

Zachary B. Klein
Department of Fish, Wildlife, and Conservation Ecology
New Mexico State University

Academic Background

University of Idaho, Ph.D. Natural Resources, May 2019

Dissertation title: *Management of kokanee in Idaho lakes: kokanee population dynamics, Mysis-kokanee interactions, and sampling techniques*

University of Idaho, M.S. Natural Resources, May 2015

Thesis title: *Population ecology and the suppression of Burbot in the Green River, Wyoming*

Eckerd College, B.S. Biology, May 2008

Employment

2020–present	Assistant Professor of Fish Ecology, Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University
2019–2020	Endowed Assistant Professor of Aquatic Sciences, Department of Biology, Emporia State University
2015–2019	Graduate Research Assistant (Ph.D.), Idaho Cooperative Fish and Wildlife Research Unit, Department of Fish and Wildlife Sciences, University of Idaho
2013–2015	Graduate Research Assistant (M.S.), Idaho Cooperative Fish and Wildlife Research Unit, Department of Fish and Wildlife Sciences, University of Idaho
2009–2011	Fisheries Technician, Idaho Department of Fish and Game

Teaching Experience

2020-present	Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University. Ichthyology, Fisheries Management, Management of Aquatic and Terrestrial Ecosystems, and various graduate courses
2019-2020	Department of Biological Sciences, Emporia State University. Biology of Animals, Ichthyology, Fish Ecology, Population Biology, and Fisheries Management
2019	Department of Fish and Wildlife Sciences, University of Idaho. Age and Growth of Fishes, Guest Lecturer, Ichthyology
2019	Department of Fish and Wildlife Sciences, University of Idaho. Population Dynamics and Age-Structured Models, Guest Lecturer, Wildlife Ecology
2018	Department of Fish and Wildlife Sciences, University of Idaho. Age and Growth of Fishes, Guest Lecturer, Ichthyology
2017	Department of Fish and Wildlife Sciences, University of Idaho. Leslie-Matrix Models, Guest Lecturer, Wildlife Ecology
2017	Department of Fish and Wildlife Sciences, University of Idaho. Age and Growth of Fishes, Guest Lecturer, Ichthyology
2016	Department of Fish and Wildlife Sciences, University of Idaho. Leslie-Matrix Models, Guest Lecturer, Wildlife Ecology
2016	Department of Fish and Wildlife Sciences, University of Idaho. Age and Growth of Fishes, Guest Lecturer, Ichthyology
2015	Department of Fish and Wildlife Sciences, University of Idaho. Teaching assistant for Fisheries Management

2014

Department of Fish and Wildlife Sciences, University of Idaho. Leslie-Matrix Models, Guest Lecturer, Wildlife Ecology

Graduate Research Mentoring

Current

Breanna Graves. Thesis title: In-stream reproductive success of YY Brook Trout. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University. Expected graduation: 2025

William Bass. Thesis title: Influence of hybrid Striped Bass on the fish assemblage of Caballo Reservoir, New Mexico. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University. Expected graduation: 2025

Maret Smith-Miller. Thesis title: High-mountain lakes as refugial habitat for Rio Grande Cutthroat Trout. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University. Expected graduation: 2024

Giulio Del Piccolo. Thesis title: Habitat use, movement dynamics, and population viability of Chihuahua Chub in the Mimbres River, New Mexico. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University. Expected graduation: 2023

Michael Miller. Thesis title: Suppression of non-native Brook Trout using Trojan super males. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University. Expected graduation: 2023

Completed

John Smith. Thesis title: Population dynamics, habitat use, and long-term monitoring of crayfish in Kansas. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University. M.S. awarded: 2023

Jim Miazga. Thesis title: Population dynamics and harvest regulation of crappies in Kansas. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University. M.S. awarded: 2022.

Katie Schrag. Non-thesis. Project title: Influence of landscape scale factors on the population structure of Bluegill in the Midwest. Department of Biological Sciences, Emporia State University. M.S. awarded: 2021.

Undergraduate Research Mentoring

Terra Martinez. 2021–2023. Research project title: Comparison of non-lethal ageing structures for Chihuahua Chub and Rio Grande Suckers. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University. Expected graduation December 2023

John Smith. 2019–2020. Research project title: Sampling design and gear configurations for the accurate assessment of density and species assemblage of Crayfish in Kansas. Department of Biological Sciences, Emporia State University. Graduated May 2020

Katie McBaine. 2014–2015. The influence of sampling technique on the diet of Burbot *Lota lota*. Department of Fish and Wildlife Sciences, University of Idaho. Graduated December 2015

Jeffrey Johnson. 2013–2014. Diet preference of juvenile Burbot *Lota lota* in experimental rearing ponds.
Department of Fish and Wildlife Sciences, University of Idaho. Graduated December 2014

