



NASPS Annual Meeting Program 18-22 October 2026

		Location
Sunday October 18		
17:00 - 20:00	Registration Open	Locker Room
17:00 - 20:00	Welcome Social	Locker Room
Monday October 19		
7:00 - 8:15	Breakfast (included in registration)	Locker Room
7:30 - 8:30	Registration Open	Locker Room
8:30 - 10:10	Opening Remarks and Presentations	Locker Room
10:10 - 10:50	Morning Break	Locker Room
10:50 - 12:10	Presentations	Locker Room
12:10 - 13:40	Lunch (included in registration)	Locker Room
13:40 - 15:00	Presentations	Locker Room
15:00 - 15:40	Afternoon Break	Locker Room
15:40 - 17:20	Discussion Forum: Mass Mortality	Locker Room
Dinner on Your Own ¹		
Tuesday October 20		
7:00 - 8:15	Breakfast (included in registration)	Locker Room
7:30 - 8:30	Registration Open	Locker Room
8:30 - 10:10	Opening Remarks and Presentations	Locker Room
10:10 - 10:50	Morning Break	Locker Room
10:50 - 12:10	Presentations	Locker Room
12:10 - 13:40	Lunch (included in registration), Student/Mentor Lunch	Locker Room
13:40 - 14:40	Presentations	Locker Room
14:40 - 15:20	Afternoon Break	Locker Room
15:20 - 17:00	NASPS Business Meeting	Locker Room
18:00 - 20:00	Student & Professional Social Gathering	Suite Shots ²

¹ Multiple restaurants are available within the resort: Ruth's Chris Steak House, Margaritaville, Gridiron Sports Bar, Fireside Grill, Mazzios Go, and Landshark Pool Bar and Tiki Dining. Jenks Riverwalk across the river (accessible via free resort shuttle, see hotel front desk) features Andolini's Pizzeria, Burn Co. Barbeque, District Burger, Los Cabos Mexican Grill & Cantina, and Melting Pot. Other nearby restaurants include Waterfront Grill and others in downtown Jenks or Maguro Sushi, Napa Flats Wood-fired Kitchen, and Redrock Canyon Grill on S Riverside in Tulsa.

² Suite Shots is located across the Arkansas River at the Jenks Riverwalk. River Spirit will provide a shuttle to transport us and details will be announced.

Wednesday October 21

7:00 - 8:15	Breakfast (included in registration)	Locker Room
7:30 - 8:30	Registration	Locker Room
8:30 - 10:10	Opening Remarks and Presentations	Locker Room
10:10 - 10:50	Morning Break	Locker Room
10:50 - 12:10	Presentations	Locker Room
12:10 - 13:40	Lunch (included in registration)	Locker Room
13:40 - 14:40	Poster Session	Locker Room
14:40 - 15:20	Afternoon Break	Locker Room
15:20 - 17:00	Discussion Forum: Age and Longevity	Locker Room
19:00 - 22:00	Banquet (included in registration)	Locker Room

Thursday October 22

7:00 – 8:15	Breakfast (included in registration)	Locker Room
8:30 – 12:00	Paddlefish Workshop (box lunch provided)	Keystone Lake ³
8:30 – 12:00	Innovasea Telemetry Workshop (box lunch provided)	Locker Room

³ Meet for carpool at hotel lobby / circle drive at 7:45am.

NASPS Program - Monday, October 19, 2026

8:30-8:50	Opening, announcements
8:50-9:10	<u>Shasta Kamara*</u> . Impact of Acclimation Temperature on Thermal Tolerance, Preference and Performance in Paddlefish (<i>Polyodon spathula</i>).
9:10-9:30	<u>Eugin Bornman</u> . Linking Swimming Performance and Activity of Gulf Sturgeon (<i>Acipenser desotoi</i>) During Summer Holding Using Accelerometry and Video-Based Kinematics.
9:30-9:50	<u>Justin J. Kowalski*</u> . The Effect of Paddlefish Rostrum Damage on Water Flow.
9:50-10:10	<u>Jason Kahn</u> . York River Atlantic Sturgeon Growth Curves and Age Estimates from Mark-Recapture Data.
10:10-10:50	Morning break
10:50-11:10	<u>Jason D. Schooley</u> . Population Dynamics of a Paddlefish Restoration Stock in Oklahoma.
11:10-11:30	<u>Annie Hentschke</u> . Missouri Lake Sturgeon Recovery: 2026 Progress and Partnerships
11:30-11:50	<u>Ashlee Korte*</u> . Assessing The Efficiency of Three Sampling Gears for Age-1 Pallid Sturgeon on The Lower Missouri River.
11:50-12:10	Special presentation by <u>Molly Bullock</u> from <i>Watershed</i> on the Arkansas River.
12:10-13:40	Lunch
13:40-14:00	<u>Dennis DeVries</u> . Paddlefish in the Mobile Basin: Continuing to Expand Our Knowledge Base.
14:00-14:20	<u>Jason Kahn</u> . Endangered Species Act Regulatory Changes.
14:20-14:40	<u>Dennis L. Scarnecchia</u> . MICRA's Multi-Agency Framework Management Plan for Paddlefish – an Update on Progress.
14:40-15:00	<u>Jason D. Schooley</u> . The Silent Collision of Paddlefish and Bighead Carp in Northeast Oklahoma.
15:00-15:40	Afternoon break
15:40-17:20	Discussion Forum: Mass Mortality. <i>A continuation/update discussion on the NASPS best practices for rapid response and evaluation of mass mortality events for Paddlefish and Sturgeons.</i>

NASPS Program - Tuesday, October 20, 2026

8:30-8:50	Opening, announcements
8:50-9:10	Special presentation by <u>Nels Rodefeld</u> , Assistant Director of Oklahoma Department of Wildlife Conservation.
9:10-9:30	<u>Molly Webb</u> . Reproductive Senescence in Sturgeons and Paddlefish
9:30-9:50	<u>Shannon White</u> . Over A Decade of Acoustic Telemetry Data Shows We Know Nothing* About Atlantic Sturgeon.
9:50-10:10	<u>Kate R. Norrid</u> . Evaluating Paddlefish (<i>Polyodon spathula</i>) Trophic Ecology in the Dam-Regulated Alabama River System.
10:10-10:50	Morning break
10:50-11:10	<u>T. David Ritter</u> . Evaluating The Influence of Temperature and Salinity on Green Sturgeon Movements Within and Among Washington's Coastal Estuaries.
11:10-11:30	<u>Evelyn P. Pantelopoulos*</u> . What We Do in the Shallows: Exploring Paddlefish Depth Use in a Lake-Like System.
11:30-11:50	<u>Sean Sullivan*</u> . Long-Term Observations of Seasonal Habitat use by Juvenile Gulf Sturgeon in the Apalachicola River, FL.
11:50-12:10	<u>Steven J. Rider</u> . When Nature Removes a Barrier Do Fish Return: Gulf Sturgeon Movement and Habitat Use above the Breached Elba Hydroelectric Dam, Pea River, Alabama.
12:10-13:40	Lunch
13:40-14:00	<u>Michael J. Andres</u> . Gulf Sturgeon Use Around an Off-Bottom Oyster Culture Site in Relation to Other Habitats in Mississippi Sound.
14:00-14:20	<u>Logan Sleezer</u> . Evaluating An Approach to Relate Fine-Scale Habitat Use by Age-0 <i>Scaphirhynchus</i> Sturgeon to Trawl Catch.
14:20-14:40	<u>Amanda Higgs</u> . Rethinking Shortnose Sturgeon Ecology: Acoustic Telemetry Reveals Unexpected Behavioral Diversity.
14:40-15:20	Afternoon break
15:20-17:00	NASPS Annual Business Meeting

