

## MAFWA CSS/HD Technical Working Group Annual Report: 2023/24

### Meeting Time and Place –

The working group has a plan to meet quarterly, although we have had discussions about reducing this to bi-annually. We have also hosted a symposium at the Midwest Fish and Wildlife Conference the last two years and intend to continue this in the future. This meeting serves as an additional point of interaction for those that can attend.

The executive committee comprised of the chair, vice-chair, and two additional members meets frequently. Sub-committees working on specific tasks also meet more frequently.

Two formal meetings were held since May 2023, as well as the Midwest symposium.

### August 16, 2023

- Meeting of appointees plus community partners comprised mostly university faculty and federal agency staff.

### April 30, 2024

- Meeting of appointees only

### Midwest Symposium

- Special session organized by the technical working group at the Midwest Fish and Wildlife Conferences held in South Dakota in January 2024.

### Attendance –

#### August 16, 2023:

- Carena van Riper, Alia Dietsch, Derek Franklin, Brian Frawley, **Stephanie Freeman (SD)**, **Allison Henderson (SK)**, Mark Kaemingk, Katherine Graham, Adam Kokotovich, **Adam Landon (MN)**, **Jeff Lusk (NE)**, Brad Milley, Courtney Mondoux, **Peter Fritzell (IA)**, **Emily Pomeranz (MI)**, **Kiandra Rajala (USFWS)**, **Abigail Rhodebeck (OH)**, Suzanne Johnston, Tricia Fry, **Ben Beardmore (WI)**, Kevin Pope
- Appointees in bold, 8/16 member institutions present.

#### April 30, 2024:

- Adam Landon (MN), Ellie Prentice (MO), Peter Fritzell (IA), Stephanie Freeman (SD), Alisson Henderson (SK), Peter Fritzell (IA), Emily Pomeranz (MI), Ben Beardmore (WI), Tom Bidrowski (KS), Craig Miller (IL), Kiandra Rajala (USFWS)
- 11/16 member institutions present

## **Executive Summary –**

The conservation social science/human dimensions technical working group is in its second year. Attendance at meetings remains strong although some vacancies persist. The Midwest symposium in SD was well received by the community, and attendance at sessions was high. There has been a transition in leadership with Ellie Prentice and Ben Beardmore taking over as chair and vice-chair. The group is looking to develop a rotation for chair and vice-chair, possibly to coincide with the rotation of the Midwest Fish and Wildlife Conference. There is interest in developing an in-person meeting for the group, similar to others like the deer and turkey group.

Bullets below highlight efforts completed or underway during the work year, as well as general participation.

- Needs assessment: Last year a needs assessment was initiated to determine areas where the group could contribute to member institutions and serve social scientists and practitioners. This effort is ongoing but nearing completion. A sub-committee formed to query members and develop objectives and strategies to achieve goals under outlined in organizational documents. The outcome of this project will be a menu of items the group could take up as interest and capacity exist.
- Symposium: Appendix A contains a summary of the symposium held at the Midwest Fish and Wildlife Conference. Social scientists from around the Midwest gave 13 research presentations during the symposium. Participants also engaged in two informal panel discussions on presentation content, and activities of the working group.

## **Director Action Items –**

### Funding request for workshop

The Conservation Social Science/Human Dimensions technical workgroup is preparing to submit a request to the MAFWA Directors for funding to support a Wildlife Benefits workshop at the 2025 Midwest Fish and Wildlife Conference in St. Louis, Missouri. These workshops are hosted by staff at Colorado State University, with the intent to guide agency staff through a series of critical reflections to yield insights into the relevance of their work to broader sets of beneficiaries and identify opportunities to modernize institutional designs.

The CSS / HD technical workgroup is exploring the potential to collaborate on this workshop with the Midwest Landscape Initiative (MLI), especially in relation to operationalizing MLI's goal to achieve “An increase in the relevance of nature and the practice of pro-conservation and outdoor recreation behaviors of those who live, work, and recreate in the Midwest.” A clear connection exists between this goal and the objectives of the workshop, and organizers feel it may be a strong area of alignment to advance this socially-focused element of MLI’s work. More detail is forthcoming in a formal request for funds.

