The Indiana American Fisheries Society

Celebrating 50 years of fisheries science

50Th IAFS 1970-2020

Meeting Program and Abstract Book
18-19 February 2020

Turkey Run State Park
Marshall, Indiana

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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.

http://www.indianaafs.org/

- President: Dan Arndt
- President-Elect: Rob Ackerson
- Vice President: Kevin Gaston
- Secretary / treasurer: Ken Wetzel
- Past President: Drew Holloway

General Meeting Information

Registration

Welcome! The registration desk is located in the lobby of the Turkey Run State Park Inn (8102 Park Rd, Marshall, IN 47859). You can register on Tuesday the 18th starting at 12:00pm.

Meeting Accommodations

A block of rooms was reserved at Turkey Run State Park Inn (8102 Park Rd, Marshall, IN 47859).

Information for Presenters

- Microsoft PowerPoint Presentations: Presentations need to be uploaded prior to your scheduled presentation session. Presentations can be loaded at the registration desk.
- Posters: Authors are encouraged to stand near their posters during the 7:00-9:00pm poster session on Wednesday evening. Judges for the best student poster award will view posters during this time.

Schedule at a Glance		
Tuesday		**February 18th**
12:00-1:00p.m.	Registration at Turkey Run State Park and Lunch	
1:00 - 2:10p.m.	Plenary Session: Celebrating 50 years of Fisheries Science	
2:10 - 2:20p.m.	Break	
2:20 - 3:40p.m.	Technical Session (4 slots)	
Hotel Check-in		
4:30 - 5:30p.m.	Technical Session (3 slots)	
6:00 - 7:00p.m.	Dinner	
7:00 - 9:00p.m.	Poster Session/ Social	
Wednesday		**February 19th**
7:00 - 8:00a.m.	Breakfast Buffett provided by the Inn	
8:00 -9:00a.m.	Business Meeting	
9:00a.m.	Adjurn	

Plenary Session

In honor of our 50th anniversary we will be celebrating "50 years of fisheries science" with three of our longest serving members. Dr. Tom McComish will be kicking off the festivities with a PowerPoint presentation on the history of IAFS filled with lots of great memories, advice and achievements. Following this presentation Tom will be joined by Ed Braun and Bob Robertson to participate in a panel discussion where questions will be asked by our moderator and members of the audience. Be thinking of questions as you prepare for this discussion!

Podium Presentations

Tuesday Technical Session	
2:20 - 2:40p.m.	**Seth Bogue**-IDNR- Using time-lapse cameras to estimate recreational usage of a remote lake
2:40 - 3:00p.m.	**Jessica Weir**-BSU-Invasion superhighways: recreational smartphone data reveals patterns in the human mediated spread of exotic and invasive species
3:00 - 3:20p.m.	**Drew Holloway** - BWQ - Gage-ing the historic and current conditions of the West Fork White River using Indicators of Hydrologic Alteration (IHA)
3:20 - 3:40p.m.	**Mark Pyron**-BSU-Fish assemblages of floodplain lakes in the Wabash River floodplain
	Break
4:30 - 4:50p.m.	**Paul Venturelli**-BSU- What makes anglers happy: a sentiment analysis of Walleye angler fora in the United States
4:50 - 5:10p.m.	**Paul DeRolf**-BSU-Spatiotemporal variation in the long-term fish assemblages of Buck Creek, In.
5:10 - 5:30p.m.	**Andy Bueltmann**-IDNR-Use of Lake Michigan and Indiana standard trap nets to collect Crappie: a comparison of catch, size structure, and cost effectiveness

Abstracts - Podium Presentations

(Presenting Author indicated with an Asterisk)