NASPS Program - Wednesday, October 20, 2026

8:30-8:50	Opening, announcements
8:50-9:10	<u>Ayodeji E. Fagbohun*</u> . A Mixture Design Approach to Complete Fishmeal Replacement in Grow-Out Diets for White Sturgeon (<i>Acipenser transmontanus</i>).
9:10-9:30	Travis Moore. Can Fingerling Lake Sturgeon be Trained to Commercial Feeds?
9:30-9:50	<u>Ralph Simmons</u> . Recent Advancements in Paddlefish Culture at Tishomingo NFH.
9:50-10:10	<u>James M. Long</u> . Paddlefish Depth Use Revealed with Down Imaging Sonar.
10:10-10:50	Morning break
10:50-11:10	<u>Courtney MacSween</u> . From Design to Detection: Optimizing the Latest Innovasea Technologies in Mixed Receiver Arrays.
11:10-11:30	<u>Marcus Prull</u> . Evaluation of Paddlefish Size Structure, Abundance, and Gear Effectiveness Using Recreational Grade Sonar.
11:30-11:50	<u>Wyatt A. Wolfenkoehler</u> . Comparing Paddlefish Population Estimates in Oklahoma Reservoirs Derived from Sonar and Mark-Recapture.
11:50-12:10	<u>Tom Boersig</u> . Where Are We at with Missouri's Recreational Paddlefish Fisheries?
12:10-13:40	Lunch
13:40-14:40	Poster Session <u>Corey Jerome</u>. – Age-0 Lake Sturgeon (<i>Acipenser fulvescens</i>) Habitat Selection in Two Michigan Rivers: Preliminary Results <u>Shasta Kamara*</u>. - Quantifying Relationships Between Egg Characteristics, Female Size, and Age Across the Range of Paddlefish <u>Lainey Kirshberger*</u>. – Development of Single Nucleotide Polymorphic (SNP) Markers to Assess Genetic Rescue Efforts for American Paddlefish in Grand Lake, Oklahoma <u>Kasea L. Price</u>. – River Sturgeon (<i>Scaphirhynchus</i> spp.) Habitat Associations During Low Water Conditions on the Mainstem Lower Mississippi River
14:40-15:20	Afternoon break
15:20-17:00	Discussion Forum: Age and Longevity of Paddlefish and Sturgeons. <i>A panel of experts will join us for a session exploring how their respective fields of study aim to answer the same fundamental questions.</i> <u>Alec Lackmann</u> , University of Minnesota, Duluth –Validated Age and Longevity Estimation from Hard Structures <u>Nina Overgaard Therkildsen</u> and <u>Kara S. Jones</u> , Cornell University – Genetic Tools for Estimation of Age and Longevity <u>Ed Baker</u> , Michigan Department of Natural Resources – Modelling Incremental Growth from Mark/Recapture Studies for Estimation of Longevity

NASPS 2026 Presentation and Poster Abstracts

Abstracts are listed alphabetically by the presenter's last name (underlined). Student presenters are denoted with an asterisk (*) and poster presentations are denoted with a plus (+).

1. <u>Michael J. Andres</u>, Division of Coastal Sciences, University of Southern Mississippi 2. Paul O. Grammer, Center for Fisheries Research and Development, University of Southern Mississippi 3. Alyssa M. Pagel, Division of Coastal Sciences, University of Southern Mississippi 4. Eugin Bornman, Division of Coastal Sciences, University of Southern Mississippi 5. Kasea L. Price, U.S. Army Engineer Research and Development Center, USACE 6. Joel Yeager, Division of Coastal Sciences, University of Southern Mississippi	Gulf Sturgeon Use Around an Off-Bottom Oyster Culture Site in Relation to Other Habitats in Mississippi Sound
The continued decline of Eastern oyster populations over the past two decades has led Gulf states to prioritize oyster enhancement. The decline in oyster production within Mississippi waters has been associated with harvest, disease, and freshwater diversions into Mississippi Sound. Establishing new reefs in Mississippi Sound by state managers is complicated by the designation of the entire sound as critical habitat for Gulf Sturgeon and by limited areas of suitable oyster habitat. Therefore, resource managers have turned to off-bottom culture (OCS) to provide a reduced area for permitting and to reduce issues of reef subsidence. In these culture systems, oysters are suspended in cages which may provide ecological benefits through increased filtration, habitat for reef-associated fauna, and a trophic subsidy for resident and transient nekton (through increased prey availability from fouling organisms and oysters themselves, through benthic enrichment from feces and pseudo-feces). However, the potential impact of OCS on Gulf Sturgeon has not been evaluated; therefore, our study aims to provide data on how Gulf Sturgeon may use an OCS relative to open bottom and natural oyster reef sites in Mississippi Sound. We used a combination of sonar camera transects and acoustic telemetry to compare use of these habitats by Gulf Sturgeon and other fisheries species. Through the first year of acoustic monitoring, we found Gulf Sturgeon use was lowest at the nearby oyster reef site compared to the OCS and open bottom sites whereas Sheephead and Gafftopsail Catfish had the reverse pattern. Sonar transects poorly documented sturgeon in the area, in part because sturgeon use was relatively low compared to other coastal habitats; however, feeding pits appeared most abundant around the OCS habitat, suggesting sturgeon may interact with OCS habitats more frequently than indicated by our survey methods.	

1. <u>Tom Boersig</u>, Missouri Department of Conservation 2. Chris Brooke, Missouri Department of Conservation 3. Josh Abner, Missouri Department of Conservation	Where Are We at with Missouri's Recreational Paddlefish Fisheries?
Paddlefish require careful management to prevent overharvest. We conducted a two-year study alongside revisions to Missouri's statewide Paddlefish Management Plan to collect fisheries dependent and independent data regarding this unique species. Department staff sampled more than 4,500 Paddlefish at Lake of the Ozarks, Harry S Truman Reservoir, and Table Rock Lake between 2025 and 2026, fitting legal-size fish with high reward (\$75) and low-reward (\$25) jaw bands. Staff conducted 1886 interviews of Paddlefish anglers to understand catch, effort, and angler motivations. Exploitation rates using high-low tag return systems were higher than previous estimates using other methods; as high as 27.4% in Lake of the Ozarks during the 2026 snagging season. Anglers were generally harvest interested, expressing interest in harvesting any Paddlefish, or a limit of Paddlefish, as they primary motivation for angling. Approximately 28% of anglers were willing to release the fish they harvested, and 82% of anglers supported a four fish season limit. Approximately 44% of anglers reported using forward-facing sonar to harvest tagged fish; accounting for 63% of tagged fish which were reported. These data will be used by Missouri's Paddlefish Working Group to develop regulations designed to curb concerns of Paddlefish overharvest, as well as help inform hatchery production and public outreach efforts.	

1. <u>Eugin Bornman</u>, University of Southern Mississippi 2. Nicky M. Fauchaux, U.S. Army Corps of Engineers 3. W. Todd Slack, U.S. Army Corps of Engineers 4. Morgan K. Segrest, University of Southern Mississippi 5. Michael J. Andres, University of Southern Mississippi	Linking Swimming Performance and Activity of Gulf Sturgeon (<i>Acipenser desotoi</i>) During Summer Holding Using Accelerometry and Video-Based Kinematics
Gulf Sturgeon (<i>Acipenser desotoi</i>) occupy freshwater holding habitats throughout summer and early autumn, when they generally cease feeding and rely on stored energy reserves. Although individuals are thought to show strong site fidelity to these habitats, factors influencing activity during this prolonged fasting period remain poorly understood. We combined stepped swim-flume experiments with implanted acoustic accelerometer transmitters and high-resolution video tracking to validate acceleration as a measure of activity. Three Gulf Sturgeon completed controlled swim-flume trials in which swimming speed, opercular beat	

frequency, video-derived body movement, and transmitted acceleration were simultaneously recorded. We then applied these relationships to approximately 100 accelerometer-equipped Gulf Sturgeon monitored in the Pearl and Pascagoula river systems. During July–September holding, we examined whether individual activity was associated with water temperature, movement distance and spawning migration. Accelerometer measurements were related to swimming activity during controlled trials, providing a basis for interpreting field acceleration as a relative measure of activity. Field analyses revealed variation in activity among individuals and allowed us to evaluate associations with movement history and environmental conditions. This study demonstrates how experimentally validated accelerometer telemetry can be used to examine activity patterns of Gulf Sturgeon. Understanding variation in activity during summer holding may provide new insight into how individuals respond to environmental conditions and use critical holding habitats.