## **Director Information Items**

### Changes in personnel and leadership

- Emily Pomeranz (MI) stepped down as vice-chair as she took a new position with Michigan State University.
- Adam Landon (MN) stepped down as chair at close of rotation.
- Ellie Prentice (MO) was appointed chair.
- Ben Beardmore (WI) was appointed vice-chair.

### Member institutions without appointees

- Indiana
- Michigan (although Emily remains involved)
- North Dakota
- Manitoba

### **Time and Place of Next Meeting -**

Next meeting time is TBD, but will likely occur in summer 2024.

### **Appendices –**

Appendix A. Summary of Midwest Fish and Wildlife Conference Symposium, Summary contains abstracts of presentations.

## Appendix A: 2024 Midwest Fish & Wildlife Conference – Sioux Falls, South Dakota

### **Organized Symposium: The State of the Art of Conservation Social Science/Human Dimensions in the Midwest**

#### **Organizers:**

Adam Landon, Ph.D.  
Conservation Social Scientist  
Minnesota Department of Natural Resources

Emily Pomeranz, Ph.D.  
Human Dimensions Research Specialist  
Michigan Department of Natural Resources

Kiandra Rajala  
Regional Social Scientist – Science Applications  
U.S. Fish and Wildlife Service

Peter Fritzell  
Human Dimensions Specialist  
Iowa Department of Natural Resources

**Abstract:** The conservation and management of fish and wildlife resources is a dynamic interplay between people and nature. State and federal agencies, academia, Tribal governments, and conservation institutions are placing increasing emphasis on the ‘people’ component of that equation, including through research and engagement. This symposium is hosted by the MAWFA Conservation Social Science / Human Dimensions technical working group to a) showcase social science research relevant to fish and wildlife conservation and management, and b) provide a forum for interaction for social scientists from across the region. This is an open symposium and authors are encouraged to submit relevant research on topics pertaining to the conservation and management of fish, wildlife, and their habitats drawing on the theories and methods of sociology, psychology, economics, anthropology, and other social sciences. This symposium will help facilitate discussion of how social science can address conservation challenges in the region and identify opportunities for collaboration and coordination across boundaries. We encourage submissions that relate to the conference theme of “habitat: working today to benefit tomorrow,” but submissions on all topics engaging social science approaches are welcome.

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## Tuesday January 30 - Session 1 (10:20am – 11:40am)

**Moderator: Kyle Smith**

**10:20 – Speaker:** Alex Wright, Landscape Science Coordinator, U.S. Fish and Wildlife Service

**Title:** Integrating social values into landscape planning to inform habitat delivery through the Midwest conservation blueprint

**Authors:** Alex Wright, Landscape Science Coordinator, U.S. Fish and Wildlife Service

**Abstract:** The threats to conservation are often global in scale (e.g., climate change, invasive species, etc); however, the relevant actions to conserve natural areas and ecosystem services occur within unique jurisdictions. Thus, the socio-ecological complexity of these problems requires collaboration across large spatial areas and diverse community interests. However, the interoperability of different planning products across decision makers, jurisdictions, and objectives can impede collaboration across space and scale. The objective of the Midwest Conservation Blueprint is to provide a comprehensive framework to coordinate voluntary conservation actions and investments across the Midwest region towards a vision of "a thriving landscape of healthy lands and waters supporting wildlife, fish, and plants, embraced by all who live, work, and recreate in the Midwest". Using a co-production framework, we developed a basemap of priority lands and waters for conservation across a diverse set of societal and ecological needs of conservation (e.g., water quality, endangered species, environmental justice, etc). Specifically, we synthesize 20+ different datasets in the spatial prioritization software Zonation v5. Each dataset corresponds to a targetable, important feature that represents at least one ecological or societal priority on the landscape. Additionally, we identify important areas for connectivity. Priority land and waters are characterized as "Highest Priority" (> 90th percentile), "High Priority" (>75th percentile), "Medium Priority" (>55th percentile), or as "Important for Connectivity" (5 percent). The Midwest Conservation Blueprint is a living map and evolves annually driven by improvements to our underlying science and knowledge, our understanding of on-the-ground conditions, and input from the public. Landscape planning cannot, and are not designed to, replace local knowledge or to supersede decision-making authorities. However, by integrating social values into our planning efforts at a broader scale, the Midwest Conservation Blueprint documents where there are shared priorities and thus opportunities for collaborative habitat conservation across the landscape.

