

# The Indiana American Fisheries Society

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## 52<sup>nd</sup> Annual Spring Technical Meeting



Meeting Program and Abstract Book  
2-3 March 2022

Hyatt Place Indianapolis  
Fishers, Indiana

A SPECIAL THANKS TO OUR EVENT SPONSORS!



**Bi**omonitor

## Indiana Chapter of the American Fisheries Society

On March 13, 1970, a group of 31 fisheries and aquatic professionals met to establish the Indiana Chapter of the American Fisheries Society. Since its inception, IAFS has continued to support the conservation of fisheries and aquatic ecosystems in Indiana by promoting professional excellence in fisheries science, management, and education.

- President: Kevin Gaston
- President-Elect: Andy Bueltmann
- Vice President: Mitchell Zischke
- Secretary / treasurer: Ken Wetzel
- Past President: Rob Ackerson

### General Meeting Information

#### Information for Presenters

- Podium Presentations: Presentations need to be in Microsoft PowerPoint and uploaded onto the laptop in the meeting room prior to your scheduled presentation session. Presentations can be uploaded onto the laptop at the registration prior to the meeting or during one of the breaks. Please send a copy of your presentation to Andy Bueltmann ([ABueltmann@dnr.IN.gov](mailto:ABueltmann@dnr.IN.gov)) in case of computer problems.
- Posters: Authors are encouraged to attend the 7:00-9:00 PM poster session on Wednesday. Judges for the best student poster award will view posters during this time.

## **AFS Meetings Code of Conduct**

### **Purpose:**

American Fisheries Society (AFS) meetings are among the most respected scientific meetings of fisheries professionals in the natural resource scientific community. AFS values the diversity of views, expertise, opinions, backgrounds, and experiences reflected among all attendees, and is committed to providing a safe, productive, and welcoming environment for all meeting participants and AFS staff. All participants, including, but not limited to, attendees, speakers, volunteers, exhibitors, staff, service providers, and others, are expected to abide by this Meetings Code of Conduct. This Code of Conduct applies to all AFS meeting-related events, including those sponsored by organizations other than AFS but held in conjunction with AFS events, in public or private facilities.

### **Expected Behaviors:**

- Treat all participants, attendees, AFS staff, and vendors with respect and consideration, valuing a diversity of views and opinions, and critiquing ideas rather than individuals.
- Refrain from demeaning, discriminatory, or harassing behavior and speech directed toward other attendees, participants, AFS staff, and suppliers/vendors.
- Be mindful of your surroundings and of your fellow participants. Alert AFS staff or venue event staff if you notice a dangerous situation or someone in distress.
- Respect the rules and policies of the meeting venue, hotels, AFS-contracted facility, or any other venue.
- To foster a welcoming environment, assist AFS members with impaired physical or cognitive abilities, if necessary.

### **Unacceptable Behaviors:**

- Harassment, intimidation, or discrimination in any form is unacceptable. Harassment includes speech or behavior that is not welcome or is personally offensive. Behavior that is acceptable to one person may not be acceptable to another, so use discretion to be sure respect is communicated. Harassment intended in a joking manner still constitutes unacceptable behavior. Regardless of your intent, if you are advised directly or by another party that some aspect of your speech or behavior at an AFS meeting is harassment, you are expected to stop engaging in such speech or behavior.
- Do not physically or verbally abuse any attendee, speaker, volunteer, exhibitor, AFS staff member, service provider, or other meeting guest.
- Examples of unacceptable behavior include, but are not limited to, unwelcome or offensive verbal comments related to age, appearance, or body size, employment or military status, ethnicity, gender identity and expression, individual lifestyle, marital status, national origin, physical or cognitive ability, political affiliation, sexual orientation, race, or religion. Harassment can also include the use of sexual and/or discriminatory images in public spaces or in presentations; deliberate intimidation; stalking; following; harassing photography or recording; sustained disruption of talks or other events;

bullying behavior; inappropriate physical contact; and unwanted sexual attention.