1. Dennis R. DeVries, School of Fisheries, Aquaculture & Aquatic Sciences, Auburn University, AL
2. Russell A. Wright, School of Fisheries, Aquaculture & Aquatic Sciences, Auburn University, AL
3. David L Smith, U.S. Army Corps Engineer Research and Development Center, Vicksburg, MS
4. Ehlana Stell, GSI Family of Companies, Honolulu, HI
5. Christa Woodley, U.S. Army Corps Engineer Research and Development Center, Vicksburg, MS
6. William Lee, Alabama Department of Conservation and Natural Resources, Wildlife and Freshwater Fisheries Division, Spanish Fort, AL
7. Justin Kowalski, School of Fisheries, Aquaculture & Aquatic Sciences, Auburn University, AL
8. Kalli (Parauka) Terrio, School of Fisheries, Aquaculture & Aquatic Sciences, Auburn University, AL
9. Chris Smith, Georgia Department of Natural Resources, Rome, GA

Paddlefish in the Mobile Basin: Continuing to Expand Our Knowledge Base

Paddlefish continue to face a variety of stressors such as loss of river connectivity due to dams and overharvest throughout their range, including the population within the Mobile Basin. Building upon years of research in the Mobile Basin, we continue to study Paddlefish energetics, performance, life history traits, and movement patterns in an effort to generate as complete a picture as possible toward their effective management. Passage continues to be minimal across the three Alabama River lock-and-dam (L&D) structures, with nearly all passage occurring at the lowermost L&D structure that contains a crested spillway, and essentially no passage at the upper two L&D structures. However, passage at the lowermost L&D structure relies heavily on having sufficiently high water levels to allow fish to pass over the crested spillway as there has been little evidence of passage through the lock. Populations that are separated by the Alabama River L&Ds appear to be sustained despite the altered connectivity. Within the system, we have documented extensive fish movement patterns that can span from the estuarine Mobile-Tensaw River Delta upstream to the middle Alabama River. Despite historic speculation, reproduction in upper reaches does not seem to rely on the Cahaba River. Fish during summer may be experiencing higher temperatures than expected based on limited published thermal tolerance information, suggesting possible higher thermal tolerances for adults in this system, which already diverge from Mississippi basin Paddlefish in life history traits and genetics. Collectively, our results provide important information for Paddlefish management and conservation, particularly relative to the potential bypass channels that have been proposed for the lowermost two L&D structures as a part of a USACE-TNC Joint Feasibility Study, although a number of data gaps remain.

1. Ayodeji E. Fagbohun*, Department of Animal Science, University of California, Davis, California
2. Alex J. Wright, Department of Animal Science, University of California, Davis, California
3. Wendy M. Sealey, USDA, ARS, Bozeman Fish Technology Center, Bozeman, Montana
4. Madison S. Powell, Aquaculture Research Institute, University of Idaho, Hagerman, Idaho
5. Jackson A. Gross, Department of Animal Science, University of California, Davis, California

A Mixture Design Approach to Complete Fishmeal Replacement in Grow-Out Diets for White Sturgeon (*Acipenser transmontanus*)

Fishmeal remains a high-quality protein source in aquafeeds, but its high cost and the need to reduce dependence on marine-derived feed ingredients have increased interest in fully replacing fishmeal. Limited information exists on complete fishmeal replacement in practical grow-out diets for white sturgeon reared under commercial production conditions. This study applied a mixture design methodology to evaluate poultry, corn, and soy protein blends in fishmeal-free diets and identify proportions that optimize growth, feed utilization, and whole-body composition. Six fishmeal-free diets were formulated with each protein blend constrained to 20-60% of the total alternative protein mixture and included a fishmeal-based diet as the control. Five hundred PIT-tagged white sturgeon (initial body weight 2116 ± 340 g) were stocked at 50 fish per tank in ten 7.0m diameter outdoor circular concrete tanks and hand-fed at 1.5% tank biomass daily for 20 weeks. The 27% poultry:47% corn:27% soy protein blend

performed best, with the highest weight gain (2091.7g; 99.4%), specific growth rate (0.51%/day), and protein efficiency ratio (0.94), and the lowest FCR (2.37), closely matching the fishmeal control diet (2052.1g weight gain, 97.0%, FCR 2.46). Increasing the soy or corn blend to 60% reduced weight gain, with the soy-protein blend producing the lowest weight gain among the fishmeal-free diets. Mixture modeling identified a high-performing region of 27-30% poultry, 42-47% corn, and 27-30% soy protein blend, consistent with the tested 27:47:27 formulation. These results establish that grow-out white sturgeon performance can be fully sustained on a completely fishmeal-free diet and support its adoption in commercial production.

1. Annie Hentschke, Missouri Department of Conservation

Missouri Lake Sturgeon Recovery: 2026 Progress and Partnerships

The State of Missouri, together with federal and state partners, is accelerating recovery efforts for lake sturgeon through innovative collaborations and targeted projects. In 2026, Missouri is partnering with the US Army Corps of Engineers (USACE) on Sustainable Rivers Projects, advancing hatchery spawning and stocking, and collaborating on the USACE Navigation and Ecosystem Sustainability Program (NESP) Lock & Dam 22 Fish Passage Project on the Mississippi River. Additional initiatives include a new feed trial with Dr. David Bergerhouse and Jeremiah Haas at Constellation Energy Hatchery in Illinois, a proposed study with the University of Missouri to identify thermal refuges for lake sturgeon, and support for the Upper Mississippi River Conservation Committee's Lake Sturgeon Management Plan Framework—a multi-state collaboration involving Minnesota, Wisconsin, Iowa, Illinois, and Missouri. These efforts highlight Missouri's leadership and commitment to the species' recovery.

1. Amanda Higgs, Cornell University, in cooperation with New York State Department of Environmental Conservation
2. Shannon White, U.S. Geological Survey
3. Dewayne Fox, Delaware State University
4. Richard Pendleton, Cornell University, in cooperation with New York State Department of Environmental Conservation
5. Dave Kazyak, U.S. Geological Survey
6. Nina Overgaard Therkildsen, Cornell University

Rethinking Shortnose Sturgeon Ecology: Acoustic Telemetry Reveals Unexpected Behavioral Diversity

Shortnose sturgeon (*Acipenser brevirostrum*) are an endangered species found in rivers along the Atlantic coast of North America. For decades, they have been considered amphidromous, with individuals thought to spend their lives within discrete areas of their natal river. However, growing evidence from the Hudson River and other populations throughout the species' range suggests this long-standing paradigm is incomplete. In the Hudson River, acoustic telemetry has revealed a previously unrecognized contingent of shortnose sturgeon that regularly migrates to New York Harbor and to the ocean. But, as the telemetry record has expanded, it has become clear that the Hudson River shortnose sturgeon population also comprises multiple additional behavioral phenotypes. Individuals within each phenotype show high fidelity to the same regions of the estuary across years, with different phenotypes remaining spatially segregated throughout the year. The mechanisms underlying these behavioral phenotypes remain unknown, but their ecological and conservation significance could be substantial if individuals experience different habitats and associated stressors. We will present evidence for this behavioral diversity from long-term acoustic telemetry and discuss ongoing genomic analyses designed to test whether these phenotypes have a genetic basis. Understanding the causes of this behavioral diversity will provide new insights into the ecological and evolutionary processes shaping shortnose sturgeon populations. Ultimately, these advances will help in determining whether different behavioral phenotypes may benefit from distinct conservation and recovery strategies.

1. Elliot Hoinville, Annis Water Resources Institute, Grand Valley State University
2. John Lawrence, Annis Water Resources Institute, Grand Valley State University
3. Carl Ruetz III, Annis Water Resources Institute, Grand Valley State University
4. Sean Woznicki, Annis Water Resources Institute, Grand Valley State University
5. Jason Fischer, USFWS Alpena Fish and Wildlife Conservation Office Detroit River Substation
6. Corey Jerome+, Little River Band of Ottawa Indians Natural Resources Department
7. Bradley Smith, Green Bay Fish and Wildlife Conservation Office

Age-0 Lake Sturgeon (*Acipenser fulvescens*) Habitat Selection in Two Michigan Rivers: Preliminary Results

Lake sturgeon (*Acipenser fulvescens*) are a charismatic threatened species in the Great Lakes region, and existing habitat suitability indices (HSIs) fail to fully predict the habitat selection of age-0 individuals. We assessed instream habitat on the Muskegon and Manistee Rivers to model suitable habitat for age-0 lake sturgeon. Stream substrate was mapped using recreational grade side-scan SONAR, and bathymetry data was collected using an acoustic doppler current profiler. These data will be used to create HSIs using published metrics (i.e. substrate, depth, and water velocity). To validate HSIs, spotlight surveys are coupled with radio telemetry to provide estimates of habitat selection. This coupled approach will aid in determining flaws in existing HSIs for the species at this life stage. Age-0 lake sturgeon were collected via nighttime spotlight surveys on the

Muskegon River, and water depths, velocities, and substrate data were measured at each collection site and adjacent areas to determine habitat at known occupation sites. A subset of 31 fish were implanted with radio tags to assess habitat use across a broad temporal scale with relocation efforts occurring weekly throughout the fall. Preliminary results from spotlight and tracking surveys indicate that age-0 lake sturgeon in the Muskegon River were commonly found over fine substrates (i.e. sand, gravel), at shallow depths (0.5-1.5m), and over a range of bottom velocities (0.07-0.64 m/s). Similar data will be taken on age-0 lake sturgeon on the Manistee River in the Fall of 2026. Results will be used to improve existing HSI for age-0 lake sturgeon in the region to support ongoing reintroduction efforts.