**10:40 – Speaker:** Zach Hurst, Conservation Design Director, Playa Lakes Joint Venture

**Title:** The state of social science research in the central grasslands: A review

**Authors:** Zach Hurst, Playa Lakes Joint Venture; Ryan Roberts, Playa Lakes Joint Venture; Ashley Gramza, Playa Lakes Joint Venture Zach Hurst, Playa Lakes Joint Venture; Ryan Roberts, Playa Lakes Joint Venture; Ashley Gramza, Playa Lakes Joint Venture

**Abstract:** The Central Grasslands of North America span from southern Canada to northern Mexico, and contain critical habitat for many important bird and other wildlife species. These grasslands have been the focus of consistent conservation efforts with the goal of stopping the steep decline of grassland-reliant wildlife species. Despite concerted effort, however, stopping the decline of these species has proven difficult. A paradigm shift is needed in how we approach grassland conservation in lands that humans rely on for food, fuel and fiber. The conservation

community has recently emphasized understanding land management decision-making across this landscape and working with communities that rely on grasslands to conserve these ecosystems. Accordingly, there has been a significant expansion of efforts to build social science knowledge and capacity. However, this work is not well understood or coordinated. We conducted a review of conservation social science research related to landowner and producer decision-making across the Central Grasslands which included a structured literature review based upon keyword searches and interviews of Principal Investigators of social research projects. We will present the results of this review of over 100 manuscripts and interviews to describe the state of social science regarding management of the Central Grasslands. We will also describe plans for combining this information with the results of a modified Delphi process. Ultimately, this effort will result in (1) recommendations for social science integration in Central Grassland conservation delivery, (2) a gap analysis of social science information related to what is unknown and needed by conservation practitioners, and (3) a prioritization of future social science research needs and questions related to grassland conservation in this region.

**11:00 – Speaker:** Derek Franklin, Doctoral Candidate in Rural Sociology & Sustainable Agriculture, Iowa State University

**Title:** Understanding and comparing the prairie strip adoption and maintenance experience of farmers and non-farming landowners

**Authors:** Derek Franklin, Doctoral Candidate in Rural Sociology & Sustainable Agriculture, Iowa State University

**Abstract:** This paper investigates the perspectives of farmers and non-farming landowners concerning the establishment and maintenance of prairie strips as a conservation practice on farms. In the Midwest, a significant portion of the landscape is devoted to row crop agriculture, and over half of the agricultural acres are rented. Prior research suggests that rented farmland may receive fewer conservation efforts, many of which increase wildlife habitat on agricultural working lands. Our research seeks to bridge the gap in understanding between these farmers and landowners regarding the adoption and maintenance of prairie strips, specifically as they navigate the slow-paced prairie strip implementation process that can take up to three growing seasons to become established. This research provides valuable insights for promoting successful adoption and long-term commitment to this conservation practice within agricultural landscapes.

This research builds on a growing body of conservation social science literature at the nexus of land tenure and conservation practice adoption. We conducted semi-structured, in-depth interviews with farmer-landowners and non-farming landowners who have adopted prairie strips as a conservation practice on their farms. Thematic and comparative analyses were then employed to gauge patterns in the challenges, anticipated and unexpected successes, and inquiries from the community that farmers and landowners encountered as they established and maintained prairie strips. In addition, these interviews delve into the weight given to aesthetic values, along with assessing how these variables evolve. As prairie strips have proven ecologically successful and have been increasingly adopted on a substantial scale across multiple states, understanding the dynamics and motivations of both farmer and landowner stakeholders behind their

adoption and maintenance becomes pivotal for further adoption efforts and improved wildlife habitat on agricultural working lands.