Professional Affiliations

2008–present American Fisheries Society (AFS)
Florida Chapter (2008–2009)
Idaho Chapter (2013–2019)
Palouse Unit (2013–2019)
Kansas Chapter (2019–2020)
Arizona-New Mexico Chapter (2020–present)

Professional Service

Professional Society Service:

2023–2025 Secretary-Treasurer, Arizona-New Mexico Chapter of AFS
2020–2021 Vice-President, Kansas Chapter of AFS
2017–2018 Nominations Chair, Idaho Chapter of AFS
2016–2017 Student Representative, Western Division of AFS
2015–2018 Co-Chair Native Fish Committee, Idaho Chapter of AFS
2014–2015 Vice-President, Palouse Unit of AFS
2013–2014 Treasurer, Palouse Unit of AFS

Academic Service:

2021–present Academic Advisor, New Mexico Student Subunit of the American Fisheries Society
2021–present Academic Advisor, Graduate Student Organization, Department of FWCE
2022 Academic search committee member, Fish, Wildlife, and Conservation Ecology
Department, New Mexico State University
2018 Academic search committee member, College of Natural Resources, University of
Idaho
2016–2017 Graduate Student Representative, College of Natural Resources, University of Idaho

Natural Resource and Agency Service:

2020 “Gill Nets and Gill Net Size Selectivity” workshop, Idaho Chapter of the American
Fisheries Society, Coeur d’Alene, Idaho
2018 “Age and Growth” workshop, U.S. Fish and Wildlife Service, Biologist Training,
Lodi, California
2017 “Age and Growth” workshop, Utah Division of Wildlife, Biologist Training, Salt
Lake City, Utah
2016 “Fish Population Dynamics” workshop, Idaho Department of Fish and Game,
Biologist Training, Boise, Idaho

Graduate Committee Service:

- 2021–2023 Kelsie Field. Project title: Habitat suitability for the endangered Gila Chub *Gila intermedia* in the San Francisco River, New Mexico. Funding agency: U.S. Fish and Wildlife Service.
- 2020–2021 Benjamin Armstrong. Project title: Use of Myy Brook Trout as a conservation tool for restoring Native Rio Grande Cutthroat Trout in New Mexico. Funding agency: New Mexico Department of Game and Fish.

Other Professional Service:

Reviewer for: *American Midland Naturalist; Hydrobiologia; North American Journal of Fisheries Management; Fisheries; Prairie Naturalist; Lakes and Reservoir Management; Transactions of the American Fisheries Society; Age and Growth of Fishes: Principles and Techniques (book chapter); Transaction of the Kansas Academy of Science; Fisheries Research; Analysis and Interpretation of Freshwater Fisheries Data, 2nd edition (book chapter)*

Awards and Recognition

- 2023 Best Student Poster Award, ACES Open House Poster Competition, New Mexico State University, Las Cruces, New Mexico (co-author with undergraduate student, T. Martinez)
- 2023 Best Student Paper Award, Annual Meeting of the Arizona-New Mexico Chapter of the American Fisheries Society, Farmington, New Mexico (co-author with graduate student, M. Miller)
- 2023 Best Student Poster Award, Annual Meeting of the Arizona-New Mexico Chapter of the American Fisheries Society, Farmington, New Mexico (co-author with undergraduate student, T. Martinez)
- 2022 Best Student Paper Award, Kansas Natural Resources Conference, Manhattan, Kansas (co-author with graduate student, J. Smith)
- 2021 Best Student Paper Award, Annual Meeting of the Arizona-New Mexico Chapter of the American Fisheries Society, Virtual Meeting (co-author with graduate student, J. Miazga)
- 2019 Outstanding Graduate Student, Fisheries Resources, College of Natural Resources, University of Idaho, Moscow, Idaho
- 2018 Distinguished Service Award, Idaho Chapter of the American Fisheries Society, Annual Meeting of the Idaho Chapter of the American Fisheries Society, Twin Falls, Idaho
- 2018 Finalist, Best Student Paper Symposium, 148th Annual Meeting of the American Fisheries Society, Atlantic City, New Jersey
- 2017 John E. Skinner Memorial Award, 147th Annual Meeting of the American Fisheries Society, Tampa, Florida
- 2017 GPSA Outstanding Graduate Student Award, University of Idaho, Moscow, Idaho
- 2017 Graduate Student Scholarship, Annual Meeting of the Idaho Chapter of the American Fisheries Society, Boise, Idaho
- 2016 David Lamb Memorial Scholarship, Washington State Lake Protection Association
- 2016 William Trachtenberg Memorial Scholarship, Annual Meeting of the Western Division of the American Fisheries Society, Reno, Nevada
- 2016 Susan B. Martin Scholarship, Annual Meeting of the Idaho Chapter of the American Fisheries Society, Coeur d'Alene, Idaho