1. Jason Kahn, National Marine Fisheries Service	Endangered Species Act Regulatory Changes
The Endangered Species Act (ESA) was passed in 1973. The law tasked the US Fish and Wildlife Service and National Marine Fisheries Service (together, the Services) with conserving threatened and endangered species. Following the landmark Tennessee Valley Authority (TVA) v Hill Supreme Court case, Congress amended the ESA three times in 1978, 1979, and 1982. After the 1982 amendment (the last time Congress amended the law), the Services proposed regulations to help implement the ESA. Those regulations, finalized in 1986, changed very little until 2015. This talk will discuss the history of the ESA, its implementing regulations, and the many changes that have occurred in the last decade.	

1. Jason Kahn, National Marine Fisheries Service 2. Chris Hager, Chesapeake Scientific, LLC	York River Atlantic Sturgeon Growth Curves and Age Estimates from Mark-Recapture Data
Atlantic sturgeon are a large, long-lived, anadromous species. Efforts to estimate the true age of wild sturgeon are complicated because traditional methods of aging fish can under-estimate the true age by as much as 1.5 to 2 times the estimated age. Researchers rely on length-at-age curves as a way of understanding fish life histories and population structure. Existing growth curves of Atlantic sturgeon have been developed using capture data from several populations, never explicitly addressing that estimated age may be under-estimated. This study produces a growth curve for the York River adult Atlantic sturgeon population by evaluating the change in total length between time of initial capture and last capture. Observed growth rates are different for male and female adults with females reaching greater lengths. Adult York River female Atlantic sturgeon have a maximum length (L_{∞}) of 266 cm TL and growth increment (k) of 0.022 cm per year while males have a maximum length of 215 cm TL and growth increment of 0.014 cm per year. Calculating theoretical ages at L_{∞} suggests that males and females may reach ages of approximately 368 and 236 years, respectively; considerably greater than the reported maximum age of 64.	

1. Shasta Kamara*, University of Illinois Urbana-Champaign 2. Sandra Leal, University of Illinois Urbana-Champaign 3. Joelle Busby, University of Illinois Urbana-Champaign 4. Liz Kim, University of Illinois Urbana-Champaign 5. Adam Transue, University of Illinois Urbana-Champaign 6. Cory Suski, University of Illinois Urbana-Champaign	Impact of Acclimation Temperature on Thermal Tolerance, Preference and Performance in Paddlefish (<i>Polyodon spathula</i>)
American paddlefish (<i>Polyodon spathula</i>) are large charismatic riverine species with a broad geographic range, spanning from Louisiana to Montana. Paddlefish also are considered vulnerable by the IUCN and have large commercial and recreational fisheries that may be affected by a warming climate. At present, the thermal tolerance, preference and performance of paddlefish from their different geographic regions is not well understood, precluding us from predicting how paddlefish populations may respond to acute warming events and continued warming from climate change. Quantifying the thermal adaptive capacity of this species across their latitudinal range would help bridge this knowledge gap and allow for the creation of thermally informed management strategies cognizant of climate change. Therefore, the objective of this study was to quantify the thermal tolerance and performance of paddlefish across a range of temperatures, using individuals from across the entirety of their range. To accomplish this goal, we transported juvenile paddlefish from hatcheries in both South Dakota and Oklahoma to a hatchery in Illinois and acclimated them to experimental temperatures of 13, 17, and 23°C. Fish from each of these temperatures were subjected to four different challenges to identify responses to thermal regimes 1) upper and lower thermal tolerance via critical thermal minimum and maximum trials, 2) static respirometry to quantify metabolic rates, 3) swim performance using a swim tunnel, and 4) thermal preference with a shuttlebox system. Results indicate that juvenile paddlefish are resilient to current and impending climatic changes, exhibit both a wide thermal tolerance breadth and equal swim performance, and show limited changes in metabolic scope across temperatures. Limited differences between stocks indicate paddlefish have similar physiological tolerances across their broad range. Together, these data help quantify the adaptive capacity of paddlefish and better equip managers for potential changes to populations due to changing climate and thermal regimes.	

1. Shasta Kamara*, University of Illinois Urbana-Champaign 2. Joelle Busby, University of Illinois Urbana-Champaign 3. Sandra Leal, University of Illinois Urbana-Champaign 4. Liz Kim, University of Illinois Urbana-Champaign 5. Cory Suski, University of Illinois Urbana-Champaign	Quantifying Relationships Between Egg Characteristics, Female Size, and Age Across the Range of Paddlefish
American Paddlefish (<i>Polyodon spathula</i>) have commercial and recreational fisheries throughout their range, which covers a wide latitudinal gradient. This range has led to the expression of compressed life history strategies in the southern reaches of their range compared to the longer-lived, later-maturing fish in the northern extent of their range. This difference in life history, paired with the commercial importance of paddlefish in the caviar industry, means that larger, older, and potentially more fecund	

female paddlefish are disproportionately removed from the population relative to smaller females, which could have implications for which females contribute offspring to a population. Quantifying latitudinal trends in paddlefish gamete characteristics can aid in stock management and predicting how paddlefish life history may change with climate warming. Therefore, the goal of this study is to quantify size-based variation in paddlefish gamete characteristics, with an emphasis on females and egg characteristics throughout their range. To accomplish this goal, we collected egg samples from 130 females in two ways across the latitudinal distribution of paddlefish. First, we obtained eggs from wild-caught hatchery broodstock in Louisiana, Missouri, and South Dakota. Second, we collected eggs via direct collections or angler donations in Oklahoma, Missouri, Illinois, and Montana. Eggs were assessed for characteristics related to offspring nutrition and development, and compared across sizes within a latitude, as well as across latitudes, to quantify reproductive strategies across their range. There was a positive relationship between female size and age, with patterns in egg characteristics being similar across the two metrics. Larger female paddlefish produced larger and more eggs compared to smaller females in most regions. Thus, the removal of larger females through targeted commercial harvest could result in smaller, less fecund females being left to reproduce in many stocks. These data highlight the importance of the reproductive potential of large female paddlefish.

1. <u>Lainey Kirshberger</u>^{*,+}, Oklahoma State University 2. Jim Long, U.S. Geological Survey Oklahoma Cooperative Fish and Wildlife Research Unit 3. Antonio Castilla, Oklahoma State University 4. Jason Schooley, Oklahoma Department of Wildlife Conservation	Development Of Single Nucleotide Polymorphic (SNP) Markers to Assess Genetic Rescue Efforts for American Paddlefish in Grand Lake, Oklahoma
Loss of connectivity due to mainstem dams, coupled with sporadic recruitment, have reduced the genetic diversity of American Paddlefish in Grand Lake, Oklahoma. Since 2021, the Oklahoma Department of Wildlife Conservation has used a combination of direct translocation of individuals from Keystone Lake into Grand Lake and hatchery supplementation to simulate the historic connectivity between these bodies of water as part of a genetic rescue effort. Because Paddlefish are long-lived, mature late, and require additional years to become susceptible to capture by sampling gear, a long-term genetic monitoring tool is needed to assess the effectiveness of this management program. To create a long-lasting genetic monitoring tool, we are developing a genotyping-in-thousands sequencing (GT-seq) panel to identify alleles associated with the two primary sources of paddlefish used in this project. Using fin clips from adult fish from both populations, we will identify loci that capture genetic variation and can be used to distinguish between these populations for GT-seq primer development. We will then use larvae produced from broodstock parents across four years of crosses to evaluate the discriminatory power of the resulting SNP panel. The development of this panel will allow us to gauge current genetic diversity in Grand Lake as well as track the incorporation of Keystone genetics into the population.	

