Academy of Science, Journal of the Arkansas Academy of Science, The Prairie Naturalist

Peer-Reviewed Publications (* indicates mentored undergraduate or graduate student):

32. Gido, K. B., S. C. Hedden, L. A. Bruckerhoff, **C. A. Pennock**, C. K. Hedden*, G. W. Hopper, E. A. Renner, E. R. Johnson, and B. Postlethwait. *In press*. Removing a perched culvert facilitates dispersal of fishes in an intermittent prairie stream. *Freshwater Science*.
31. **Pennock, C. A.**, L. A. Bruckerhoff, K. B. Gido, A. L. Barkalow, M. J. Breen, P. Budy, W. W. Macfarlane, and D. L. Propst. 2022. Failure to achieve recommended environmental flows coincides with declining fish populations: long-term trends in a regulated and unregulated river. *Freshwater Biology* 67:1631-1643.
30. **Pennock, C. A.**, P. Budy, and W. W. Macfarlane. 2022. Effective conservation of desert riverscapes requires protection and rehabilitation of in-stream flows with rehabilitation approaches tailored to water availability. *Frontiers in Environmental Science* (invited) 10:870488.
29. Dean, E*. M., A. R. Cooper, L. Wang, W. M. Daniel, S. David, C. Erzen, K. B. Gido, E. Hale, T. J. Haxton, W. Kelso, N. Leonard, C. Lido, J. Margraf, M. Porter, **C. Pennock**, D. Propst, J. Ross, M. D. Staudinger, G. Whelan, and D. M. Infante. 2022. The North American freshwater migratory fish database (NAFMFD): Characterizing the migratory life histories of freshwater fishes of Canada, the United States and Mexico. *Journal of Biogeography* 49:1193-1203.
28. Hedden, S. C., K. B. Gido, C. K. Hedden*, **C. A. Pennock**, B. R. Duran, B. A. Hines, E. I. Gilbert, M. C. McKinstry, S. L. Durst, and N. R. Franssen. 2022. Determining resource intake of a nonnative fish highlights potential predatory and competitive interactions. *Biological Invasions* 24:2351-2364.
27. **Pennock, C. A.**, W. C. Saunders, and P. Budy. 2022. High densities of conspecifics buffer native fish from negative interactions with an ecologically similar invasive. *Biological Invasions* 24:1283-1297.
26. **Pennock, C. A.**, P. Budy, W. W. Macfarlane, M. J. Breen, J. Jimenez, and J. C. Schmidt. 2022. Native fish need a natural flow regime. *Fisheries* 47:118-123.
25. Budy, P., **C. A. Pennock**, A. E. Giblin, D. White, C. Luecke, and G. W. Kling. 2022. Understanding the indirect effects of climate change via disturbance on pristine arctic lakes; delayed, multi-trophic level response and recovery to a ten-year, low-level fertilization experiment. *Limnology and Oceanography* 67:S224-S241.
24. Zhang, Q., J. Jin, P. Budy, S. E. Null, X. Wang, and **C. A. Pennock**. 2021. Predicting thermal responses of an arctic lake to whole-lake warming manipulation. *Geophysical Research Letters* 48:e2021GL092680.
23. Bruckerhoff, L. A., **C. A. Pennock**, and K. B. Gido. 2021. Scaling of predator-prey interactions: does prey aggregation and movement mediate scale-dependent predator consumption rates? *Journal of Animal Ecology* 90:2391-2403.
22. Hedden, S. C., K. B. Gido, C. K. Hedden*, **C. A. Pennock**, E. I. Gilbert, M. K. McKinstry, S. L. Durst, and N. R. Franssen. 2021. Quantifying consumption of native fishes by nonnative Channel Catfish in a desert river. *North American Journal of Fisheries Management* 41:S82-S94.