**11:20 – Speaker:** Maddie Stevens, Graduate Student, University of Minnesota

**Title:** Predicting the adoption of non-lethal management practices among livestock producers for wolf depredation

**Authors:** Maddie Stevens, University of Minnesota; Adam Landon, Minnesota Department of Natural Resources & University of Minnesota; David Fulton, U.S. Geological Survey & University of Minnesota; Susan Schroeder, University of Minnesota; Leslie McInenly, Minnesota Department of Natural Resources & University of Minnesota

**Abstract:** Conflict between grey wolves and livestock remains a significant challenge in wildlife management in the United States, and addressing this issue has garnered extensive attention. Current discussions on this topic typically focus on framing the controversy between conserving wolves or protecting livestock. A growing push to utilize nonlethal management practices is being emphasized by stakeholder groups and wildlife management agencies. Shifting the focus away from conflict and towards the discussion on how to conserve wolves and protect livestock from a management perspective could help develop a win-win approach to grey wolf management. Previous research suggest certain nonlethal management behaviors may reduce conflict; yet the reasons individuals decide to use those behaviors is unknown. Using norm activation and personal efficacy as theoretical frameworks, we tested a set of models to try and predict the factors influencing livestock producers' adoption of nonlethal management practices to prevent livestock depredation by wolves. Results suggest the primary factors driving the adoption of those best management practices were perceptions of efficacy and personal norms. Socio-contextual factors such as past depredation, insurance, and acreage had limited impact on the adoption of non-lethal practices, as did general attitudes and emotions toward wolves. Our findings show livestock producers are proactively trying to prevent loss of livestock using non-lethal wolf management practices and enhancing perceptions of efficacy for these practices could potential boost their adoption.

**11:40 Panel discussion**

**Tuesday January 30 - Session 2 (1:20pm -2:40pm)**

**Moderator: David Fulton**

**1:20 – Speaker:** Michael Lant, Graduate Student, University of North Dakota

**Title:** Is there a relationship between off-site and on-site angler behavior?



**Authors:** Michael J. Lant, University of North Dakota, Cayla R. Bendel, North Dakota Game and Fish Department, Chad J. Parent, North Dakota Game and Fish Department, Mark A. Kaemingk, University of North Dakota

**Abstract:** The perpetuation of sustainable recreational fisheries is dependent on both off-site (i.e., license purchases and funding) and on-site (i.e., effort and harvest) behavior of anglers. Off-site and on-site behaviors are thought to be related and influenced by angler motivations and satisfaction. However, the relationship between off-site behavior (i.e., license purchases) and on-site (i.e., trip-related) behavior is not well understood. For instance, individuals that frequently purchase a fishing license, presumed to be highly committed to recreational fishing, may exhibit greater on-site effort compared to individuals that infrequently purchase a fishing license. Identifying a relationship between off-site and on-site angler behavior has the potential to guide management strategies that could influence angler license purchases. Our objective was to test if off-site angler behavior is related to on-site angler behavior. Off-site angler behavioral information was collected by creating angler license typologies (sub-groups of anglers with shared license purchasing histories) using 2009-2019 data from the North Dakota Game and Fish Department's angler license sale database. On-site behavioral information (e.g., effort, harvest, waterbody selection) was collected through angler surveys distributed to the different angler typologies by North Dakota Game and Fish Department in 2018. Surprisingly, we identified minimal significant behavioral differences among the angler license typologies. For example, there was no difference in walleye harvest between the angler typology that frequently purchased a fishing license compared to the angler typology that infrequently purchased a fishing license across the 11-year study period. These findings suggest that off-site and on-site angler behavior may not be coupled but could represent independent decisions. The lack of connection between behavioral differences may also limit marketing and management strategies that aim to collectively impact both license purchases and trip-related behavior.