- 2015 Outstanding Master's Student Research and Creative Activity Award, University of Idaho, Moscow, Idaho
- 2015 Best Student Poster Award, Annual Meeting of the Colorado-Wyoming Chapter of the American Fisheries Society, Ft. Collins, Colorado
- 2014 Finalist, Best Student Paper Symposium, 144th Annual Meeting of the American Fisheries Society, Québec City, Québec
- 2014 Ted Bjornn Scholarship, University of Idaho
- 2014 Best Student Poster Award, Annual Meeting of the Colorado-Wyoming Chapter of the American Fisheries Society, Laramie, Wyoming
- 2014 Best Student Poster Award, Annual Meeting of the Idaho Chapter of the American Fisheries Society, Idaho Falls, Idaho
- 2003 –
- 2008 Academic Achievement Scholarship, Eckerd College

Peer-Reviewed Publications (†† = undergraduate mentored; † = graduate mentored)

- Vaisvil, A., M. Willmes, E.J. Enriquez, Z.B. Klein, and C.A. Caldwell. 2023. A needle in a haystack: strontium isotopes ($87\text{Sr}/86\text{Sr}$) in otoliths identify origin of Largemouth Bass from a large Southwest reservoir. *Canadian Journal of Fisheries and Aquatic Science* doi.org/10.1139/cjfas-2023-0148
- Klein, Z.B., and J.L. McCormick. 2023. Evaluation of the influence of correcting for gillnet selectivity on the estimation of population parameters. *PLoS ONE* 18(6): e0287434.
- Klein, Z.B., M.C. Quist, and C.S. Guy. 2022. Suppression of invasive fish in the West: synthesis and suggestions for improvement. Pages 369 – 383 in S.M. Sammons and R.M. Krogman, editors. *Back to the future of reservoir fisheries management – what have we learned in 50 years?* American Fisheries Society, Bethesda, Maryland.
- †Miazga, J.R., Z.B. Klein, J.D. Koch, and B.C. Neely. 2022. The effect of harvest regulations on White Crappie fisheries in Kansas impoundments. *North American Journal of Fisheries Management* 42:1623–1634
- †Smith, Jr., J.M., Z.B. Klein, and C. Steffen. 2022. Documentation of Invasive Rusty Crayfish *Faxonius rusticus* (Girard, 1852) in Kansas. *BioInvasions Records* 11:766–775.
- Klein, Z.B., J.D. Koch, and B.C. Neely. 2022. Relationships between Gizzard Shad, impoundment characteristics, and sympatric fish species. *North American Journal of Fisheries Management* 42:447–454.
- Klein, Z.B., M.C. Quist, A.M. Dux, and M.P. Corsi. 2020. Ontogenetic diet shifts with potential ramifications for resource competition in a kokanee-*Mysis diluviana* system. *Hydrobiologia* 847:3951–3966.
- Klein, Z.B., M.C. Quist, A.M. Dux, and M.P. Corsi. 2020. Influence of population density and length structure on angler catch rate in kokanee fisheries. *North American Journal of Fisheries Management* 40:182–189.
- Feeken, S.F., Z.B. Klein, M.C. Quist, and N. Horner. 2019. Population characteristics and the potential suppression of Common Carp in Lake Spokane, Washington. *Journal of Fish and Wildlife Management* 10:1–13.
- Klein, Z.B., M.C. Quist, A.M. Dux, and M.P. Corsi. 2019. Growth disparity in sympatric kokanee breeding groups. *North American Journal of Aquaculture* 81:169–177.

- Klein, Z.B., M.C. Quist, A.M. Dux, and M.P. Corsi. 2019. Evaluation of gill nets and mid-water trawls for sampling kokanee. *North American Journal of Fisheries Management* 39:343–352.
- Klein, Z.B., M.C. Quist, L.E. Miranda, M.M. Marron, M.J. Steuck, and K.A. Hansen. 2018. Commercial fisheries in the upper Mississippi River: a century of sustained harvest. *Fisheries* 43:563–574.
- ††McBaine, K.E., Z.B. Klein, M.C. Quist, and D.T. Rhea. 2018. Diet of Burbot and implication for sampling. *Intermountain Journal of Science* 24:1–13.
- Klein, Z.B., M.J. Breen, and M.C. Quist. 2017. Population characteristics and the influence of discharge on Bluehead Sucker and Flannelmouth Sucker. *Copeia* 2:375–388.
- Klein, Z.B., T.F. Bonvechio, B.R. Bowen, and M.C. Quist. 2017. Precision and accuracy of age estimates obtained from anal fin spines, dorsal fin spines, and sagittal otoliths for known-age Largemouth Bass. *Southeastern Naturalist* 16:225–234.
- Klein, Z.B., R.S. Hardy, and M.C. Quist. 2016. Diet of juvenile Burbot and insight into gape limitation. *Intermountain Journal of Science* 22:55–69.
- Klein, Z.B., M.C. Quist, D.T. Rhea, and A.C. Senecal. 2016. Population dynamics of non-native Burbot with implications for suppression. *North American Journal of Fisheries Management* 36:1006–1017.
- Watkins, C.J., Z.B. Klein, M.T. Terrazas, and M.C. Quist. 2015. Influence of sectioning location on age estimates from Common Carp dorsal spines. *North American Journal of Fisheries Management* 35:690–697.
- Klein, Z.B., M.C. Quist, D.T. Rhea, and A.C. Senecal. 2015. Habitat use of non-native Burbot in a western river. *Hydrobiologia* 757:61–71.
- Klein, Z.B., M.C. Quist, D.T. Rhea, and A.C. Senecal. 2015. Sampling techniques for Burbot in a western non-wadeable river. *Fisheries Management and Ecology* 22:216–223.
- Klein, Z.B., M.M. Terrazas, and M.C. Quist. 2014. Age estimation of Burbot using pectoral fin rays, branchiostegal rays, and otoliths. *Intermountain Journal of Science* 20:57–67.