21. **Pennock, C. A.**, Z. Ahrens*, M. C. McKinstry, P. Budy, and K. B. Gido. 2021. Trophic niches of native and nonnative fishes along a river-reservoir continuum. *Scientific Reports* 11:12140.
20. **Pennock, C. A.** and K. B. Gido. 2021. Spatial and temporal dynamics of fish assemblages in a desert reservoir over 38 years. *Hydrobiologia*.
19. **Pennock, C. A.**, P. Budy, C. Atkinson, and N. Barrett. 2021. Effects of increased temperature on arctic slimy sculpin *Cottus cognatus* is mediated by food availability: Implications for climate change. *Freshwater Biology*.
18. **Pennock, C. A.**, B. A. Hines, D. S. Elverud, T. A. Francis, M. C. McKinstry, B. J. Schleicher, and K. B. Gido. 2021. Reservoir fish assemblage structure across an aquatic ecotone: Can river-reservoir interfaces provide conservation and management opportunities? *Fisheries Management and Ecology* 28:1-13.
17. **Pennock, C. A.**, M. C. McKinstry, and K. B. Gido. 2020. Razorback Sucker exhibit multiple movement strategies across a river-reservoir habitat complex. *Transactions of the American Fisheries Society* 149:620-634.
16. **Pennock, C. A.**, M. C. McKinstry, C. N. Cathcart, K. B. Gido, T. A. Francis, B. A. Hines, P. D. MacKinnon, S. C. Hedden, E. I. Gilbert, C. A. Cheek, D. W. Speas, K. Creighton, D. S. Elverud, and B. J. Schleicher. 2020. Movement ecology of imperiled fish in a novel ecosystem: river-reservoir movements by razorback sucker and translocations to aid conservation. *Aquatic Conservation: Marine and Freshwater Ecosystems* 30:1540-1551.
15. **Pennock, C. A.**, and L. A. Bruckerhoff. 2020. Qualitative observations of successful spawning by two species of small-bodied minnows following PIT tagging. *Western North American Naturalist* 80:253-256.
14. Hopper, G. W., K. B. Gido, **C. A. Pennock**, S. C. Hedden, B. D. Frenette, N. Barts, C. K. Hedden*, and L. A. Bruckerhoff. 2020. Nowhere to swim: interspecific responses of prairie stream fishes in isolated pools during severe drought. *Aquatic Sciences* 82:42(2020) DOI: 10.1007/s00027-020-0716-2.
13. Hopper, G. W., K. B. Gido, **C. A. Pennock**, S. C. Hedden, J. P. Guinnip, M. A. Fisher, C. M. Tobler, C. K. Hedden*, and L. A. Bruckerhoff. 2020. Biomass loss and change in species dominance shift stream community excretion stoichiometry during severe drought. *Freshwater Biology* 65:403-416 DOI: 10.1111/fwb.13433.
12. Perkin, J. S., T. A. Starks, **C. A. Pennock**, K. B. Gido, G. W. Hopper, and S. C. Hedden. 2019. Extreme drought causes recruitment failure in a fragmented Great Plains riverscape. *Ecohydrology* 12: e2120 DOI: 10.1002/eco.2120.
11. **Pennock, C. A.**, M. A. Farrington, and K. B. Gido. 2019. Feeding ecology of early life stage Razorback Sucker relative to other sucker species in the San Juan River, Utah. *Transactions of the American Fisheries Society* 148:938-951 DOI: 10.1002/taf.10188.
10. Dodds, W. K., L. Bruckerhoff, D. Batzer, A. Schechner, **C. Pennock**, E. Renner, F. Tromboni, K. Bigham, and S. Grieger. 2019. The freshwater biome gradient framework: predicting macroscale properties based on climate. *Ecosphere* 10:e02786 DOI: 10.1002/ecs2.2786.
9. Cathcart, C. N., **C. A. Pennock**, C. A. Cheek, M. C. McKinstry, P. D. MacKinnon, M. M. Conner, and K. B. Gido. 2018. Waterfall formation at a dynamic desert river delta isolates endangered fishes. *River Research and Applications* 34:948-956 DOI: 10.1002/rra.3341.
8. **Pennock, C. A.**, S. L. Durst, B. R. Duran, B. A. Hines, C. N. Cathcart, J. E. Davis, B. J. Schleicher, and N. R. Franssen. 2018. Predicted and observed responses of a nonnative Channel Catfish *Ictalurus punctatus* population following managed