**1:40 – Speaker:** Rebecca Krogman, Fisheries Research Biologist, Iowa Department of Natural Resources

**Title:** Combining creel surveys with anonymous location data to assess a reservoir habitat renovation

**Authors:** Rebecca M. Krogman, Iowa Department of Natural Resources; Ben Dodd, Iowa Department of Natural Resources

**Abstract:** Largescale renovation of lakes and reservoirs requires substantial investment of time and resources, and is conducted with the goal of improving the ecological health and socioeconomic benefit of the waterbody long-term. Renovation may be spurred by sedimentation, eutrophication, algae blooms, fish kills, degraded fishing, and an overall loss of usability of the system for recreation. In reservoirs, major improvement projects often entail drawdown of water levels, installation of physical habitat, watershed and shoreline work, and fishery renovation, all work that may require years to complete. Fisheries take several years to recover afterward, and the public must then choose to return to the location to partake in the newly available recreational opportunities. We examined this dynamic of recreational behavior pre-, mid-, and post-renovation of a medium-sized reservoir in central Iowa, Hickory Grove Lake. We conducted a fairly typical creel survey, but also counted non-fishing recreational users to better understand what proportion of visitors were anglers. We then combined these findings with those from anonymous location data, yielding not only detailed visitation totals, but also timing, trip origin, and trip durations for

each renovation period. Visitor behavior changed substantially during renovation, characterized by driveby glances at the drawn-down reservoir, then changed again post-renovation as the reservoir recovered and the fishery changed. Utilization of anonymous location data yielded an entirely fresh perspective on recreational behaviors that weren't captured by creel surveys.

**2:00 – Speaker:** Mathew Maldonado, Graduate Student, University of North Dakota

**Title:** Evaluating the impacts of climate change and management actions on angler expenditures

**Authors:** Matthew L. Maldonado, University of North Dakota, Department of Biology; Richard T. Melstrom, Loyola University Chicago, School of Environmental Sustainability; Taufique H. Mahmood, University of North Dakota, Harold Hamm School of Geology & Geological Engineering; David P. Coulter, South Dakota State University, Department of Natural Resource Management; Alison A. Coulter, South Dakota State University, Department of Natural Resource Management; Steve R. Chipps, U.S. Geological Survey, South Dakota Cooperative Fish & Wildlife Research Unit; Maddy Siller, South Dakota State University, Department of Natural Resource Management; Michaela Neal, University of North Dakota, Harold Hamm School of Geology & Geological Engineering; Ayon Saha, University of North Dakota, Harold Hamm School of Geology & Geological Engineering; and Mark A. Kaemingk, University of North Dakota, Department of Biology

**Abstract:** The impacts of climate change on angler behavior are a blind spot for the future of inland recreational fisheries. Current climate change predictions indicate that a waterbody's hydrology, fish community, and infrastructure could be affected, ultimately influencing angler behavior and expenditures. The severity and relative impacts of these climate-related changes to angler expenditures is unknown, despite the economic importance of inland recreational fisheries. Our first objective was to estimate the economic value for a prominent regional recreational fishery in North Dakota. Our second objective was to understand how climate-related changes in hydrology (i.e., waterbody size), fish community (presence or absence of walleye [*Sander vitreus*]), and infrastructure (i.e., boat ramps) could alter resident angler willingness-to-pay (WTP). We estimated resident angler WTP for the Devils Lake Basin, ND, using benefit transfer. We then evaluated how changes in walleye stocking and boat ramp access (i.e., policy scenarios) will affect resident angler WTP under both drought and deluge conditions. Our results provide managers with a clearer understanding of the economic value of the Devils Lake Basin recreational fishery and how management actions could influence resident angler WTP. Ultimately, the goal is to sustain the positive economic impacts these fisheries have on local and regional economies through climate change.