Additional Publications

- Klein, Z.B. 2014. Burbot research in the Green River *in* Pinedale Fisheries Newsletter. Wyoming Game and Fish Department. Issue 10.

Technical Reports

- Feeken, S.F., and Z.B. Klein. 2018. Population demographics and dynamics of Common Carp in Lake Spokane, Washington. Project completion report to the Avista Corporation, Spokane, Washington.
- Peterson, M., K. Plaster, Z. Klein, K. McBaine, and J. Heindel. 2011. Snake River Sockeye Salmon captive broodstock program annual progress report. 2010. Idaho Department of Fish and Game, Annual Report to the Bonneville Power Administration, Report Number 11-05, Portland, Oregon.

Professional Presentations (†† = undergraduate mentored; † = graduate mentored)

- †Miller, M.W., Z.B. Klein, C.A. Caldwell, and M.E. Ruhl. 2023. Evaluating the success of eradication nonnative Brook Trout using Trojan-Y chromosome fish in southern Rocky Mountain streams. Annual Meeting of the Western Division of the American Fisheries Society, Boise, Idaho, May 10. PLATFORM.
- ††Martinez, T.L., G.W. Del Piccolo, J.M. Smith, Jr., Z.B. Klein, and M.P. Zeigler. 2023. Comparison of non-lethal ageing structures for Chihuahua Chub *Gila nigrescens* and Rio Grande Sucker *Catostomus plebeius*. ACES Open House Poster Competition, New Mexico State University, Las Cruces, New Mexico, April 1. POSTER.
- †Smith, J.M., Jr., Z.B. Klein, C.J. Steffen, and J.R. Hofmeier. 2023. Sampling designs for the long-term monitoring of crayfish in lentic and lotic systems. Kansas Natural Resource Conference, Manhattan, Kansas, February 9. PLATFORM.
- ††Martinez, T.L., G.W. Del Piccolo, J.M. Smith, Jr., Z.B. Klein, and M.P. Zeigler. 2023. Comparison of non-lethal ageing structures for Chihuahua Chub *Gila nigrescens* and Rio Grande Sucker *Catostomus plebeius*. Joint Annual Meeting of the Arizona-New Mexico Chapter of the American Fisheries Society, Farmington, New Mexico, February 3. POSTER.
- †Smith, J.M., Jr., Z.B. Klein, C.J. Steffen, and J.R. Hofmeier. 2023. Sampling designs for the long-term monitoring of crayfish in lentic and lotic systems. Joint Annual Meeting of the Arizona-New Mexico Chapter of the American Fisheries Society, Farmington, New Mexico, February 3. PLATFORM.
- †Smith-Miller, M.H., Z.B. Klein, C.G. Kruse. 2023. Habitat use of Rio Grande Cutthroat Trout in the upper Rio Costilla watershed, New Mexico. Joint Annual Meeting of the Arizona-New Mexico Chapter of the American Fisheries Society, Farmington, New Mexico, February 3. PLATFORM.
- †Miller, M.W., Z.B. Klein, C.A. Caldwell, and M.E. Ruhl. 2023. Efficacy of M_{YY} Brook Trout as an eradication tool of wild Brook Trout in northern New Mexico streams. Annual Meeting of the Arizona-New Mexico Chapter of the American Fisheries Society, Farmington, New Mexico, February 3. PLATFORM.
- †Del Piccolo, G.W., Z.B. Klein, M.P. Zeigler, and J.C. Johnson. 2023. Habitat Use of Chihuahua Chub in the Mimbres River, NM. Annual Meeting of the Arizona-New Mexico Chapter of the American Fisheries Society, Farmington, New Mexico, February 3. PLATFORM.
- †Smith, Jr., J.M., Z.B. Klein, and C.J. Steffen. 2022. Comparison of sampling gears for crayfish in lentic systems. Annual Meeting of the American Fisheries Society, Spokane, Washington, August 24. PLATFORM.
- †Del Piccolo, G.W., Z.B. Klein, M.P. Zeigler, and J.C. Johnson. 2022. Habitat use of Chihuahua Chub in the Mimbres River, New Mexico. Annual Meeting of the American Fisheries Society, Spokane, Washington, August 24. PLATFORM.
- †Miller, M.W., Z.B. Klein, C.A. Caldwell, M.E. Ruhl, and B.A.W. Armstrong. 2022. Assessing the efficacy of M_{yy} suppression in northern New Mexico. Annual Meeting of the American Fisheries Society, Spokane, Washington, August 25. PLATFORM.