1. <u>Ashlee Korte</u>[*], Oklahoma State University and U.S. Army Corps of Engineers 2. James Long, U.S. Geological Survey, Oklahoma Cooperative Fish and Wildlife Research Unit 3. Jeffrey Slipke, U.S. Army Corps of Engineers 4. David Stewart, U.S. Fish and Wildlife Service	Assessing The Efficiency of Three Sampling Gears for Age-1 Pallid Sturgeon on The Lower Missouri River
The pallid sturgeon (<i>Scaphirhynchus albus</i>), a large-river species, is federally listed as endangered in the United States due to overharvest and habitat alteration, primarily from dam construction and channelization of the Missouri River. These changes have impacted natural recruitment, particularly to age-1. In 2001, the U.S. Army Corps of Engineers, in collaboration with other state and federal agencies, began a pallid sturgeon population assessment effort across the entirety of the Missouri River. Key recovery objectives included identifying critical habitats and accurately estimating age-1 recruitment rates. However, capturing age-1 sturgeons in the lower Missouri River has proven challenging. To address this, we conducted a formal evaluation of gear efficiency. We used 501 hatchery-reared age-1 pallid sturgeons, 100 of which were implanted with acoustic transmitters to monitor post-stocking movements and guide targeted sampling efforts. Based on historical data, three gear types were selected for evaluation: otter trawl (16-millimeter mesh size), trammel net (25-millimeter inner mesh size) and trotlines (3/0 circle hooks). Of the 100 telemetry-tagged fish stocked, approximately 60% left the study area during the sampling period, leaving 40% available for capture with our study gears. With those gears, we captured 21 of the approximately 200 age-1 pallid sturgeons that remained in the study area; 11 of which were acoustically tagged and 10 were untagged. Catch differed among gear types, with trotlines and trammel nets outperforming otter trawls. Trotlines accounted for the highest number of captures ($n = 10$), followed closely by trammel nets ($n = 7$), whereas otter trawls were the least effective ($n = 4$). Gear efficiency models indicated that capture probability was influenced particularly by gage height and fish availability for active gears, and soak duration for trotlines. These results provide guidance for improving age-1 pallid sturgeon sampling in the lower Missouri River.	

1. <u>Justin J. Kowalski</u>[*], Auburn University 2. David L. Smith, US Army Corps of Engineers 3. Steven J. Rider, Alabama Department of Conservation and Natural Resources 4. Dennis R. DeVries, Auburn University 5. Russell A. Wright, Auburn University	The Effect of Paddlefish Rostrum Damage on Water Flow
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The elongated “paddle-like” rostrum is a unique characteristic of Paddlefish (*Polyodon spathula*). Rostrum functions include both locating prey and assisting hydrodynamics (both swimming and feeding). Rostra are sometimes damaged (damage rates can exceed 70% of fish in an area), which could affect Paddlefish feeding and their ability to maintain their position in the water column. If rostrum damage has a negative effect on a paddlefish, high rates of rostrum damage could have population-level implications. We used particle image velocimetry (PIV) to quantify the flow of water around five models of Paddlefish rostra with four different types of rostrum damage, with an undamaged rostrum serving as the control. The four forms of damage were severed, bent-up, bent-down, and split-bent. We observed movement of visible, neutrally buoyant particles seeded in a 90 L swim tunnel around each of the rostra at water velocities between 0.1 and 0.5 m/sec. PIV results were compared across the four damaged and the undamaged rostrum. Water flow around the severed and split-bent rostra was not significantly diverted or altered from the water flow in front of the rostrum and was similar to the flow of water around the undamaged rostrum. However, for the bent-up and bent-down rostra the flow of water in front of the rostrum was altered as water moved around the bent portion. Water velocity behind the bent portion of the rostrum was slower in the same direction of the flow for both bent rostra. Additionally, vortices formed behind the bent-up portion of the bent-up rostrum, and an eddy formed behind the bent-down portion of the bent-down rostrum. These results show that there are hydrodynamic impacts of rostrum damage and suggest that research is needed on the implications of these impacts on Paddlefish migration ability, passage of lock-and-dam structures, and ultimately on ability to feed/bioenergetics.

1. James M. Long, US Geological Survey, Oklahoma Cooperative Fish and Wildlife Research Unit
2. Wyatt A. Wolfenkoehler, Oklahoma State University
3. Ryan A. Gary, Oklahoma State University
4. Josey L. Ridgway, U.S. Geological Survey, Columbia Environmental Research Center
5. Jesse R. Fischer, U.S. Geological Survey, Columbia Environmental Research Center
6. Jason D. Schooley, Oklahoma Department of Wildlife Conservation

Paddlefish Depth Use Revealed with Down Imaging Sonar

The Paddlefish (*Polyodon spathula*) is a pelagic fish species occupying large rivers and reservoirs of the United States, but studies of the depth over which and at which Paddlefish occur have been limited. Understanding the depth that Paddlefish occupy can inform management, especially gill-net sampling protocols, which is the main tool for capturing and monitoring this species. As a result, we sought to document Paddlefish depth use in a variety of settings by using down-imaging from a consumer-grade side-scan sonar (SSS) unit. We used a Humminbird MEGA imaging SSS unit mounted to a boat or semi-autonomous kayak and performed surveys along transects in two large reservoirs in Oklahoma (Lake Eufaula and Grand Lake O' the Cherokees) during winter, one river in Oklahoma (Verdigris River) during the spring spawning season, and two small reservoirs in Missouri (Alpine and Innsbrook lakes) during summer at both day and night. We imported sonar tracks into ReefMaster 2.0 and counted Paddlefish from the down-scan channel, marking the depth of the fish and the water. Across all systems and seasons, Paddlefish depth use showed a consistent linear pattern, occupying greater depths as available water depth increases. Paddlefish were found as deep as 18 m in Grand Lake. Gill nets set to fish between 2 and 9 m would intercept ~82% of Paddlefish in Lake Eufaula but only ~20% in Grand Lake. In the smaller Missouri reservoirs, a strong thermocline restricted Paddlefish to shallower depths, and depth use did not differ between daytime and nighttime surveys, making them readily susceptible to capture using current gill netting protocols.

1. Jennie Korus, Innovasea Bedford, NS Canada
2. Colleen Burliuk, Innovasea Bedford, NS Canada
3. Hugh Pederson, Innovasea Hobart, Tasmania Australia
4. Stephanie Smedbol, Innovasea Bedford, NS Canada
5. Courtney MacSween, Innovasea Bedford, NS Canada

From Design to Detection: Optimizing the Latest Innovasea Technologies in Mixed Receiver Arrays

Over the last couple of years, Innovasea technology has undergone a significant evolution, creating new opportunities to enhance animal tracking research. Reliable acoustic telemetry studies require array designs that support strong detection performance and accurate interpretation of fish movement, survival, and behaviour. As research programs increasingly use mixed systems that combine VR2-family and NexTrak receivers, study designs must account for differences in receiver performance, detection efficiency, spacing, tag delay settings, and overall array configuration. Integrating practical design strategies with ongoing performance monitoring can improve spatial coverage, reduce hardware requirements, and increase detection efficiency while limiting bias in ecological conclusions. This presentation will offer insights into the Innovasea technology roadmap as well as practical guidelines for incorporating NexTrak system components into acoustic telemetry studies, with a focus on generating richer, higher-quality data from emerging tag and receiver technologies.

1. Travis Moore, Missouri Department of Conservation
2. Dr. David Bergerhouse, Southern Illinois University
3. Jeremiah Haas, Constellation Nuclear

Can Fingerling Lake Sturgeon be Trained to Commercial Feeds?

During winter 2025-2026, Dr. Bergerhouse and Mr. Haas successfully raised 7-inch fingerling lake sturgeon to nearly 1-pound fish using a blended natural and commercial feed. In 2026, the Missouri Department of Conservation partnered with Constellation Nuclear to see if 3-4-inch fingerlings could be trained to a commercial feed, which feed formulation worked the best, and if they

do convert, how would they grow? In phase 1, approximately 350 fingerlings will be grown out throw September and results reported. In phase 2, 30 fingerlings will be retained and fed the most promising commercial diet until March, then assessed. This presentation will share results of the 2025-2026 effort, and the initial results of the 2026 feed trials.