2:20 – 2:40p.m. - Author: Seth Bogue* & Sandy Clark-Kolaks

Title: Using a Time-Lapse Camera to Estimate Recreational Usage of a Remote Lake

Abstract: Grouse Hollow Lake is a 5 acre impoundment located in a remote section of the Hoosier National Forest. Channel catfish are stocked by DNR hatcheries every other year. To gauge public usage of this fishery, a remote creel survey was implemented using a time lapse camera housed in a bird nesting box. The camera was active for 12 hours per day for 179 days, resulting in a total of 2,148 hours of recorded time between April and October 2019. Overall, recreational usage of the lake was extremely low compared to other lakes that have had traditional creel surveys conducted. Only 9.2 hours (0.4%) of recreational use was documented out of the entire time available. Recreational use consisted of 65 individuals from three distinct groups. Horseback riders were the most abundant (25), followed by hikers (22), and anglers/kayakers (18). Despite being the least abundant recreational group, anglers/kayakers spent the most time at the lake (82%). Total angling effort for the survey was 1.48 hours per acre. The creel survey will continue in spring of 2020 with the addition of a second camera located at an additional access point.

2:40 – 3:00p.m. - Authors: Jessica "Jit" Weir*, Kirsten Vacura, Adam Berland, Jay Bagga & Paul Venturelli

Title: Invasion Superhighways: recreational smartphone data reveals patterns in the human-mediated spread of exotic and invasive species

Abstract: Human activities are the leading cause of biological invasions. The spread of organisms is facilitated both deliberately and accidentally. For example, recreational anglers have been known to intentionally introduce species into lakes, and unintentionally transport organisms by hull fouling or entanglement on watercraft. Human movement data are therefore critical to predicting, preventing, and monitoring the spread of invasive species. Smartphone data provide a unique opportunity to quantify the fine-scale movement patterns of humans across entire continents. Here, we use geographic data generated by users of a popular smartphone application to understand how angler movement connects lakes across the continental United States and determine how this connectivity contributes to the spread of aquatic invasive species. Network analyses show dramatic differences in the way that anglers connect lakes compared to rivers and streams, and identify lakes and regions to prioritize for invasive species prevention, monitoring, and control.

3:00 – 3:20p.m. – Author: Drew Holloway

Title: Gage-ing the Historic and Current Conditions of The West Fork White River Using Indicators of Hydrologic Alteration (IHA)

Abstract: Utilizing Indicators of Hydrologic Alteration (IHA) software and readily available USGS gage station daily stream discharge data I was able look for temporal changes along the West Fork White River. The IHA software allowed me to look at 67 statistical parameters from seven USGS gage stations from Muncie to Petersburg, IN. Our results indicated that changes have been seen across the board but varying in severity. The USGS gage in Muncie, IN will be the main focus of this presentation discussing

the observed changes in yearly discharge, possible causes and implementing this data into my field sampling activities.

3:20 – 3:40p.m. - Authors: Mark Pyron* and Paul DeRolf

Title: Fish Assemblages of Floodplain Lakes in the Wabash River Floodplain

Abstract: We collected fishes at nine floodplain lakes in 2018 and seven lakes in 2019, based on accessibility for a boat electrofisher. We collected 1,116 fishes in 33 species in 2018, and 904 fishes in 38 species in 2019. Species richness of lakes ranged from 8-19 species per lake in 2018, and from 12-24 in 2019. Three lakes resulted in the highest species richness in 2018: Washington Lake, Ribeyre Lake, and Long Pond Knox County. The three lakes with the highest species richness in 2019 were: Ribeyre Lake, Greathouse Lake, and Washington Lake.

4:30 – 4:50p.m. – Author: Paul Venturelli* & Kristen Vacura

Title: What Makes Anglers Happy: A Sentiment Analysis of Walleye Angler Fora in the United States

Abstract: Human attitudes and behavior are important factors in natural resource management, but obtaining such data can be time consuming and expensive. Analyzing the text that anglers contribute to online fora may be fast and cost-effective alternative. In this study, we used walleye (*Sander vitreus*) oriented online fora to explain variation in the "happiness" of walleye anglers among nine U.S. states. We used sentiment analysis to score text data from each state as positive, negative, or neutral, and then normalized these scores by expressing them relative to the baseline level of happiness in each state. We determined the extent to which fisheries management explained variation in "happiness" scores among anglers within states via statistical analyses that included such factors as regulation complexity, angler density, and the transparency of state natural resource agencies. We observed four-fold variation in sentiment among states, and that sentiment increased with angler density, bag limit, and season length. The consistency between these results and the literature is support for the hypothesis that online text can provide valuable insight into the satisfaction of anglers who post on online fora. Future research should explore social listening as a low-cost method for tracking angler satisfaction at finer spatial and temporal scales.