**2:20 – Speaker:** David Fulton, Assistant Unit Leader, U.S. Geological Survey Minnesota Cooperative Fish & Wildlife Research Unit

**Title:** Using self-determination theory to understand anglers' motivations and preferences

**Authors:** Shanell Lovelace, Conservation Sciences University of Minnesota; David C. Fulton, U.S. Geological Survey Minnesota Cooperative Fish and Wildlife Research Unit

**Abstract:** Fishing has been and will continue to be a huge part of Minnesota culture, as well as a key contributor to the state's economy. Anglers contribute \$4.4 billion dollars annually to the state. Therefore, it is vitally important for the state to keep anglers satisfied (i.e. participating in angling and buying a fishing license annually) while also maintaining a healthy, sustainable fisheries system. Understanding angler motivations, attitudes, preferences and behavior is vitally important for providing appropriate fisheries management decisions. Data were collected using both mail-push-to-web and email only surveys of Minnesota residents who bought a fishing license for the 2022-2023 season. Following recent research by Landon and colleagues (Landon et al. 2021; Smith et al. 2023), we collected data to apply aspects of self-determination theory (SDT; Deci and Ryan 2000) to understand angler motivations and their relationship to heterogeneity in angler perceptions of fisheries conservation issues, management strategies and regulations, and preferences for angling activities. Our findings highlight the utility of SDT for the human dimensions of fisheries.

**2:40 – Speaker:** Riley Mounsdon, Graduate Research Assistant, South Dakota State University

**Title:** Can managers control fishing license sales?

**Authors:** Riley L. Mounsdon, South Dakota State University, Department of Natural Resource Management; Peter J. Pfaff, South Dakota State University, Department of Natural Resource Management; Mark A. Kaemingk, University of North Dakota, Department of Biology; Cameron Goble, Alberta Environment and Protected Areas; Mark Fincel, South Dakota Game, Fish and Parks; Steven R. Chipps, U.S. Geological Survey, South Dakota Cooperative Fish and Wildlife Research Unit, South Dakota State University; Alison A. Coulter, South Dakota State University, Department of Natural Resource Management

**Abstract:** Nationwide declines in angler and hunter license sales are a concerning trend for natural resource management agencies that depend on these sales to effectively manage fish and wildlife populations. License buyers of different license categories may be responding differently to various management actions due to placing more value on certain factors than others. Previous work has suggested that fish stocking and other environmental factors could be impacting angler participation, but these relationships are rarely evaluated. However, trends from these relationships could be used to inform stocking and other management decisions if the goal is to increase angler license sales. The objective of this study was to identify if stocking (i.e. number, size, and species of fish stocked) and environmental (i.e. number of public fishing facilities present at waterbody and surface area of waterbody) factors are related to trends in sales for the eight South Dakota resident angling license types and four non-resident angling license types. We anticipate that general increases in stocking effort will increase sales of all license types, but the relative impact on sales of each license type will vary according to specific stocking factors (i.e. species stocked or size of fish stocked). We also hypothesize that sales of each license type will be influenced by different environmental factors. Based on the findings of this study, we hope to assist fisheries managers in determining how factors both within (i.e. species of fish stocked) and out of their control (i.e. surface area of waterbody) affect angler license sales with the possibility of increasing the efficiency of stocking for both the agency and anglers.

## Tuesday January 30 - Session 3 (3:20pm -5pm)

**Moderator: Eric Walberg**

**3:20 – Speaker: Johnathan Brooks, Ph.D. Candidate, Purdue University**

**Title: Intention to engage in behaviors that reduce the spread of CWD before and after web app use**

**Authors:** Jonathan D. Brooks, Purdue University; Aniruddha V. Belsare, Auburn University; Joe N. Caudell, Indiana Department of Natural Resources - Division of Fish and Wildlife; Zhao Ma, Purdue University; Patrick A. Zollner, Purdue University