1. Kate R. Norrid, Auburn University School of Fisheries, Aquaculture, and Aquatic Sciences (SFAAS) 2. Dennis R. DeVries, Auburn University SFAAS 3. Russell A. Wright, Auburn University SFAAS 4. Andrew L. Rypel, Auburn University SFAAS 5. Matthew N. Waters, Auburn University Department of Crop, Soil, and Environmental Sciences	Evaluating Paddlefish (<i>Polyodon spathula</i>) Trophic Ecology in the Dam-Regulated Alabama River System
Paddlefish (<i>Polyodon spathula</i>) are highly mobile planktivores whose movements link food web processes across broad spatial scales in large river systems. However, their long-range migrations make them particularly susceptible to fragmentation of river connectivity caused by dams. Dams alter flow regimes, nutrient dynamics, and longitudinal connectivity, which may influence Paddlefish trophic ecology by modifying the availability and distribution of basal resources. Here, we evaluated spatial variation in Paddlefish stable isotope signatures within the Alabama River, USA, while simultaneously characterizing the broader food web to provide ecological context. We sampled sites immediately upstream and downstream of three lock-and-dam structures located sequentially along the Alabama River. At each site, we measured seasonal stable isotope signatures ($\delta^{13}\text{C}$ and $\delta^{15}\text{N}$) of white muscle tissue from four fish species (Threadfin Shad [<i>Dorosoma petenense</i>], Smallmouth Buffalo [<i>Ictiobus bubalus</i>], Freshwater Drum [<i>Aplodinotus grunniens</i>], and Alabama Bass [<i>Micropterus henshallii</i>]), annual (spring) stable isotope signatures of Paddlefish white muscle tissue, and seasonal stable isotope signatures of seston, macroinvertebrates, and surface sediment to characterize basal resources. Most fish species exhibited progressive downstream depletion in $\delta^{15}\text{N}$, whereas Paddlefish did not. After accounting for spatial variation in baseline nitrogen isotope values, estimated Paddlefish trophic position increased moving downstream. Paddlefish also exhibited relatively $\delta^{13}\text{C}$-depleted values compared to the other study species (with the exception of Threadfin Shad), although individuals collected in the lower Alabama River (lowest section of the study area) instead exhibited elevated $\delta^{13}\text{C}$ values and C:N ratios, potentially reflecting greater influence from hydrologically connected Mobile-Tensaw River Delta habitats used during seasonal movements. Paddlefish exhibited their smallest isotopic niche area in Claiborne Lake, the middle section of the study reach. These findings suggest that Paddlefish integrate spatially variable food web processes differently than other large-river fishes and provide a baseline for evaluating potential ecological responses to future river restoration and connectivity enhancement efforts, including proposed fish passage projects in the Alabama River.	

1. Evelyn P. Pantelopoulous*, University of Southern Mississippi 2. Olivia A. St Germain, University of Southern Mississippi and University of Northern British Columbia 3. Michael J. Andres, University of Southern Mississippi	What We Do in the Shallows: Exploring Paddlefish Depth Use in a Lake-Like System
Habitat use is a key component of fish ecology, providing insight into how individuals access resources and respond to changing environmental conditions. Understanding how fishes use and respond to their environment is critical for identifying habitat requirements and informing conservation strategies, particularly for migratory species. Paddlefish (<i>Polyodon spathula</i>) are a migratory species and are experiencing declines across their range partially due to habitat alteration. The population status of paddlefish in Mississippi remains poorly understood; however, they inhabit multiple tributaries - including the Pascagoula River system. As the largest free-flowing river system in the contiguous United States with diverse aquatic habitats, the Pascagoula River system provides a unique opportunity to monitor paddlefish habitat use. Although paddlefish migrations have been documented in similar systems, little is known about their vertical habitat use. Depth occupancy can provide insights such as responses to changing water temperatures or oxygen availability as well as feeding behavior, factors that influence growth and survival. To investigate patterns of vertical habitat use, we implanted 8 paddlefish with acoustic tags equipped with depth and temperature sensors in the Bouie River, a human-modified tributary of the Pascagoula River. Preliminary results showed distinct diel and seasonal patterns in depth use. During warm, stratified periods, paddlefish occupied shallow depths (< 3 m) at night (6 pm-5 am) and deeper depths during the day. Cooler, well-mixed periods showed a more uniform depth occupancy. Our results imply that temperature may play a large factor in depth use, but thermal structure also influences food and oxygen availability. Therefore, future work is aimed at understanding how these factors change through time and possibly contribute to paddlefish depth use. Improved understanding of the environmental drivers of paddlefish habitat use will help define habitat requirements and ultimately inform the conservation and management of paddlefish populations throughout the Gulf Coast.	

1. Kasea L. Price+, US Army Engineer Research and Development Center, Environmental Lab 2. Nicky M. Fauchoux, US Army Engineer Research and Development Center, Environmental Lab 3. Jack Killgore, US Army Engineer Research and Development Center, Environmental Lab 4. Todd Slack, US Army Engineer Research and Development Center, Environmental Lab	River Sturgeon (<i>Scaphirhynchus</i> spp.) Habitat Associations During Low Water Conditions on the Mainstem Lower Mississippi River
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5. David Ruppel, US Army Engineer Research and Development Center, Environmental Lab 6. Jay Collins, US Army Engineer Research and Development Center, Environmental Lab 7. Steven George, US Army Engineer Research and Development Center, Environmental Lab	
Sampling large rivers for benthic fishes is a challenge, and there is no greater challenge than effectively sampling the Lower Mississippi River. Using specialized gear including a shrimp trawler, sediment sampler, and an internally recording sonde to measure water quality throughout the water column, we pulled 50 trawls, sampling roughly 80 miles of the Lower Mississippi River from River Mile 306 to 387. A total of 23 fish species was collected during sampling. As part of this effort, we collected both biological samples and the corresponding habitat characteristics, which allowed us to examine relationships between River Sturgeon and benthic habitat in the mainstem Mississippi River. We took length measurements and noted life stage of all sturgeon captured. Five young-of-year, 3 juvenile, and 11 adult River Sturgeon were captured. Water quality analysis revealed that the river was well mixed, which eliminated physicochemical properties as reasons for selection of mesohabitats. Sturgeon exhibited a bimodal response to sediment grain size, which contrasts with the response of known Pallid Sturgeon prey item, the Shoal Chub. Sample depths ranged from 0.9 to 20 meters and 16 of the 19 sampled Sturgeon were caught between 6-9 meters deep. This data provides information on the habitat associations of River Sturgeon, which we hope to expand upon with additional sampling effort this year.	

1. <u>Marcus Prull</u> , Oklahoma Department of Wildlife Conservation 2. Jason D. Schooley, Oklahoma Department of Wildlife Conservation 3. Ray Valley, BioBase	Evaluation of Paddlefish Size Structure, Abundance, and Gear Effectiveness Using Recreational Grade Sonar
Recreational grade sonar is an effective tool in fisheries management used worldwide to identify habitat, substrate composition, and quantify and identify fish species. The use of recreational grade sonar over traditional sampling techniques can reduce sampling effort and time yet allow managers to cover more area than is possible with traditional techniques. During the winter of 2025-2026 we set out to evaluate the utility and accuracy of sonar to estimate size and abundance of fish captured in gillnets targeting Paddlefish on three Oklahoma reservoirs (Eufaula, Grand, and Keystone). Plainly, can sonar catches serve as a reasonable estimator for observed net catches? Prior to retrieval, we scanned gillnets and their catches at 83kHz and 200kHz. Upon retrieval, all fish were measured and weighed in the order they occurred in the net. Sonar logs were uploaded to BioBase, where a dimensionless ""immensity"" value was assigned to fish identified by BioBase EcoFish algorithms. Output files were visually filtered to remove fish clearly outside of the net area. Filtered outputs (sonar catches) for each frequency were then compared to observed catches to evaluate alignment between the two datasets and to assess whether immensity could be used as a proxy for actual fish size. A lower cutoff for immensity was optimized to exclude fish not catchable in our large-mesh gillnets, after which distributions of immensity relative to observed catch size structure were compared. Net effectiveness (i.e., surface area) was also evaluated using BioBase sonar under four deployment scenarios to optimize field protocols for higher efficiency. Recreational grade down-scan sonar represents an important tool in fisheries management and further exploration of its utility is warranted.	

