

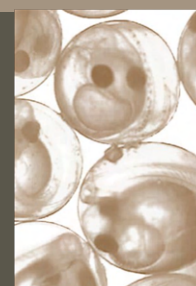
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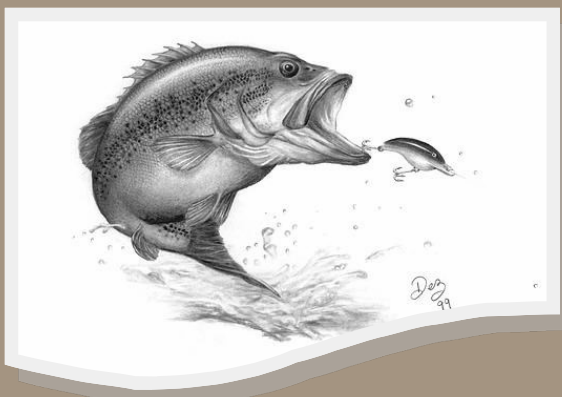


Iowa Chapter of the American Fisheries Society

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Visit Iowa AFS on the web:

<http://iowa.fisheries.org>

Visit the North Central Division AFS on the web:

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Our Mission:

To improve the conservation and sustainability of fishery resources and aquatic ecosystems by advancing fisheries and aquatic science and promoting the development of fisheries professionals.



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President's Corner

Chris Larson

Dear Iowa Chapter AFS members,

As I settle in to write my final Iowa Chapter AFS Presidents blog I reflected on this past year and wished I hadn't. I am guessing like the rest of you that this past year will be something none of us want to experience again; social distancing, mask mandates, office shutdowns, virtual meetings, teleworking, etc. Almost everyone I know lost someone or knew someone that got very sick from the covid-19 virus. Fortunately, things have finally gotten a little better thanks to the effectiveness of the vaccines and even though new variants are still slowing our return to normalcy, I am much more confident we will be able finally put this infection in our rear view mirror. As we transitioned from spring to summer I cherished the return to in-person meetings and being able to meet with staff and colleges face to face. As we transition to the fall I have some concerns as in-person meetings are once again being cancelled or postponed. But all is well because we all have already proved we can continue to conduct our important work without meeting in person. I am confident virtual meetings will continue to be a part of our normal operational activities regardless of desire to go back to how we conducted business before the pandemic began. I am just hopeful we will be able to conduct our annual Iowa Chapter business meeting in-person during the Midwest Fish & Wildlife Conference scheduled for February 13-16, 2022 (more details to come).

I want take a moment to thank my fellow Iowa Chapter AFS EXCOM officers; Past-pres. Greg Gelwicks, Pres.-elect Tyler Stubbs, Sec./Treas. Kyle Bales, ISU subunit Pres. Marcus Prull, in addition to the help from NCD past Pres. Jeff Kopaska for all of their assistance with last year's virtual conference/business meeting, as well as helping me with other chapter related duties throughout my term. It was truly a rewarding experience serving as your Iowa Chapter. AFS president and I couldn't have done it without them. During our week -long virtual chapter meeting we conducted a online silent auction that received a lot of support. The chapter and ISU subunit raised \$1,717, thanks

to



everyone that submitted a bid!

The EXCOM committee crafted a support letter for the [Recovering America's Wildlife Act \(RAWA\)](#) that was sent to all of Iowa's congressional representatives in Washington D.C. The RAWA would dedicate \$1.3 billion annually to state fish and wildlife agencies to implement their science-based wildlife action plans and an additional \$97.5 million for tribal fish and wildlife managers. [Read more about it here.](#)

I also want to extend my sincere appreciation to the Iowa Chapter members; presidents-elect Rebecca Krogman & Mike Siepker and Sec./Treas. Seth Fopma that threw their respective hats in the ring to fill our 2021-22 EXCOM officer openings. An email was recently sent out so don't forget to vote! If you have not run for one of these positions before please consider doing so in the future. You will be supporting the important work we do as a chapter, gain leadership experience and add to your resume.