- removal to aid the recovery of endangered fishes. *North American Journal of Fisheries Management* 38:565-578 DOI: 10.1002/nafm.10056.
7. **Pennock, C. A.**, C. N. Cathcart, S. C. Hedden, R. E. Weber*, and K. B. Gido. 2018. Fine-scale movement and habitat use of a prairie stream fish assemblage. *Oecologia* 186:831-842 DOI: 10.1007/s00442-018-4073-y.
 6. **Pennock, C. A.**, D. Bender, J. Hofmeier, J. A. Mounts, R. Waters, V. D. Weaver, and K. B. Gido. 2018. Can fishways mitigate fragmentation effects on Great Plains fish communities? *Canadian Journal of Fisheries and Aquatic Sciences* 75:121-130 DOI: 10.1139/cjfas-2016-0466.
 5. **Pennock, C. A.**, K. B. Gido, J. S. Perkin, V. D. Weaver, S. R. Davenport, and J. M. Caldwell. 2017. Collapsing range of an endemic Great Plains minnow, Peppered Chub *Macrhybopsis tetranema*. *American Midland Naturalist* 177:57-68 DOI: 10.1674/0003-0031-177.1.57
 4. **Pennock, C. A.** 2017. Beautification of Great Plains rivers: a perspective on the use and appreciation of aquatic resources. *Fisheries* 42:83-87 DOI: 10.1080/03632415.2017.1280284
 3. **Pennock, C. A.** and K. B. Gido. 2017. Density-dependence of herbivorous Central Stoneroller *Campostoma anomalum* in stream mesocosms. *Ecology of Freshwater Fish* 26:313-321 DOI: 10.1111/eff12277
 2. **Pennock, C. A.** 2017. Effects of PIT tags on Red Shiner *Cyprinella lutrensis* and Sand Shiner *Notropis stramineus*. *Transactions of the Kansas Academy of Science* 120:87-93.
 1. **Pennock, C. A.**, B. D. Frenette, M. J. Waters*, and K. B. Gido. 2016. Survival of and tag retention in Southern Redbelly Dace *Chrosomus erythrogaster* injected with two sizes of PIT tags. *North American Journal of Fisheries Management* 36:1386-1394 DOI: 10.1080/02755947.2016.1227403

Manuscripts in review or preparation (* indicates mentored undergraduate or graduate student):

- C. A. Pennock**, G. P. Thiede, and P. Budy. *In revision*. Population dynamics and feeding ecology of native sculpin in a nearly pristine mountain riverscape. To be submitted to *Ecology of Freshwater Fish*
- Bogaard, M. R.*, K. B. Gido, M. C. McKinstry, and **C. A. Pennock**. *In revision*. Water temperature predicts Razorback Sucker *Xyrauchen texanus* spawning migrations. To be submitted to *Environmental Biology of Fishes*.
- Pennock, C. A.**, B. Albrecht, R. Rogers, J. Stolberg, and M. C. McKinstry. *In review*. Can spatial and temporal differences in fish assemblage structure inform conservation of an endangered species in a large western reservoir?
- Kelley, K.*, E. I. Gilbert, S. L. Durst, M. C. McKinstry, **C. A. Pennock**, P. D. MacKinnon, and N. R. Franssen. *In review*. If you build it, will they pass? Fish passage efficiency of a desert fish assemblage. To be submitted to *Canadian Journal of Fisheries and Aquatic Sciences*
- Budy, P., **C. A. Pennock**, S. Messenger, H. Pehrson*, E. Adler*, and G. P. Thiede. *In prep*. Rapid recovery of an arctic lake ecosystem from a pulse disturbance caused by thermokarst failure. To be submitted to *Oecologia*
- Cathcart, C. N.*, K. B. Gido, M. C. McKinstry, P. D. MacKinnon, and **C. A. Pennock**. *In prep*. Fish responses to environmental contrasts at a desert stream confluence.
- Gido, K. B., **C. A. Pennock**, M. Trentman, and W. K. Dodds. *In prep*. Scaling ecosystem rates in stream mesocosms along a gradient of consumer densities.