- †Miazga, J.R., Z.B. Klein, J.D. Koch, and B.C. Neely. 2022. The influence of habitat characteristics on crappie population dynamics in Kansas impoundments. Meeting of the North Central Division of the American Fisheries Society Technical Committee, Okoboji, Iowa, July 19. PLATFORM.
- †Miller, M.W., B.A.W. Armstrong, C.A. Caldwell, Z.B. Klein, and M.E. Ruhl. 2022. Population dynamics of YY male Brook Trout in northern New Mexico. Annual Meeting of the Colorado-Wyoming Chapter of the American Fisheries Society, March 3. VIRTUAL PLATFORM.
- †Miazga, J.R., Z.B. Klein, J.D. Koch, and B.C. Neely. 2022. The influence of habitat characteristics on crappie population dynamics in Kansas impoundments. Midwest Fish and Wildlife Conference, Des Moines, Iowa, February 15. PLATFORM.
- †Miazga, J.R., Z.B. Klein, J.D. Koch, and B.C. Neely. 2022. The effect of harvest regulations on crappie population dynamics in Kansas impoundments. Midwest Fish and Wildlife Conference, Des Moines, Iowa, February 15. PLATFORM.
- †Smith, Jr., J.M., Z.B. Klein, and C.J. Steffen. 2022. Evaluation of sampling techniques for crayfish in lentic systems. Midwest Fish and Wildlife Conference, Des Moines, Iowa, February 16. PLATFORM.
- †Del Piccolo, G.W., Z.B. Klein, and M.P. Zeigler. 2022. Habitat use, movement dynamics, and population viability of Chihuahua Chub in the Mimbres River, New Mexico. Annual Meeting of the Arizona-New Mexico Chapter of the American Fisheries Society, February 4. VIRTUAL PLATFORM.
- †Smith, Jr., J.M., Z.B. Klein, and C.J. Steffen. 2022. Evaluation of sampling techniques for crayfish in lentic systems. Annual Meeting of the Arizona-New Mexico Chapter of the American Fisheries Society, February 4. VIRTUAL PLATFORM.
- †Smith, Jr., J.M., Z.B. Klein, and C.J. Steffen. 2022. Evaluation of sampling techniques for crayfish in lentic systems. Kansas Natural Resources Conference, Manhattan, Kansas, February 3. PLATFORM.
- †Smith, Jr., J.M., Z.B. Klein, and C.J. Steffen. 2022. First documentation of invasive Rusty Crayfish *Faxonius rusticus* in Kansas. Kansas Natural Resources Conference, Manhattan, Kansas, February 3. POSTER.
- †Miazga, J.R., Z.B. Klein, J.D. Koch, and B.C. Neely. 2022. The influence of habitat characteristics on crappie population dynamics in Kansas impoundments. Kansas Natural Resources Conference, Manhattan, Kansas, February 4. PLATFORM.
- †Miazga, J.R., Z.B. Klein, J.D. Koch, and B.C. Neely. 2022. The effect of harvest regulations of crappie fisheries in Kansas impoundments. Kansas Natural Resources Conference, Manhattan, Kansas, February 4. PLATFORM.
- Klein, Z.B., M.C. Quist, and C.S. Guy. 2022. Suppression of invasive fish in the West: synthesis and suggestions for improvement. Annual Meeting of the Arizona-New Mexico Chapter of the American Fisheries Society, February 5. VIRTUAL PLATFORM.
- †Miller, M.W., B.A.W. Armstrong, C.A. Caldwell, Z.B. Klein, and M.E. Ruhl. 2022. Population dynamics of YY male Brook Trout in northern New Mexico. Annual Meeting of the Arizona-New Mexico Chapter of the American Fisheries Society, February 3. VIRTUAL PLATFORM.