1. <u>Steven J. Rider</u> , Alabama Division of Wildlife and Freshwater Fisheries 2. Dewayne A. Fox, Delaware State University 3. Gregory T. Miles, Jr., Alabama Division of Wildlife and Freshwater Fisheries 4. Jason E. Dattilo, Alabama Division of Wildlife and Freshwater Fisheries 5. Travis R. Powell, Alabama Division of Wildlife and Freshwater Fisheries	When Nature Removes a Barrier Do Fish Return: Gulf Sturgeon Movement and Habitat Use above the Breached Elba Hydroelectric Dam, Pea River, Alabama
The Elba Hydroelectric Dam (EHD), located on the Pea River within the Choctawhatchee River system south of Elba, Alabama, was completed in 1913. Once built, the dam blocked Gulf Sturgeon (<i>Acipenser desotoi</i>) from migrating to approximately 55 river kilometers of potential spawning and juvenile-rearing habitat. After serving as a fish passage barrier for 102 years, a major flood in December 2015 breached part of the EHD, potentially restoring passage. The breach also lowered the upper reservoir below the level needed for power generation, ending hydroelectric operations after the flood. A non-governmental organization recently acquired the EHD, and a coalition of state and federal agencies and academic institutions is working to partially remove the remaining structure to benefit aquatic resources and surrounding communities. Since 2018, Gulf Sturgeon from the Choctawhatchee and Pea River system have been implanted with acoustic transmitters to examine their movement ecology, and acoustic receivers have been maintained throughout the system for several previous studies. Therefore, these tagged fish offered an opportunity to examine the movement and habitat use of the upper Pea River after the dam breach. From 2021 through 2025, 35 acoustically tagged Gulf Sturgeon were detected above the EHD. Spring detections occurred between March 31 and May 28, totaling 968 detections above the dam. Fall use was limited to two Gulf Sturgeon (n=223 detections) recorded from mid-September to mid-October 2021. Egg samplers deployed in spring 2022, 2025, and 2026 to evaluate spawning potential above the EHD collected no eggs. Low spring water levels in the upper Pea River may restrict fish passage around the	

EHD; therefore, river channel restoration could improve Gulf Sturgeon access to upstream habitats. Because the river stretch above the EHD is not currently designated as critical habitat, it should be evaluated for potential designation.

1. Thomas D. Ritter, RD Fisheries LLC
2. Laura Heironimus, Washington Department of Fish and Wildlife
3. Mary Moser, Moserworks, LLC
4. Matthew Sturza, Washington Department of Fish and Wildlife
5. Ben Cox, Washington Department of Fish and Wildlife

Evaluating The Influence of Temperature and Salinity on Green Sturgeon Movements Within and Among Washington's Coastal Estuaries

Green Sturgeon *Acipenser medirostris* is a marine-oriented, highly migratory species that is comprised of the Northern (nDPS) and federally listed Southern (sDPS) distinct population segments. Washington coastal estuaries such as Willapa Bay, Grays Harbor, and the Columbia River estuary are important seasonal aggregation areas for both DPSs. Early work suggested that estuary use may be driven by temperature and salinity, but environmental drivers across years and estuaries remain poorly resolved. We examined acoustic telemetry data from 361 tagged Green Sturgeon collected through a multi-agency monitoring effort from 2018 to 2024. We related these detections to observed and modeled water temperature and salinity data to determine what influences the timing and extent of estuary use. We found that seasonal aggregations were associated with temperature and salinity in Willapa Bay and Grays Harbor, but that the two DPSs did not use Washington estuaries identically. The nDPS had a higher probability of using Grays Harbor than the sDPS across all years, whereas Willapa Bay had relatively greater sDPS use early in the study period, though that distinction has weakened in recent years. Green sturgeon also exhibited frequent movement amongst estuaries in every year of the study. Understanding the environmental drivers of estuary use could improve our ability to predict when and where each DPS occurs and anticipate how estuary use responds to changing environmental conditions. Ultimately, this information will inform conservation and management actions to protect Green Sturgeon within Washington's coastal estuaries.

1. Dennis L. Scarnecchia, University of Idaho
2. Sara J. Tripp, Illinois Department of Natural Resources
3. Neal Jackson, U. S. Fish and Wildlife Service

MICRA's Multi-Agency Framework Management Plan for Paddlefish – an Update on Progress

There remains a critical need to develop a cooperative Framework Management Plan and associated coordinated sampling efforts among management agencies leading to sustainability of the North American Paddlefish *Polyodon spathula* and its fisheries. The species is a state-managed fish, not listed as federally threatened or endangered, and continues to support valuable recreational and commercial fisheries in portions of its range. State and interstate management issues are currently discussed and coordinated through the Mississippi Interstate Cooperative Resource Association (MICRA) Paddlefish and Sturgeon Working Group. MICRA is developing a formal Framework Management Plan among all management entities and their managers to aid in long-term conservation. The plan is based on Consensus Statements that agencies and managers can agree on that are used to formulate goals and strategies. Specific time-sensitive objectives based on the goals and strategies are being agreed upon and prioritized that will guide MICRA participating agencies in cooperative efforts moving forward.

1. Jason D. Schooley, Oklahoma Department of Wildlife Conservation
2. Matt Pallett, Oklahoma Department of Wildlife Conservation
3. Marcus Prull, Oklahoma Department of Wildlife Conservation
4. Tate Baumert, Oklahoma Department of Wildlife Conservation"

Population Dynamics of a Paddlefish Restoration Stock in Oklahoma

Across its range in 28 of the United States, Paddlefish *Polyodon spathula* possesses a complex identity- disparately managed as a sport/game/trophy species or target of commercial fishing in some areas, while imperiled or worthy of restoration and conservation in others. This complexity exists within Oklahoma, where both stocks of naturally-recruiting Paddlefish that support popular snag fisheries and restoration populations augmented by long-term stocking programs co-occur within the state's management framework. Lake Eufaula, Oklahoma's largest reservoir, was the recipient of a decade of restoration efforts (2007-2017) through the stocking of hatchery-reared and coded wire tagged (CWT) Paddlefish. Following this, Oklahoma Department of Wildlife Conservation (ODWC), in collaboration with the US Fish and Wildlife Service, has assessed the impacts of stocking efforts on the repatriation of Paddlefish to this reservoir, accumulating evidence supporting a conclusion of success. Collection of data from >700 known-age Paddlefish (validated with CWT) through annual stock assessments, evidence of a putative spawning location, and repeated observations of untagged, small fish support a likelihood that the stock is exhibiting at least low-level recruitment. This presentation will highlight multiple lines of evidence indicating successful restoration efforts while describing population dynamics of this reservoir Paddlefish stock with considerations for the future.

1. Jason D. Schooley, Oklahoma Department of Wildlife Conservation

The Silent Collision of Paddlefish and Bighead Carp in Northeast Oklahoma

2. Erika Sarvela, Oklahoma Department of Wildlife Conservation	
The consequences of competitive interaction between a native Species of Greatest Conservation Need and a non-native invasive species have long been predicted to favor the invader, at great detriment to the native species. Despite the discovery of Bighead Carp in Grand Lake O' the Cherokees in Northeast Oklahoma more than three decades ago, the Paddlefish stock has remained robust while apparent population size of Bighead Carp has remained at a near-undetectable level. This silent collision of two large-bodied, migratory, pelagic, planktivores has been poorly understood, with observations of Bighead Carp largely restricted to incidental catches in the springtime Paddlefish snag fishery in the Neosho River headwaters of Grand Lake, with even less frequent net catches in annual Paddlefish stock assessments. A recent increase in focus on Bighead Carp with the expansion of Oklahoma's Aquatic Nuisance Species program and through collaborations with universities and licensed fishing guides has provided some fundamental data on population status, life history, movements, fecundity, and genetics – all indicating that this invasive species is not thriving and maintains a critically low population size similar to an endangered species. This presentation will highlight this odd phenomenon within the perspective of Paddlefish management, as recent history of the two species in Northeast Oklahoma is intertwined, causing us to reconsider some assumptions about the dynamic consequences of an invasive species on native fishes.	

1. <u>Ralph Simmons</u> , U.S. Fish & Wildlife Service	Recent Advancements in Paddlefish Culture at Tishomingo NFH
Recent advancements in intensive culture of American Paddlefish (<i>Polyodon spathula</i>) at the Tishomingo National Fish Hatchery to include changes in broodstock selection, hormone injections, spawning methods, egg incubation, feed training, and oxygen supplementation followed by a short summary of all aggregate changes and their impact on fish production.	