Technical Publications:

2. **Pennock, C. A.**, P. Budy, S. A. Bonar, T. E. Dowling, K. B. Gido, E. I. Gilbert, B. R. Kesner, C. P. Paukert, M. C. Quist, J. Stahli, T. F. Turner, and D. L. Ward. 2022. Assessment of potential augmentation and management strategies for Razorback Sucker *Xyrauchen texanus* in Lake Mead and Grand Canyon: A Science Panel Summary. *UTCFWRU* 2022(3):1-31.
1. **Pennock, C. A.**, W. W. Macfarlane, P. Budy, J. Jimenez, and J. Goodell. 2022. Conservation, restoration, and monitoring plan for the lower White River, Utah. *UTCFWRU* 2022(1):1-78.

Teaching Publications:

Carson, C. C. and **C. A. Pennock**. 2018. Unsustainable use of the High Plains Aquifer: Farming and fish communities left high and dry. *National Center for Case Study Teaching in Science*.

Popular Articles (* indicates mentored undergraduate):

- C. A. Pennock**. 2017. Fishways, fragmentation, and imperiled Great Plains fishes. *The Canadian Science Publishing Blog*.
- Fanshier, T.*, **C. A. Pennock**, and J. Mounts. 2016. Finding a way for fish, people, and rivers. *Kansas Department of Wildlife, Parks and Tourism Magazine*.

Presentations (1st author or mentored student only; *indicates mentored undergraduate or graduate student):

- Pennock, C. A.** 2023. Imbalances between human water use and maintenance of riverscape processes. The Ohio State University, Columbus, OH (Invited seminar).
- Pennock, C. A.**, L. A. Bruckerhoff, K. B. Gido, A. L. Barkalow, M. J. Breen, P. Budy, W. W. Macfarlane, and D. L. Propst. 2022. Failure to achieve recommended environmental flows coincides with declining fish populations: long-term trends in a regulated and unregulated river. Joint Aquatic Sciences Meeting, Grand Rapids, MI (International).
- Pennock, C. A.** 2022. Can water use and fish conservation be balanced? Introduction to Watershed Sciences (~30 students), Utah State University, Logan (Guest lecture).
- Pennock, C. A.** 2022. Can water use and fish conservation be balanced? Pittsburg State University, Pittsburg, KS (Invited seminar).
- Adler, E.*, **C. A. Pennock**, G. P. Thiede, and P. Budy. 2022. Will fish prey densities be affected by thermokarst failures in arctic lakes? Arctic LTER Annual Meeting, Virtual (National).
- Miller, B. J.*, **C. A. Pennock**, and P. Budy. 2022. Testing the efficacy of non-native wood addition to enhance in-stream habitat for native desert fishes. Utah Chapter of the American Fisheries Society, Ogden, Utah (Regional).
- Pennock, C. A.**, W. Macfarlane, P. Budy, J. Jimenez, and J. Goodell. 2022. Effective conservation and restoration of desert riverscapes must include conservation of in-stream flows: What can we learn from the White River? Riversedge West's 20th Annual Conference, Virtual (Regional).