One thing I was disappointed in during my review of Iowa DNR Fisheries employees who actually belong to the national AFS, requirement to serve as an Iowa chapter officer, is the lack of national members. When I first became a DNR employee my mentors stressed the importance of being a national AFS member, which I have been since 1992. Less than 50% of biologists and 90% of technicians are not

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President's Corner

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national members. The cost is relatively cheap at < \$8/Mo. When I joined in 1992 my annual salary was only \$23K, but I realized the importance of belonging to the national chapter so I was determined to make this cost part of my annual budget. Membership in the American Fisheries Society yields many benefits whether you are a student or professional, early or late in your career. The many benefits of society membership range from access to the latest fisheries research to meeting new colleagues to development of soft skills for your resume. Here is a quick overview of some of the perks of being an AFS member or check out our new [membership brochure](#).

Like everyone else the pandemic invigorated my desire to fish, which I did. I had many successful trips due in large part to the great work all of you do culturing fish, conducting research or managing fish populations in Iowa's lakes, rivers and streams. Please keep up the good work!

Sincerely,

Chris

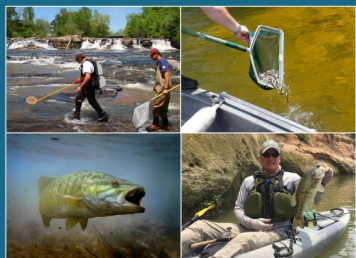
Chris Larson, Iowa Chapter AFS President

A Few New Books to Consider for your Library.

Managing Centrarchid Fisheries in Rivers and Streams



Edited by:
Michael J. Siepker and Jeffrey W. Quinn



AMERICAN FISHERIES SOCIETY
SYMPOSIUM 87

This book synthesizes current scientific and management studies for centrarchids in rivers and streams, and is a must-read for natural resource professionals as well as stream fishing enthusiasts. Readers will benefit from the diverse array of topics addressed by studies of six species in 11 states. The latest information provided on native species conservation and restoration, unique lineages, species Interactions and distribution, life history, habitat use, and population demographics will be useful to a variety of resource professionals. Stream

fisheries managers will especially benefit from chapters that evaluate angler exploitation, stocking, fish removals, dam removal, forage addition, and

(Continued)

New Books *continued*

harvest regulations.

The book provides a comprehensive resource for anyone interested in expanding their understanding of centrarchid fisheries in rivers and streams.



Practical Hatchery Management of Warmwater Fishes

Jack Snow and Ron Phelps



AMERICAN FISHERIES SOCIETY

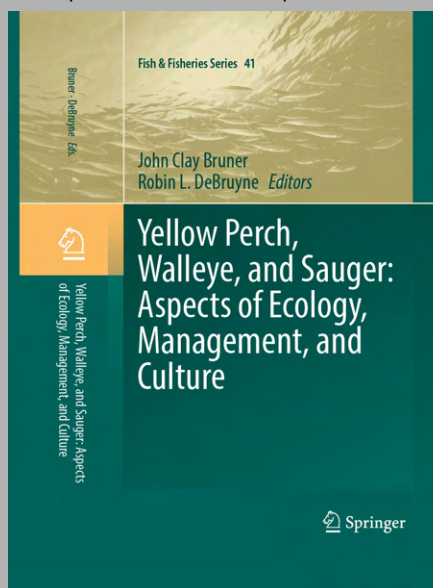
This book describes the components of a warmwater fish hatchery and the basic techniques used for commonly cultured freshwater fishes. The book's goal is to enable selection of an appropriate combination of techniques to successfully produce fish species in a hatchery setting.

The volume is organized into three major sections. Chapters 2–12 discuss basic hatchery infrastructure, techniques, and procedures available for the production of a variety of fish species. These techniques can be applied to other fishes with similar biological characteristics. Chapters 13–16 provide details on hatchery production of commonly cultured

warmwater foodfish and sportfishes. A final section entitled Toolbox (Chapter 17) has 18 subsections covering specific techniques ranging from aquaculture planning to water filtration that have application at most hatcheries and to a number of species. The focus of this section is to provide references, many available online, that provide detail on specific issues and techniques.

This work will be a valuable reference for culturists, fisheries scientists, managers, and the interested public.

Walleye, one of the most sought-after species of freshwater sport fishes in North America, have demonstrated appreciable declines in their numbers from their original populations since the beginning of the 20th century. Similarly, Yellow Perch, once the most commonly caught sport fish and an important commercial species in North America, have also shown declines. Compiling up-to-date information on the biology and management of Walleye, Sauger, and Yellow Perch, including research on systematics, genetics, physiology, ecology, movement, population dynamics, culture, recent case histories, and management practices, will be of interest to managers, researchers, and students who deal with these important species, particularly in light of habitat alterations, population shifts, and other biotic and abiotic factors related to a changing climate.