- Appropriate and responsible personal use of photographs or posts to social media of another individual's oral presentation, poster, or likeness is acceptable unless permission is specifically denied by the individual.
- Do not disrupt talks at oral or poster session or activities in the exhibit hall or at other events organized by AFS at the meeting venue, hotels, or other AFS -contracted facilities.
- Any retaliation against participants for reporting unacceptable behavior is unacceptable. Like harassment or discrimination, retaliation against reporting poor behavior will be subject to consequences.

#### **Reporting Unacceptable Behavior:**

- Anyone experiencing or witnessing behavior that constitutes an immediate or serious threat to public safety at any time should contact local law enforcement (by calling 911) and immediately notifying facility security without delay.
- If you are not in immediate danger but feel that you are the subject of unacceptable behavior, you are encouraged to file a formal complaint to the AFS Ethics and Professional Conduct Committee and/or an AFS officer or the AFS Executive Director which will then be forwarded to the Ethics and Professional Conduct Committee for assessment.

#### **Consequences:**

- Anyone requested to stop unacceptable behavior is expected to comply immediately.
- Consequences to unacceptable behavior will be determined by the AFS Ethics and Professional Conduct Committee in conjunction with AFS officers and the AFS Executive Director.
- Consequences may include one or more of the following actions:
  - Dismissal from the meeting without refund
  - Reporting to your agency
  - Exclusion from any future AFS (sub unit/chapter/division) meetings for five years
  - Revoke of AFS membership without the opportunity for renewal for five years
  - If the offense is criminal, local law enforcement will be contacted.

*Adopted by the Governing Board of the American Fisheries Society on January 30, 2019, at the mid-year meeting in Cleveland, Ohio.*

| Schedule at a Glance |  |
|----------------------|--|
| <b>Wednesday</b>     | <b>March 2nd</b>   |
| 12:00-1:00pm         | Registration at Hyatt Place and Lunch ( <i>on your own</i> ) |
| 1:00-2:00pm          | Plenary Session  |
| 2:00-2:10pm          | <i>Break</i>   |
| 2:10-3:30pm          | Technical Session 1  |
| 3:30-4:00pm          | <i>Break</i>   |
| 4:00-5:20pm          | Technical Session 2  |
| 5:30-7:00pm          | Dinner   |
| 7:00-9:00pm          | Social/Poster Session at Sun King                            |
|                      |  |
| <b>Thursday</b>      | <b>March 3rd</b>   |
| 7:00-9:00am          | Breakfast ( <i>provide by the hotel</i> )                    |
| 9:00-11:00am         | Business Meeting   |
| 11:00am              | Adjourn  |

## Plenary Session

### Scott Salmon - Friends of the White River Executive Director

Scott Salmon is the Executive Director of Friends of the White River, a 501c3 non-profit organization which works to sustain the long-term viability of the White River as a unique natural resource of Indiana now and for future generations. He holds a M.P.A. from the O'Neill School of Public and Environmental Affairs and a B.S. from Indiana State University. He spent nearly five years with the Indiana Division of Fish and Wildlife managing pollution-caused fish kill response and riparian restoration, conducting environmental risk assessments, and planning aquatic habitat projects such as low-dam removals and streambank restoration.

Scott has held teaching, logistics, and leadership positions with numerous outdoor education organizations over his career, and maintains Wilderness First Responder and PADI Open Water Scuba Instructor certifications. He joined the Indiana Chapter of Backcountry Hunters and Anglers board in 2019 and represents the Chapter on the Indiana Conservation Alliance (INCA) Steering Committee.

Scott grew up in southern Indiana, spending countless weekends exploring state parks and forests, first with his parents and later through the Boy Scouts. He took three trips to the Boundary Waters Canoe Area Wilderness and developed his fishing, paddling, and watercraft skills on Lake Lemon outside of Bloomington. He took up hunting in 2011 and has a passion for mentoring other adult-onset hunters and anglers.