4:50 – 5:10p.m. - Authors: Paul DeRolf* & Mark Pyron

Title: Spatiotemporal Variation in the Long-Term Fish Assemblages of Buck Creek, Indiana

Abstract: Buck Creek is a spring-fed, cool-water tributary of the West Fork White River, Indiana. The Muncie Bureau of Water Quality sampled fishes and monitored water temperature in Buck Creek annually from 1986-2018. The watershed is dominated by row crop agriculture and urbanization. We tested for effects of hydrology and water temperature on local fish assemblages using long-term data from the BWQ. We hypothesized that: 1) species richness and trophic guild vary with the upstream-downstream gradient, and 2) yearly assemblages will shift from pollution intolerant species to more intolerant species. Water temperature and altered hydrology were predicted to result in increased relative abundance of intolerant species. We predicted that upstream fish assemblages are embedded subsets of downstream assemblages. We identified a positive relationship for stream size and species richness that is likely a result of additional available habitats with increasing stream order.

5:10-5:30p.m. – Authors: Andy Bueltmann* & Sandy Clark-Kolaks

Title: Use of Lake Michigan and Indiana Standard Trap Nets to Collect Crappie: A Comparison of Catch, Size Structure, and Cost Effectiveness

Abstract: Two entrapment gears, the Indiana Standard trap net (INS) and the Small Lake Michigan trap net (LM), were compared to evaluate which was more efficient and more cost effective for collecting Crappie. Gears were deployed randomly at four total lakes, one in 2017 and three in 2018. Efficiency was measured by effort needed to collect a similar sample size between gears along with time required to run both nets. Further, cost effectiveness was measured by the individual cost of both nets and the number of cheap nets which could be purchased for the more expensive net. Specifically, a single LM costs ~$4,500 and a single INS costs ~$500; therefore, nine INS could be purchased for one LM. Cost effectiveness was then calculated as the ratio of estimated catch:estimated labor time to run the necessary number of nets so that individual costs were equivalent (i.e., one LM to nine INS). The larger the ratio, the more cost effective the gear type. All lake data were pooled for analysis and indicate that size distribution between nets does not differ and mean overnight catch rates were nearly triple the amount higher for LM (14.8) than INS (5.6). Further, labor time required to achieve equivalent catch rates were as follows: one LM net (~9.8 to 60.4 mins to run) to three INS nets (~10.5 to 58.8 mins to run). Although mean overnight catch rate was higher for LM, cost effectiveness indicates little to no difference between the gears with INS (0.7) being slightly more cost effective than LM (0.5).

Abstracts - Poster Presentations

Authors: Torrey Blevins* & Mark Pyron

Title: Assemblage Structure of the Wabash River: Trophic Position and Species Interactions Response to Silver Carp Invasion

Abstract: Assessing assemblage structure of ecosystems is an integral part of conservation and management practices. Determining the flow of energy in these systems using organism abundance, diversity, and interspecific data allows quantification of stability and provides information to predict the effects of a range of disturbances. The introduction of nonnative species into an ecosystem, in many cases, disturbs ecosystems by altering trophic positions and interactions among native species, potentially leading to long term shifts in assemblage structure. Silver Carp (Hypophthalmichthys molitrix) is an invader of freshwater rivers and lakes in North America with large body mass and high growth rates. Silver carp alter the assemblage structure by competing with species in similar feeding guilds, altering resource availability for native predatory fish larvae and YOY, acting as a novel food source for native piscivorous fish, and shifting the flow of carbon nutrients from the water column to the benthos via fecal pellets. We explored several of these variables in the Wabash River by comparing fish assemblages before and after the introduction of Silver Carp in the 1990s. Fish assemblages have shifted from a planktivorous/omnivorous dominated system to a benthic invertivore dominated system. We present species diet and trophic position, and theoretical analyses to create potential food webs of the past, present, and future Wabash River ecosystem.