The Crystal Darter, A Rare Iowa Catch

Royce Bowman, IA DNR Large River Fisheries Research

During my career sampling river and stream fish communities, it was twenty years ago as a Decorah Fisheries Management seasonal when I first dipped a Crystal Darter (*Crystallaria asprella*) on the Turkey River using pulsed DC boat electrofishing. I preserved the strange looking specimen in formalin and tagged the collection. I believe it was the first Crystal Darter collected in the Turkey River or perhaps in any Iowa interior river although admittedly I can't verify that with a data sheet for this article. No records of Crystal Darter collections are found in the BIONET database. In the past several years electrofishing a wingdam for Walleyes near Bellevue Iowa, I've incidentally captured numerous Crystal Darters and observed five in just a few meters of shocking this July.



Bowler (2001) describing the status and distribution of the Crystal Darter noted the first Iowa collection of the species occurring when a single specimen was collected in 1995 in the Upper Mississippi River, Pool 11 near Guttenberg. The Crystal Darter inhabits large to medium sized rivers without sediment and clean sand or gravel substrate (Bruner 1980, Harlan et al. 1987). Known to bury itself in sand, it often occurs in swift waters greater than one meter in depth (Becker 1983, Pflieger 1997). The secretive life strategy of burying itself may limit collections using traditional fisheries sampling gears like seining or electrofishing (Bowler 2001). Habitat loss from sedimentation of rivers and streams likely limit the species distribution in Iowa.



My few observations of the species are occurring at River Mile 556, Pool 13 south of Bellevue in a side channel of the Upper Mississippi River. This summer the river was low and clear when I noticed the uniqueness of the habitat where I saw several individuals while electrofishing. Near the confluence of a stream on the west bank, an arching bar extends upstream above a shallow wingdam. Course sand has accumulated and is rolled to form an underwater wave of sand in water about 0.5 meters deep. Cautious boat operation still results in contact with gravel, boulders and cobble that litter this area of the slough.

I usually take time to photograph unusual catches when I'm in the field and the purpose of this article is to share my photos and simply bring attention to this extremely rare and beautiful darter in Iowa. The Crystal Darter is listed as Species of Greatest Conservation Need in the Iowa Wildlife Action Plan.



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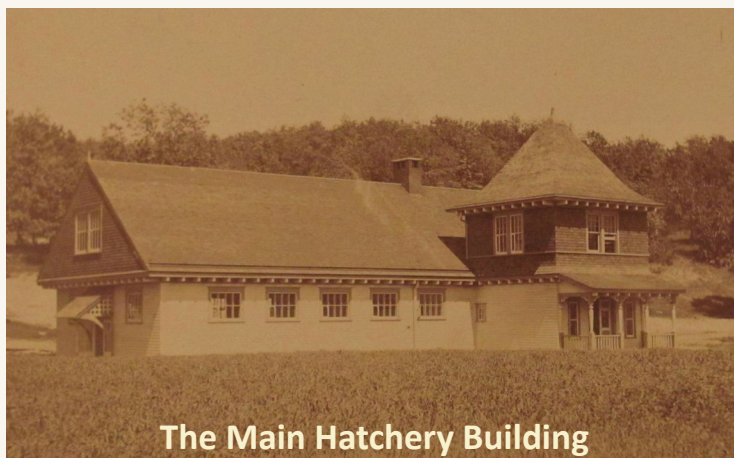
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From Days Gone By — Manchester Trout Hatchery

Vance Polton, Lake Darling Fisheries Management, IA DNR

HAPPY 125TH BIRTHDAY. Wishing a belated Happy Birthday to the **Manchester Trout Hatchery** that turned 125 years old on July 16th of this year. Manchester was built in 1896 as a federal fish hatchery to serve the stocking needs in the Midwest. The springs along Spring Branch Creek were chosen for the site of a new federal fish hatchery back in 1893 by a Professor Barton W. Evermann of the U.S. Fish Commission over other locations in the upper Midwest that included sites in Iowa near Decorah, Cedar Rapids, and Council Bluffs; as well as others in the Dakotas, Nebraska, and Kansas. The deciding factors included: the flow rates of the nearby springs and the proximity to a railroad as well as to the nearest town. It also didn't hurt the Manchester Site's case that the ground for the hatchery had already been purchased by the locals and would be donated to the U.S. Fish Commission if they would build a hatchery there. The first shipment of eggs to the new hatchery consisted of 200,000 Lake Trout eggs in January of 1897, followed by a February shipment of 46,700 Rainbow Trout eggs from the Neosho Federal Fish Hatchery in Missouri. The Manchester National Fish Hatchery was turned over to the State of Iowa in 1976 as the Federal government starting to reduce their number of hatcheries nationwide.