## Podium Presentations

Wednesday, March 2<sup>nd</sup>

2:10-2:30 p.m. Seth Bogue – IN DNR

Effects of the Covid-19 Pandemic on Indiana Angler Participation

2:30-2:50 p.m. Scott Shuler – EutroPHIX: A Division of SePRO Corporation

Planning for the Restoration of Water Quality at Lake of the Woods, Bremen, IN

2:50-3:10 p.m. Jessica Weir – Ball State University

Leveraging big data to screen for lake invasions in the Upper Mississippi River Basin

3:10-3:30 p.m. Mitchell Zischke – Purdue University

The Impacts of COVID-19 on the Charter Fishing Industry in Lake Michigan

3:30-4:00 p.m.

BREAK

4:00-4:20 p.m. Tom Bacula – IN DNR

A review of 70 years of management at J.C. Murphey Lake

4:20-4:40 p.m. Laura Bowley – Bureau of Water Quality, Muncie Sanitary District

Lessons and Success in Propagating Freshwater Mussels on a Limited Budget in Muncie, Indiana

4:40-5:00 p.m. Brant Fisher – IN DNR

Cage Culture of Snuffbox (*Epioblasma triquetra*) for augmentation in the Tippecanoe River, White County

5:00-5:20 p.m. Drew Holloway – Bureau of Water Quality, Muncie Sanitary District

Is your stream trash? Applying the Rapid Trash Assessment to annual fisheries sampling

## Abstracts - Podium Presentations

(Presenting Author indicated with an Asterisk)

**2:10 – 2:30 p.m. - Authors:** Seth M. Bogue\*, Andrew T. Bueltmann, Emily B. McCallen, and Sandra J. Clark-Kolaks

**Title:** Effects of the Covid-19 Pandemic on Indiana Angler Participation

**Abstract:** The Covid-19 pandemic altered daily life on a global scale, and Hoosiers were not spared. Because of increased risk, many individuals avoided indoor recreational activities early in the pandemic and instead participated in outdoor recreational activities. This was reflected in the number of licensed anglers in Indiana in 2020 with a 22% increase over 2019. The number of licensed anglers fell again in 2021 but were still 10% higher than 2019. In 2019, Indiana DNR staff started a project to evaluate the efficacy of trail cameras for estimating angler effort at Grouse Hollow Lake, a remote lake located in the Hoosier National Forest. The camera survey project continued in 2020 and was expanded to include an additional lake, Prairie Pond, which is located at Sugar Ridge Fish & Wildlife Area. For 2021, the camera survey project was discontinued at Grouse Hollow but was continued at Prairie Pond to collect an additional year of data at this site. The timing of the project from 2019 through 2021 enabled DNR staff to compare angling effort before, during, and after the 2020 peak of the Covid-19 pandemic. Results indicated that there was a significant increase in the number of angler trips at Grouse Hollow Lake and Prairie Pond during 2020 compared to 2019 and 2021. There was no significant difference in group size, but trips were significantly longer in 2020 compared to 2019 and 2021. The results of this study have implications for future research into factors that drive angler participation rates.

**2:30 – 2:50 p.m. - Authors:** Scott Shuler\* and Pamela Dugan

**Title:** Planning for the Restoration of Water Quality at Lake of the Woods, Bremen, IN

**Abstract:** Approximately 48,000 lakes in the United States are impaired for phosphorus pollution, the primary cause of harmful algal blooms (HABs). As the primary limiting nutrient for productivity in freshwater ecosystems, a single pound of phosphorus can drive the growth of up to 500 pounds of algae. HABs can cause acute water quality issues, toxin production, taste and odor issues, aesthetic impacts, as well as impacts to recreational uses and property values. Harmful algal toxins can have significant acute impacts to pets, wildlife, and human health. Lake of the Woods near Bremen, IN (Marshall County) was identified by the EPA in 1971 to be deteriorated to the extent that protective action was no longer sufficient, and rehabilitation would be required. In the 50 years since that report, little improvement has occurred to the water quality within Lake of the Woods. We have developed a proposal for the restoration of water quality within the lake and we are working with the local volunteer lake association to foster the formation of a conservancy district. We will provide details on the proposed restoration initiatives and examples of similar projects that we have implemented around the United States.