- †Miller, M.W., B.A.W. Armstrong, C.A. Caldwell, Z.B. Klein, and M.E. Ruhl. 2022. Population dynamics of YY male Brook Trout in northern New Mexico. Rio Grande Cutthroat Trout Conservation Team Meeting, January 24. VIRTUAL PLATFORM.
- Klein, Z.B., M.C. Quist, and C.S. Guy. 2021. Suppression of invasive fish in the West: synthesis and suggestions for improvement. Annual Meeting of the American Fisheries Society, Baltimore, Maryland, November 8. VIRTUAL PLATFORM.
- †Miazga, J.R., Z.B. Klein, J.D. Koch, and B.C. Neely. 2021. The influence of habitat characteristics on crappie population dynamics in Kansas. Annual Meeting of the American Fisheries Society, Baltimore, Maryland, November 8. PLATFORM.
- †Miazga, J.R., Z.B. Klein, and J.D. Koch. 2021. Population dynamics and harvest regulation of crappies in Kansas reservoirs. New Mexico State University Biosymposium, Las Cruces, New Mexico, March 6. PLATFORM.
- †Miazga, J.R., Z.B. Klein, and J.D. Koch. 2021. Population dynamics and harvest regulation of crappies in Kansas reservoirs. Joint Annual Meeting of the Arizona-New Mexico Chapter of the American Fisheries Society, February 5. PLATFORM.
- Klein, Z.B., M.C. Quist, L.E. Miranda, M.M. Marron, M.J. Steuck, and K.A. Hansen. 2020. Commercial fisheries of the upper Mississippi River: a century of sustained harvest. The Midwest Fish and Wildlife Conference, Springfield, Illinois, January 29. PLATFORM.
- Klein, Z.B., M.C. Quist, L.E. Miranda, M.M. Marron, M.J. Steuck, and K.A. Hansen. 2019. Commercial fisheries of the upper Mississippi River: a century of sustained harvest. Annual Meeting of the Upper Mississippi River Conservation Committee, La Crosse, Wisconsin, March 20. PLATFORM.
- Klein, Z.B., M.C. Quist, A.M. Dux, and M.P. Corsi. 2019. Ontogenetic-mediated competition between kokanee and mysis. Annual meeting of the Idaho Chapter of the American Fisheries Society, Boise, Idaho, March 7. PLATFORM.
- Feecken, S.F., Z.B. Klein, M.C. Quist, and N. Horner. 2018. Population structure of Common Carp in Lake Spokane, Washington. Annual Meeting of the American Fisheries Society, Atlantic City, New Jersey, August 20. POSTER.
- Klein, Z.B., M.C. Quist, L.E. Miranda, M.M. Marron, M.J. Steuck, and K.A. Hansen. 2018. Commercial fisheries of the upper Mississippi River: a model of sustainability. Annual Meeting of the American Fisheries Society, Atlantic City, New Jersey, August 21. PLATFORM.
- Klein, Z.B., M.C. Quist, A.M. Dux, and M.P. Corsi. 2018. Evaluating the size selectivity of mid-water trawls for sampling kokanee. Annual Meeting of the American Fisheries Society, Atlantic City, New Jersey, August 20. POSTER.
- Klein, Z.B., M.C. Quist, L.E. Miranda, M.M. Marron, M.J. Steuck, and K.A. Hansen. 2018. Commercial fisheries of the upper Mississippi River. Annual Meeting of the Idaho Chapter of the American Fisheries Society, Idaho Falls, Idaho, March 2. PLATFORM.
- Klein, Z.B., M.C. Quist, A.M. Dux, and M.P. Corsi. 2018. Evaluating the size selectivity of mid-water trawls for sampling kokanee. Annual Meeting of the Idaho Chapter of the American Fisheries Society, Idaho Falls, Idaho, February 28. PLATFORM.