- Pennock, C. A.,** W. Macfarlane, P. Budy, J. Jimenez, and J. Goodell. 2022. Effective conservation and restoration of desert riverscapes must include conservation of in-stream flows: What can we learn from the White River? Annual Upper Colorado River Basin Researcher's Meeting, Virtual (Regional).
- Pennock, C. A.** 2021. The importance of natural flows for conservation and restoration of riverscapes. Invited Seminar, Utah Division of Wildlife Resources & Utah State University Brown Bag Seminar, Salt Lake City, Utah (Regional).
- Pehrson, H.*, **C. A. Pennock,** G. P. Thiede, and P. Budy. 2021. Effects of thermokarst failure on fish feeding ecology and diet composition in a pair of arctic lakes. Western Division of the American Fisheries Society, Virtual Conference (Regional).
- Pennock, C. A.** 2020. Fish conservation in novel ecosystems: Mitigating multiple stressors on fish communities. Invited Seminar, Department of Biological Sciences, University of Alabama.
- Pennock, C. A.,** P. MacKinnon, G. P. Thiede, and P. Budy. 2020. Quantifying effects of climate change on lake ecosystems in arctic Alaska: a whole lake experiment. Arctic LTER Annual Meeting, Woods Hole, MA (Regional, poster).
- Pennock, C. A.,** K. B. Gido, and M. C. McKinstry. 2020. Seasonal movements of Razorback Sucker in the San Juan River-Lake Powell inflow. Annual Researchers Meeting of the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program, Durango, CO (Regional).
- Pennock, C. A.,** M. C. McKinstry, C. N. Cathcart, K. B. Gido, T. A. Francis, B. A. Hines, P. D. MacKinnon, S. C. Hedden, E. I. Gilbert, C. A. Cheek, D. W. Speas, K. Creighton, D. S. Elverud, and B. J. Schleicher. 2020. Razorback Sucker movements in novel ecosystems: River-reservoir exchanges and experimental translocations. Colorado River Aquatic Biologists (CRAB) meeting, Laughlin, NV (Regional).
- Pennock, C. A.** 2019. Movement, habitat use, and early life history of fishes in novel river-reservoir complexes. Invited lecture, Ichthyology, Kansas State University.
- Pennock, C. A.,** M. C. McKinstry, C. N. Cathcart, K. B. Gido, T. A. Francis, B. A. Hines, P. D. MacKinnon, S. C. Hedden, E. I. Gilbert, C. A. Cheek, D. W. Speas, K. Creighton, D. S. Elverud, and B. J. Schleicher. 2019. Razorback Sucker movements in novel ecosystems: River-reservoir exchanges and experimental translocations. Joint Meeting of The Wildlife Society and American Fisheries Society, Reno, NV (International).
- Pennock, C. A.,** M. C. McKinstry, C. N. Cathcart, K. B. Gido, T. A. Francis, B. A. Hines, P. D. MacKinnon, S. C. Hedden, E. I. Gilbert, C. A. Cheek, D. W. Speas, K. Creighton, D. S. Elverud, and B. J. Schleicher. 2019. Razorback Sucker movements in novel ecosystems: River-reservoir exchanges and experimental translocations. Annual Meeting of the Society for Freshwater Science, Salt Lake City, UT (International).
- Pennock, C. A.** 2019. River-reservoir inflows and fish conservation. Invited lecture, Freshwater Ecology, Kansas State University.

- Pennock, C. A.**, M. A. Farrington, and K. B. Gido. 2018. Feeding ecology of co-occurring early life stage suckers in a regulated river. 50th Annual Meeting of the Desert Fishes Council, Death Valley, CA (International).
- Pennock, C. A.**, S. L. Durst, B. R. Duran, B. A. Hines, C. N. Cathcart, J. E. Davis, B. J. Schleicher, and N. R. Franssen. 2018. Predicted and observed responses of a nonnative Channel Catfish *Ictalurus punctatus* population following managed removal to aid the recovery of endangered fishes. 148th Annual Meeting of the American Fisheries Society, Atlantic City, NJ (International).
- Pennock, C. A.**, M. C. McKinstry, and K. B. Gido. 2018. A barrier to recovery? Razorback sucker in the San Juan River-Lake Powell inflow. Upper Colorado River Researchers Meeting (Regional).
- Pennock, C. A.**, D. Bender, J. Hofmeier, J. A. Mounts, R. Waters, V. D. Weaver, and K. B. Gido. 2017. Can fishways mitigate fragmentation effects on Great Plains fish communities? Kansas Natural Resources Conference, Wichita (Local)
- *Fanshier, T., **C. A. Pennock**, and K. B. Gido 2017. Fish passage on the Arkansas River: assessing fish use of and movement through the Lincoln Street Fishway in Wichita, KS. Kansas Natural Resources Conference, Wichita (Local, Poster)
- Pennock, C. A.**, R. Waters, J. Mounts, J. Hofmeier, D. Bender, and K. B. Gido. 2016. Effects of a new fishway on discontinuity of the Arkansas River fish community. Annual Meeting of the American Fisheries Society, Kansas City, MO. (International)
- Pennock, C. A.**, K. B. Gido, J. S. Perkin, and V. D. Weaver. 2016. Range-wide collapse of an endemic Great Plains minnow: the loss of a relict population of Peppered Chub. KS-NE Joint AFS Meeting, Manhattan, Kansas (Regional)
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