**2:50 – 3:10 p.m. - Authors:** Jessica Weir\*, Wesley Daniel, Kieran Hyder, Christian Skov, Paul Venturelli

**Title:** Leveraging big data to screen for lake invasions in the Upper Mississippi River Basin

**Abstract:** Preventing the spread of aquatic invasive species (AIS) is an important first step in the management of invasions. Identifying characteristics of lakes that are susceptible or resilient to invasion is an opportunity for management groups to prioritize limited resources on high-risk or high-reward areas. In this study, we analyzed environmental and exposure metrics of 354,914 lakes in the Upper Mississippi River Basin (UMRB). We leveraged big data from the National Hydrography Dataset, the Fishbrain fishing app, and the Nonindigenous Aquatic Species Database to develop a machine learning model to predict the presence of several AIS that are spreading in the UMRB. For example, the most important predictors for the presence of Eurasian watermilfoil (*Myriophyllum spicatum*) were surface area, angler trip frequency, percent natural landcover, distance from a highway, and human population density. The model predicted that an additional 2,162 lakes in the UMRB could be invaded by or were resilient to Eurasian watermilfoil and identified lake characteristics that are useful for differentiating between these two types.

**3:10 – 3:30 p.m. - Authors:** Mitchell Zischke\*, Daniel O’Keefe, and Titus Seilheimer

**Title:** The Impacts of COVID-19 on the Charter Fishing Industry in Lake Michigan

**Abstract:** The COVID-19 pandemic has had huge implications to communities and economies across the United States. One industry that has been uniquely impacted by the pandemic is the charter fishing industry on Lake Michigan. To assess the impacts of COVID-19 on charter fishing businesses, we conducted mail and online surveys of 736 charter operators licensed in Wisconsin, Illinois, Indiana and Michigan. Of the 217 (29.5%) respondents, 35% had canceled all fishing trips between March and June of 2020 due to COVID-19, while others conducted 15-23 less trips than they did in 2019. Most operators resumed some fishing activity between July and October of 2020, but 50% of operators still reported a reduction in bookings for the 2021 season. On average, individual operators lost \$10,000-\$15,000 in revenue during 2020, resulting in at least \$8 million in lost revenue across the fishery due to COVID-19. Operators also reported laying off staff and some expected to lose their business in the next 6-12 months. These results are important to help understand the socioeconomic impacts of COVID-19 and may lead to the development of specific assistance and training programs for charter fishing businesses in Lake Michigan.



**4:00 – 4:20 p.m. - Authors:** Tom Bacula\*

**Title:** A review of 70 years of management at J.C. Murphey Lake

**Abstract:** The dam creating J.C. Murphey Lake was closed in 1951 and an initial fish stocking was completed. The lake is a 1,000-acre impoundment located within Willow Slough Fish & Wildlife Area, Morocco, Indiana. The creation of a lake with an average depth of 3-4 feet was a waterfowl marsh in the historic drained Beaver Lake area. Area managers assumed winterkill would be the rule, but in most years, there was excellent fishing. Winterkill events did occur resulting in declining fish populations managers decided to conduct the first (1963) and second lake renovations (1978). During a renovation, fish are salvaged and held to be used for restocking, the lake is then drained, while dry soil and habitat work is conducted, and prior to refilling any remaining fish are eradicated then lake is restocked. The third renovation (1989) was brought on by fall drought conditions and an increasing Common Carp population. The fourth renovation (2004) was needed due to dam inspection issues and a 2001-2002 winterkill. J.C. Murphey Lake is a collaboratively managed waterbody for fish and wildlife species. Many of the wildlife species of greatest conservation need rely on fluctuating water levels for best available habitat that habitat deteriorates under consistent water levels. The fifth renovation has not occurred but will occur in 2022-2023 in response to declining fish and wildlife populations and habitat conditions. For this renovation planning started in 2018 that included resource manager meetings, public meetings, and permit acquisition.