- Feeken, S.F., Z.B. Klein, M.C. Quist, and N. Horner. 2018. Population Structure of Common Carp in Lake Spokane, Washington. Annual Meeting of the Idaho Chapter of the American Fisheries Society, Idaho Falls, Idaho, March 1. POSTER.
- Klein, Z.B., M.J. Breen, and M.C. Quist. 2017. Population characteristics and the influence of discharge on Bluehead Sucker and Flannelmouth Sucker. Western Division of the American Fisheries Society Student Colloquium, McCall, Idaho, November 16. PLATFORM.
- Klein, Z.B., M.C. Quist, A.M. Dux, and M.P. Corsi. 2017. Evaluating the size selectivity of mid-water trawls for sampling kokanee. Annual Meeting of the American Fisheries Society, Tampa, Florida, August 24. PLATFORM.
- Klein, Z.B., M.J. Breen, and M.C. Quist. 2017. Population characteristics and the influence of discharge on Bluehead Sucker and Flannelmouth Sucker. Annual Meeting of the American Fisheries Society, Tampa, Florida, August 22. POSTER.
- Klein, Z.B., M.C. Quist, A.M. Dux, and M.P. Corsi. 2017. Evaluating the size selectivity of mid-water trawls for sampling kokanee. Annual Meeting of the Western Division of the American Fisheries Society, Missoula, Montana, May 23. PLATFORM.
- Klein, Z.B., M.J. Breen, and M.C. Quist. 2017. Population characteristics and the influence of discharge on Bluehead Sucker and Flannelmouth Sucker. Annual Meeting of the Western Division of the American Fisheries Society, Missoula, Montana, May 25. POSTER.
- Klein, Z.B., M.C. Quist, A.M. Dux, and M.P. Corsi. 2017. Evaluating the size selectivity of mid-water trawls for sampling kokanee. Annual Meeting of the Idaho Chapter of the American Fisheries Society, Boise, Idaho, March 3. PLATFORM.
- Klein, Z.B., M.J. Breen, and M.C. Quist. 2017. Population characteristics and the influence of discharge on Bluehead Sucker and Flannelmouth Sucker. Annual Meeting of the Idaho Chapter of the American Fisheries Society, Boise, Idaho, March 2. POSTER.
- Klein, Z.B., T.F. Bonvechio, B.R. Bowen, and M.C. Quist. 2017. Precision and accuracy of age estimates obtained from anal fin spines dorsal fin spines, and sagittal otoliths for known-age Largemouth Bass. Annual Meeting of the Georgia Chapter of the American Fisheries Society, Statesboro, Georgia, January 26. PLATFORM.
- Klein, Z.B., R.S. Hardy, M.C. Quist, and S.P. Young. 2016. Prey selection of juvenile Burbot. Annual Meeting of the Idaho Chapter of the American Fisheries Society, Coeur d'Alene, Idaho, March 9. POSTER.
- ††McBaine, K.E., Z.B. Klein, M.C. Quist, D.T. Rhea, and A.C. Senecal. 2016. Trophic ecology of Burbot and implications for sampling. Annual Meeting of the Idaho Chapter of the American Fisheries Society, Coeur d'Alene, Idaho, March 9. POSTER.
- ††McBaine, K.E., Z.B. Klein, M.C. Quist, D.T. Rhea, and A.C. Senecal. 2016. Trophic ecology of Burbot and implications for sampling. Annual Meeting of the Colorado-Wyoming Chapter of the American Fisheries Society, Laramie, Wyoming, March 1. POSTER.

- Terrazas, M.M., Z.B. Klein, and M.C. Quist. 2015. Precision of hard structures for estimating the age of Burbot. Annual Meeting of the Idaho Chapter of the American Fisheries Society, Boise, Idaho, March 5. POSTER.
- Klein, Z.B., M.C. Quist, D.T. Rhea, and A.C. Senecal. 2015. Habitat use of Burbot in Green River, Wyoming. Annual Meeting of the Idaho Chapter of the American Fisheries Society, Boise, Idaho, March 5. PLATFORM.
- Klein, Z.B., M.C. Quist, D.T. Rhea, and A.C. Senecal. 2015. Population characteristics and the suppression of Burbot in the Green River, Wyoming. Annual Meeting of Idaho Chapter of the American Fisheries Society, Boise, Idaho, March 5. PLATFORM.
- Klein, Z.B., M.C. Quist, D.T. Rhea, and A.C. Senecal. 2015. Habitat use of non-native Burbot in a western non-wadeable river. Annual Meeting of the Colorado-Wyoming Chapter of the American Fisheries Society, Ft. Collins, Colorado, February 26. PLATFORM.
- Klein, Z.B., M.C. Quist, D.T. Rhea, and A.C. Senecal. 2015. Population dynamics and suppression of Burbot in the Green River, Wyoming. Annual Meeting of the Colorado-Wyoming Chapter of the American Fisheries Society, Ft. Collins, Colorado, February 26. PLATFORM.
- Klein, Z.B., M.M. Terrazas, and M.C. Quist. 2015. Precision of hard structures for estimating the age of Burbot. Annual Meeting of the Colorado-Wyoming Chapter of the American Fisheries Society, Ft. Collins, Colorado, February 26. POSTER.
- Klein, Z.B., M.C. Quist, D.T. Rhea, and A.C. Senecal. 2014. Sampling techniques for Burbot *Lota lota* in the Green River, WY. Annual Meeting of the American Fisheries Society, Québec City, Québec, August 19. PLATFORM.
- Klein, Z.B., M.C. Quist, D.T. Rhea, and A.C. Senecal. 2014. Population characteristics of non-native Burbot in the Green River, Wyoming. Annual Meeting of the American Fisheries Society, Québec City, Québec, August 19. POSTER.
- Terrazas, M.M., Z.B. Klein, and M.C. Quist. 2014. Precision of hard structure for estimating the age of Burbot. 144th Annual Meeting of the American Fisheries Society, Québec City, Québec, August 19. POSTER.
- Klein, Z.B., M.C. Quist, D.T. Rhea, and A.C. Senecal. 2014. Sampling techniques for Burbot *Lota lota* in the Green River, WY. Annual Meeting of the Colorado-Wyoming Chapter of the American Fisheries Society, Laramie, Wyoming, March 4. PLATFORM.
- Klein, Z.B., C.J. Watkins, M.M. Terrazas, and M.C. Quist. 2014. Standardized removal and sectioning locations of dorsal spines for estimating age of Common Carp. Annual Meeting of the Colorado-Wyoming Chapter of the American Fisheries Society, Laramie, Wyoming, March 4. POSTER.
- Klein, Z.B., M.C. Quist, D.T. Rhea, and A.C. Senecal. 2014. Sampling techniques for Burbot *Lota lota* in the Green River, WY. Annual Meeting of the Idaho Chapter of the American Fisheries Society, Idaho Falls, Idaho, February 12. PLATFORM.
- Watkins, C.J., Z.B. Klein, M.M. Terrazas, and M.C. Quist. 2014. Standardized removal and sectioning locations of dorsal spines for estimating age of Common Carp. Annual Meeting of the Idaho Chapter of the American Fisheries Society, Idaho Falls, Idaho, February 12. POSTER.