**Abstract:** Many wildlife management agencies include herd size reduction in their chronic wasting disease (CWD) management plans. In addition to post-harvest culling, agencies have tried to reduce herd size by increasing bag limits or issuing more permits to hunters. However, increasing bag limits and permits issued has, in many cases, failed to increase harvest to levels that will reduce CWD spread. Insights into the failure of such regulation changes require a better understanding of hunter intentions to harvest more deer. One possible explanation for hunters failing to harvest more deer is their limited understanding of how increases in harvest can reduce CWD spread. To test this, we developed a web app which allows hunters and non-hunters to interactively view the probability of a CWD outbreak persisting. We then evaluate whether using the web app increases two behavioral intentions: (1) hunters harvesting one additional doe and (2) non-hunters adding wild venison to their diet. We developed a survey to measure factors influencing behavioral intention, guided by the Theory of Planned Behavior (TPB). TPB posits that individuals intend to engage in a behavior when they have a positive attitude toward the behavior, supportive normative influences, and high degree of perceived behavioral control. We recruited participants for the study through announcements in conservation organization newsletters and Indiana Department of Natural Resources social media pages. Participants completed a survey before and after using the web app. We tested for differences in attitudes, normative influences, and perceived behavioral control using multiple linear regression. Our results demonstrate why hunters are reluctant to harvest more deer thereby providing natural resource agencies with information to develop more effective CWD management strategies.

**3:40 – Speaker: Frank Lupi, Professor, Michigan State University**

**Title: Waterfowl hunting preferences at managed wetlands in Michigan: Informing a 10-year strategic plan**

**Authors:** Frank Lupi, Michigan State University; Barb Avers, Wildlife Division, Michigan Department of Natural Resources; Emily Pomeranz, Wildlife Division, Michigan Department of Natural Resources; Dave Fulton, Minnesota Cooperative Fish and Wildlife Research Unit, USGS; Mauri Liberati, Wildlife Division, Michigan Department of Natural Resources; Kelly Robinson, Georgia Cooperative Fish and Wildlife Research Unit, USGS; Kaitlyn Barnes, Wildlife Division, Michigan Department of Natural Resources.

**Abstract:** Michigan DNR is developing a 10-yr strategic plan for state-owned managed wetlands. While managed primarily for waterfowl habitat and hunting, these areas also provide opportunities for other outdoor recreation. Satisfaction with waterfowl hunter experiences is an important consideration of the plan, so a survey was recently conducted to assess hunter preferences for aspects of the waterfowl hunting program. Preferences were elicited using discrete choice survey questions that involved trade-offs between five attributes of hunting sites: (1) expected harvest, (2) expected waterfowl abundance, (3) effort to access a hunting site, (4) competition with other hunters, and (5) travel distance to the wetland. Hunt alternatives were created with an experimental design that generated combinations of these five attributes. Each survey question asked respondents to choose their preferred alternative of two alternatives presented. The statistical design of the alternatives allowed us to identify the effect each attribute had on choices respondents made. The overall survey response rate was 19% (n=798), with 73% (n=579) that visited a site and provided data for the discrete choice experiment. Results reveal the types of trade-offs hunters are willing to make between attributes, such as hunters being willing drive about 140 miles further to a site with an expected harvest of six birds compared to a site with expected harvest of one bird. However, results also showed significant variation across hunters, indicating there are subgroups of hunters that are much more (and much less) harvest oriented than the average hunter. We will present similar trade-offs between other study attributes. Results may be used to predict hunter preferences across a wide range of potential management scenarios that would affect site attributes. Results may also be used by Michigan DNR managers as part of the strategic planning process to understand implications of potential changes to the waterfowl hunting program.