**4:20 – 4:40 p.m. - Author:** Laura A. Bowley\*, Rick Conrad, Drew Holloway, Sam Gradle, and Brant Fisher

**Title:** Lessons and Success in Propagating Freshwater Mussels on a Limited Budget in Muncie, Indiana

**Abstract:** Over half of Indiana's 79 native freshwater mussel species are state/federally listed, including 17 extirpated species. Steps have been taken to increase survival rates including low-head dam removal, habitat restoration, and water quality improvements. However, even with improved conditions, many species will likely need intervention via translocation, augmentation, or propagation to restore self-sustaining populations and to be capable of fully contributing to freshwater ecosystem function. The Bureau of Water Quality (BWQ) has been studying the dense and diverse mussel beds of the West Fork White River in Muncie, Indiana for over 40 years as part of their holistic approach to water quality assessment. In an effort to more directly aid local mussel populations, BWQ biologists applied their diverse backgrounds and skills to develop a propagation program for the Plain Pocketbook, *Lampsilis cardium*. With a limited budget and using only pre-existing office space, the BWQ partnered with the IDNR to propagate *L. cardium* in the spring of 2021. After an early die-off due to ammonia issues and difficulty replicating chosen methodologies, many on-the-fly adaptations and modifications were made. This resulted in a modified pulsed/flow-through system. Of the 13,736 juveniles collected post-crash, 1200 survived to 2-mm and were distributed between a streamside unit and cages at a nearby reservoir. While numbers were lower than anticipated, this study emphasizes the ability to propagate mussels on a tight budget with limited space, and the importance of prior research, learning from failures, adaption, and sharing experiences to further the science of freshwater mussel propagation.

**4:40 – 5:00 p.m. - Author:** Brant E. Fisher\*

**Title:** Cage Culture of Snuffbox (*Epioblasma triquetra*) for augmentation in the Tippecanoe River, White County

**Abstract:** The state and federal endangered Snuffbox (*Epioblasma triquetra*) has seen a drastic decline in its distribution in Indiana. Once present throughout much of the Wabash River drainage, it has recently only been found live in the Salamonie River (Huntington County), Tippecanoe River (White), and Sugar Creek (Shelby). Of the three, reproduction may only be occurring in a small stretch of the Salamonie River. While a few adults may still persist in the other two populations, they are likely functionally extirpated. In 2013 a project to augment Snuffbox populations in the Tippecanoe River was initiated using cage culture techniques. Gravid, female Snuffbox are collected each spring from the Salamonie River and used to inoculate Logperch (*Percina caprodes*) collected from the Tippecanoe River. Logperch are then held in cages in Lake Shafer until encysted Snuffbox transform and drop. Juvenile Snuffbox remain in the cages for around 1.5–2.5 years until they grow to a taggable size. To date, 300+ Snuffbox have been produced, tagged, and placed in an augmentation site on the Tippecanoe River, White County. Monitored annually, survival, growth, and persistence at the site has been encouraging. Efforts to document reproduction at the augmentation site will be attempted in the near future.

**5:00 – 5:20 p.m. - Author:** Drew Holloway\*

**Title:** Is your stream trash? Applying the Rapid Trash Assessment to annual fisheries sampling.

**Abstract:** The detrimental effects anthropogenic materials have on our rivers and streams is well documented. Emerging fields exploring microplastics have become commonplace at recent fisheries conferences. But what if we take a step back and look at “macro” plastics and other types of river trash. As field biologists, we come across waterlogged trash daily and most likely walk by without even thinking about its potential harmful effects or final resting place after the next big rain. To combat these growing concerns, the Rapid Trash Assessment (RTA) protocol was established to examine the types, effects, and potential sources of stream-accumulated trash. Originally designed to be used in the San Francisco Bay Region to track sources of marine debris, it was modified slightly for this project with the same goals of improved water quality. A timed metric-based approach is used to categorize, score, and narratively rank the trash collected at each site. Scores range from Poor to Optimal with a max of 120 possible. Six metrics are used to look at everything from the location of the trash to its potential effects on aquatic and human life. A total of eight sites were selected for this initial evaluation of stream debris. Three tributaries of White River and five White River sites (3-high traffic public access sites and a site above and below Muncie’s city limits). The White River results were as expected with more trash items found as we went downstream. Tributary results were heavily influenced by location with urban stretches being more impacted. A detailed look at each site and scoring metric will allow for a better understanding of the current and future impacts of stream-ridden trash.