1. <u>Logan Sleezer</u> , U.S. Geological Survey, Columbia Environmental Research Center 2. Michael Colvin, U.S. Geological Survey, Columbia Environmental Research Center 3. Caroline Elliott, U.S. Geological Survey, Columbia Environmental Research Center 4. Tyrell Helmuth, U.S. Geological Survey, Columbia Environmental Research Center	Evaluating An Approach to Relate Fine-Scale Habitat Use by Age-0 Scaphirhynchus Sturgeon to Trawl Catch
The Pallid Sturgeon Population Assessment Program (PSPAP) is a long-term monitoring program to assess the status of the federally endangered Pallid Sturgeon (<i>Scaphirhynchus albus</i>) in the Missouri River. While targeting pallid sturgeon, the program also captures substantial numbers of the closely related, common Shovelnose Sturgeon (<i>Scaphirhynchus platyrhynchus</i>). For nearly 30 years, the monitoring program has emphasized sampling for age-0 Scaphirhynchus sturgeon. The age-0 transition is hypothesized to be a critical bottleneck limiting recruitment to the adult population. Hundreds of otter trawls targeting age-0 Scaphirhynchus are deployed annually. Despite routine, standardized sampling, age-0 catches across trawls are highly variable. Fine-scale factors driving trawl-level catch variability are poorly understood and largely due to mismatches in scale between trawl samples covering hundreds of square meters and the size of age-0 sturgeon (approximately 20–150 mm long). In this study, we developed an approach to evaluate fine-scale habitat use patterns of age-0 Scaphirhynchus by coupling trawl catches with concurrent habitat surveys of river depth and velocity at a spatial grain of five square meters. In this approach, we first constructed a model to predict age-0 Scaphirhynchus density as a function of depth and velocity. We then calculated the expected age-0 Scaphirhynchus catch for a trawl as the area-weighted sum of the predicted densities underlying the trawl path while accounting for capture efficiency. Lastly, we coupled predicted and observed age-0 Scaphirhynchus trawl catch with a statistical model to estimate the functional relationship of age-0 Scaphirhynchus density with fine-scale velocity and depth by maximum likelihood. This approach is being applied to examine parameters that define suitable age-0 Scaphirhynchus habitat and provide initial assessment of the prevalence of this habitat during variable flow conditions. Additionally, the findings may guide improvements to the existing PSPAP monitoring program.	

1. <u>Sean Sullivan*</u> , University of Georgia 2. Adam Fox, University of Georgia 3. Marty Hamel, University of Georgia 4. Adam Kaeser, USFWS	Long-Term Observations of Seasonal Habitat use by Juvenile Gulf Sturgeon in the Apalachicola River, FL
Gulf Sturgeon are a federally threatened species that suffered rangewide declines in abundance resulting from overharvest, and fragmentation of natal rivers in the early twentieth century. The population in the Apalachicola River, FL is a fraction of its historic abundance and currently exhibits annual recruitment of <200 age-1 individuals. From 2016–2025, we tracked 92 age-1 Gulf Sturgeon using acoustic telemetry to identify seasonal patterns in their use of riverine habitats. These individuals had a strong tendency to remain in upriver holding sites during the summer months (June–August), and to transition to the lower river and estuary during the winter months (December–February). During the spring and fall months, juveniles were observed making a variety of transitional movements between the summer holding sites and the estuary. We identified areas that were consistently used throughout the entire study period and observed no significant changes in the timing of transition between summer and winter habitats.	

1. <u>Molly A. H. Webb</u> , U.S. Fish and Wildlife Service Bozeman Fish Technology Center	Reproductive Senescence in Sturgeons and Paddlefish
Reproductive senescence in fishes may be complete cessation of gametogenesis (true senescence) or an age-related decline in reproductive potential and may occur rapidly, gradually, or slowly with negligible changes in reproductive metrics. Understanding the type of reproductive senescence is important for sturgeon and paddlefish management as the absence of spawning fish at older ages affects population dynamics and can complicate recovery of small, endangered populations. My objectives have been to determine 1) if evidence exists for true senescence or an age-related decline in reproductive potential and 2) what may be the best physiological metrics to identify and monitor senescence in chondrosteans. I have been reviewing the available primary and grey literature on reproductive senescence every three months since 2003. Search terms included, but have not been limited to, gonadal structure, fecundity, steroid concentrations, ovarian follicle size, egg quality, sperm quality/quantity, DNA repair, spawning success, follicular atresia, and spawning interval. Data have been compiled for thirteen chondrosteans species (Gulf Sturgeon <i>Acipenser desotoi</i>; Lake Sturgeon <i>A. fulvescens</i>; Russian Sturgeon <i>A. gueldenstaedtii</i>; Green Sturgeon <i>A. medirostris</i>; Atlantic Sturgeon <i>A. oxyrinchus</i>; Sterlet <i>A. ruthenus</i>; Chinese Sturgeon <i>A. sinensi</i>; Stellate Sturgeon <i>A. stellatus</i>; White Sturgeon <i>A. transmontanus</i>; Pallid Sturgeon <i>Scaphirhynchus albus</i>; Beluga Sturgeon <i>Huso huso</i>; Kaluga Sturgeon <i>H. dauricus</i>; Paddlefish <i>Polyodon spathula</i>). True reproductive senescence has not been documented for any of these species. Reproductive metrics that indicated a potential for age-related decline in chondrosteans were absolute fecundity and spawning interval but were not found in all species and the overall effects on reproductive potential when found appeared negligible. Collectively, the current evidence supports a slow or negligible senescence model for sturgeons and paddlefish.	

1. <u>Shannon White</u> , U.S. Geological Survey 2. Amanda Higgs, Cornell University, in cooperation with New York State Department of Environmental Conservation 3. Dewayne Fox, Delaware State University 4. Dan Stitch, SUNY Oneonta	Over A Decade of Acoustic Telemetry Data Shows We Know Nothing* About Atlantic Sturgeon
Okay, we know more than nothing. But, over the last decade significant advances have been made in our understanding of Atlantic sturgeon abundance, genetic diversity, habitat use, and threats facing the species. Much of this progress, however, has relied on assumptions about how individual fish move through rivers and coastal waters. At the same time, long-term acoustic telemetry datasets have matured to the point where we can begin asking entirely new questions about Atlantic sturgeon movement. With more than a decade of detections now available, we're finding that many of our foundational assumptions about movement are overly simplistic—and in some cases, probably wrong. Individuals don't necessarily behave like the "average" fish. Residency patterns differ among fish, migrations are less predictable than expected, and movements between rivers appear more common than previously recognized. These emerging patterns have important local implications for how we estimate population size, interpret genetic diversity, characterize river habitat use, and evaluate critical habitat within individual systems. More broadly, they challenge our understanding of Atlantic sturgeon recovery by complicating how we assess risk from activities such as dredging, vessel traffic, and offshore development outside of natal habitats. So, what do we do now? This presentation will highlight several recent analyses that challenge long-held assumptions about Atlantic sturgeon movement and discuss how an increasingly mature telemetry network is reshaping the questions we ask. Rather than presenting a single study, this talk is intended to start a conversation about where Atlantic sturgeon research goes next, what assumptions deserve another look, and how we can better leverage collaborative telemetry datasets to improve conservation and management.	

1. <u>Wyatt A. Wolfenkoehler</u> , Oklahoma State University, Stillwater Oklahoma 2. James M. Long, U.S. Geological Survey, Oklahoma Cooperative Fish and Wildlife Research Unit, Stillwater Oklahoma 3. Jason D. Schooley, Oklahoma Department of Wildlife Conservation, Jenks Oklahoma	Comparing Paddlefish Population Estimates in Oklahoma Reservoirs Derived from Sonar and Mark-Recapture
Knowledge of Paddlefish population size is important for the continued conservation of the species. The current protocol in Oklahoma for monitoring Paddlefish populations is mark-recapture during winter gillnetting, which can expose staff to hazardous working conditions, and poses a potential for capture related mortality on the Paddlefish and by-catch. Consumer-grade side-scan sonar (SSS) units are becoming increasingly used for monitoring large-bodied fishes such as Paddlefish. This SSS technology eliminates the need to handle fish, mitigating risks to fish and personnel. To date, SSS has been used to estimate the abundance of Paddlefish in both reservoir and river systems. The accuracy of these estimates has been validated in small reservoirs (<100 Ha) in Missouri, however the accuracy of SSS estimates made in larger reservoirs typically managed as Paddlefish fisheries has not. This study, partially funded by the North American Sturgeon and Paddlefish Society (NASPS) In-Memoriam research award, seeks to better understand the validity and usefulness of sonar estimates by comparing them to estimates derived from mark-recapture. To accomplish this, two reservoirs in Oklahoma were sampled with SSS concurrently with the Oklahoma Department of Wildlife Conservation (ODWC) standardized mark-recapture surveys conducted with gillnets. While SSS can count Paddlefish as small as 300mm total length (TL), we truncated our SSS estimates to only analyze fish fully recruited to the gillnetting gear (>1,299mm TL). Preliminary findings from one of the reservoirs, Lake Eufaula, showed that confidence intervals of population estimates overlapped between SSS and mark-recapture, demonstrating the similarity of results between methods.	