**4:00 – Speaker:** Kiley Fryman, Graduate Research Assistant, Minnesota Cooperative Fish and Wildlife Research Unit

**Title:** Genetic biocontrol for aquatic invasive species: Understanding the public's perceptions

**Authors:** Kiley Fryman, Minnesota Cooperative Fish and Wildlife Research Unit, University of Minnesota; David C. Fulton, U.S. Geological Survey, Minnesota Cooperative Fish and Wildlife Research Unit, University of Minnesota

**Abstract:** Aquatic invasive species (AIS) have detrimental impacts on aquatic ecosystems and economies around the world. Current AIS management methods (i.e., chemical treatments, physical removal, etc.) have not been effective at curbing AIS populations which has led to a growing interest among managers and agencies in genetic biocontrol. Genetic biocontrol is any method that alters an organism's genetics to control invasive species populations and many experts believe it could be more effective than current methods with fewer non-target impacts. Genetic biocontrol could be a powerful tool for invasive species management, but, like other methods, its success will largely depend on the public's support and acceptance. The public's attitudes and perceptions of genetic biocontrol will be paramount in shaping the public's support. Attitudes are influenced by many factors such as the perceived benefits and risks, affect (i.e., general feelings and emotions), trust, knowledge, and socio-demographic characteristics. These

factors may also have direct impacts on support. Additionally, attitudes and perceptions of genetic technologies and invasive species management initiatives vary depending on the species, application, and technique. These contextual variables may also impact the relationships between support, attitudes, benefit/risk perceptions, and other influential factors. Thus, it is important to evaluate these relationships within the context of genetic biocontrol for AIS management. Using structural equation modeling (SEM), we will evaluate the factors influencing the public's support for the use of genetic biocontrol to manage AIS, zebra mussels (*Dreissena polymorpha*), and common carp (*Cyprinus carpio*). Data were collected from May 2023 to July 2023 using a self-administered online questionnaire which was administered through Qualtrics. Using a mail-push-to-web design, 27,000 residential addresses were contacted to participate and 2,445 responses were returned (response rate 9.4%).

**4:20 – Speaker:** David Hoffman, Natural Resource Tech, Iowa DNR

**Title:** Promoting habitat: engage, connect, empower, and instill and ownership: People protect what they value

**Authors:** David D. Hoffman, Wildlife Research Technician, Iowa Department of Natural Resources

**Abstract:** A primary mission of the Iowa DNR: To conserve and enhance our natural resources in cooperation with individuals and organizations to improve the quality of life in Iowa and ensure a legacy for future generations. A primary objective in achieving this is by protecting and restoring habitat. “Trumpet the Cause for Wetlands” is one of the wildlife and habitat restoration slogans. It is one method being utilized to connect, empower and instill an ownership with the people we serve. Trumpeter swans serve as excellent ambassadors for promoting wetland values, water quality, the environment, and enriching the quality of life. Over 450 swan releases and 40 winter swan viewing events “Swan Soiree” have been conducted by IADNR and county conservation staff. School children, media, legislators and the public have been invited to attend. The goal is to educate, engage and connect people with the Trumpeters and especially their habitat. An estimated 5,000-15,000 students and public have been impacted annually since 1995. Observed results have included a greater awareness, appreciation and empowerment. This has translated into additional wetland habitat acres being restored, improved water quality at restoration sites and increased wildlife populations including Trumpeter swans. Donations have also been received at these events to help support swan and wetland restoration. Money has come from a wide variety of swan enthusiasts, conservation groups, and charities. When combined with considerable soft match/in-kind contributions, a conservative estimate totaling over 1.5 million dollars has been raised to directly to fund swan and habitat reintroduction in Iowa. Additional outreach includes a Trumpeter swan and wetland education and activity manual. The manual was developed in 1996 has been distributed to Iowa school teachers and recently updated and offered for nationwide distribution. The public outreach effort has been a huge success by raising awareness in regards to these magnificent birds, habitat and by providing critical funding to carry out the work. It is important to engage, connect, empower and ultimately instill an ownership of our natural resources with the public. How do we measure this value? During challenging times with budget and staff cuts, outreach and education is often a low priority, plus many employees are not often skilled, educated or feel comfortable with this type of public involvement. People protect what they value. How do we better connect and empower the public to value and protect habitat?

**4:40 – Panel discussion**