## **Abstracts - Poster Presentations**

**Authors:** Cole Baird\* and Mark Pyron

**Title:** Low-Head Dam Removal Muncie, Indiana: Geomorphological Substrate Change and Local Fish Community Response.

**Abstract:** In 2019, two low-head dams were removed from the West Fork, White River in Muncie, Indiana. To better assess change that occurs with low-head dam removal, fish community and substrate data were collected prior to and following each dam removal. Sites above and below the two low-head dams, were sampled annually, by electrofishing 250 meter transects. Substrate was mapped using side scan sonar and a sonar recording approach. ArcGIS was used to delineate specific substrate types and to compare pre- and post- dam removal substrate change. The collected data are being used to help further the understanding of the response of these local fish communities following dam removal.

**Authors:** Mark Pyron\*, Cole Baird, Esther Atutey, Blaik Duran, and Corwyn Hall

**Title:** Hovey Lake Monitoring of Asian Carp Early Life Stages

**Abstract:** We collected young-of-year (YOY) Asian carp using boat electrofishing, seine, and trawl in Hovey Lake and the drain to the Ohio River from June to September 2021. Our collections resulted in ~ 400 young-of-year Asian carp during 14 weekly trips. We will present daily growth of YOY quantified from otoliths, and the estimated dates for hatching for patterns with Ohio River discharge. HOBO water level loggers were placed in Hovey Lake and the drain to monitor water levels with variation in Ohio River discharge. Hovey Lake and the drain water levels were similar to the Ohio River from July-August 2021.



# 2022 IAFS Spring Business Meeting

Hyatt Place Fishers-Indianapolis

9:00 am March 3, 2022

1. Call To Order
2. Establish Quorum
3. Agenda Additions / Deletions
4. New Members / Guests
5. Secretary's Report – Ken Wetzel
6. Treasurer's Report – Ken Wetzel
7. Committee Reports
  - a. Standing Committees
    - i. Awards – Rob Ackerson
    - ii. Program Chair – Andy Bueltmann
    - iii. Membership – Mitch Zischke
    - iv. Nominations – Rob Ackerson
    - v. Resolutions – Dan Carnahan
    - vi. Communications
      1. Newsletter – Paul Stockebrand/Seth Bogue
      2. Website – Nick Haunert
      3. Social Media – Andy Bueltmann
  - b. Ad hoc Committees
    - i. Continuing Ed – Andy Bueltmann
    - ii. Certification – Megan Gunn
    - iii. Legislative Communications – *Vacant*
    - iv. History and Archives – Mark Pyron
    - v. Outreach – *Vacant*
  - c. Technical Committees
    - i. Rivers and Streams – Kayla Werbianskyj
    - ii. Centrarchid – Kevin Gaston
    - iii. Esocid – Nick Haunert
    - iv. Walleye – *Vacant*
    - v. Ictalurid – Sarah Molinaro
    - vi. Reservoirs – Sandy Clark-Kolaks
  - d. Student Subunit Reports
    - i. Ball State
    - ii. Purdue
    - iii. Indiana
8. Unfinished Business
9. New Business
  - i. Elections
  - ii. NCD Update – Drew Holloway
  - iii. New Technical Committee Representative Positions
10. Announcements
11. Adjourn

## 2021-2022 Officer List

Past President:

Rob Ackerson [rackerson@dnr.in.gov](mailto:rackerson@dnr.in.gov)

President:

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