Carney, A.S., D.M. Durieux, Z.B. Klein, and E.A. Mason. 2008. Regeneration of caudal spines following breakage or loss in juvenile Atlantic Stingrays, *Dasyatis sabina*. Annual Meeting of the Florida Chapter of the American Fisheries Society, Ocala, Florida, February 20. POSTER.

Grants

Klein, Z.B. 2022 – 2025. Reproductive success of Trojan-Y chromosome Brook Trout. New Mexico Department of Game and Fish, \$191,884.

Klein, Z.B. 2023 – 2025. Influence of hybrid Striped Bass on the fish assemblage of Caballo Reservoir, New Mexico. New Mexico Department of Game and Fish, \$150,617.

Klein, Z.B. 2022. Preliminary investigation of the influence of White Bass hybrids on the population structure of black bass in Caballo Reservoir, New Mexico. New Mexico Department of Game and Fish, \$62,540.

Klein, Z.B. 2022 – 2024. Population dynamics and habitat movement of Rio Grande Cutthroat Trout in high mountain lakes of northern New Mexico. Turner Institute of Ecoagriculture, \$183,367.

Klein, Z.B. 2022. Use of angler-derived data for description of sport fisheries in New Mexico. New Mexico Department of Game and Fish, \$4,863.

Klein, Z.B., and J. Frey. 2021 – 2023. Collaborative internships for undergraduate students in Fish, Wildlife, and Conservation Ecology. Covid-19 Performance Fund, \$480,000 (not funded).

Klein, Z.B., M. Gompper, and C.A. Caldwell. 2021 – 2023. Influence of *Lernaea* spp. on trout fisheries in New Mexico. New Mexico State University Competitive Graduate Research Assistantship, \$40,000 (not funded).

Klein, Z.B. 2021 – 2023. Habitat use, movement, and population viability of Chihuahua Chub in the Mimbres River, New Mexico. New Mexico Department of Game and Fish, \$117,085.

Klein, Z.B., and C.A. Caldwell. 2021 – 2023. Suppression of non-native Brook Trout using Trojan super males. New Mexico Department of Game and Fish, \$189,031.

Klein, Z.B. 2021 – 2023. Sampling design for long-term monitoring of lentic and lotic crayfish in Kansas. Kansas Department of Wildlife, Parks, and Tourism, \$129,215.

Klein, Z.B. 2020 – 2025. Conservation and management of freshwater fishes in the desert southwest. Hatch project development, \$17,500.

Klein, Z.B. 2020. Faculty research and creativity grant. Emporia State University, \$1,005.

Klein, Z.B. 2020 – 2022. Crappie population dynamics and management in Kansas. Kansas Department of Wildlife, Parks, and Tourism, \$95,223.

Klein, Z.B., and P.A. Kennedy. 2018. Idaho Native Fishes Educational Poster. Western Division of the American Fisheries Society Small Project Grant, \$1,500.

Klein, Z.B., and M.C. Quist. 2015 – 2019. Management of kokanee in Idaho lakes: kokanee population dynamics, mysid-kokanee interactions, and sampling techniques. Idaho Department of Fish and Game, \$279,842.

Klein, Z.B., and M.C. Quist. 2016 – 2017. Common Carp *Cyprinus carpio* suppression in Lake Spokane, Washington. Avista Corporation, \$15,803.

Technical Training

First Aid, CPR, and AED training, American Red Cross

On the Water Training, U.S. Department of the Interior

Principles and Techniques of Electrofishing, U.S. Department of the Interior

Motorboat Operator Certification Course, U.S. Department of the Interior