This photo was taken of the Main Hatchery Building in 1897 by William Dick of Manchester who was seventeen at the time he took the picture. His father owned the Clarence House Hotel in Manchester. Young William took several photos of the hatchery grounds and combined them into photo albums that he sold to the public as souvenirs. Two of these albums are known to have survived. One resides in the archives of the State Historical Society Research Center in Iowa City. The other surviving album will join it there in the near future.



The Main Hatchery Building

AN HONOR BESTOWED ON ONE OF OUR OWN

Submitted by Dr. Robert Summerfelt

Alan Johnson, Iowa DNR Rathbun Fish Culture Research Facility, Moravia, Iowa, advanced to full membership in Sigma Xi, The Scientific Research Honor Society, at the annual meeting on April 30, 2021 of the Iowa State University Chapter. Alan was the only person with less than a Ph.D. among a group of ten ISU faculty in science and engineering that were recognized.

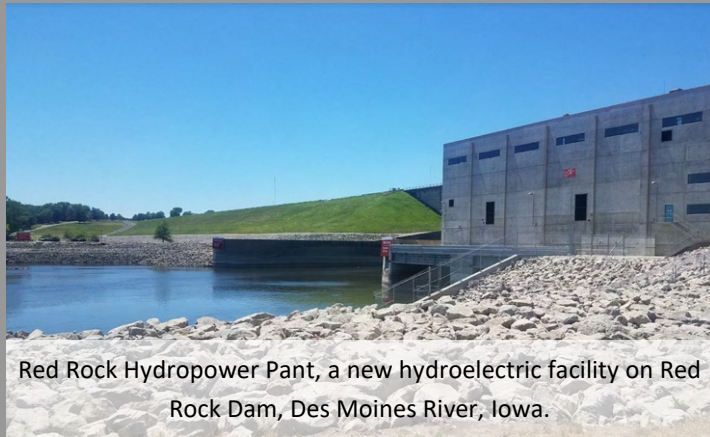
Sigma Xi, is the world's largest multidisciplinary honor society for scientists and engineers. Its mission is to enhance the research enterprise, foster integrity in science and engineering, and promote the public understanding of science. Sigma Xi chapters are found at colleges and universities, government laboratories, and industry research centers around the world. More than 200 Nobel Prize winners have been members. The Society publishes the American Scientist Magazine, a bimonthly science and technology magazine.

Alan, has a BS and MS degree from Iowa State University; he has published 5 book chapters and 7 journal articles, he is a frequent presenter at professional meetings, workshops, and conferences, and active in society activities. Alan is past-President (2008-09) and Newsletter editor (2004-2007) of the Iowa Chapter of the American Fisheries Society.



FISH HEALTH IN THE RED ROCK TAILWATER

Rebecca M. Krogman, Large Reservoir Research, Iowa DNR



Red Rock Hydropower Plant, a new hydroelectric facility on Red Rock Dam, Des Moines River, Iowa.

Large reservoirs in Iowa support fish habitat and fisheries in their tailwaters. However, one-third of tailwaters in the Temperate Plains region (which includes most of Iowa) are negatively impacted by flow changes that are inconsistent with the needs of resident fish in both scale and timing (Miranda and Krogman 2014). In addition, approximately 16% of large reservoirs in the region have a base flow that is too low at times to support fish. Flow-related issues affected Temperate Plains reservoirs more severely than almost every other region of the U.S. In Iowa, these tailwater issues have led to a number of fish kills immediately downstream at reservoirs including Red Rock and Saylorville.

Red Rock Reservoir supports Walleye, White Bass, and catfish fisheries in its tailwater and is the primary upstream barrier to Shovelnose Sturgeon in the Des Moines River. Previous fish kills in the lower Des Moines, including a significant sturgeon kill in 2012, were associated with rapid step downs in reservoir water levels, excessive dissolved gases, high tailwater temperatures, and low flow rates downstream (Lutz 1995; E-Flows 2016). However, fish kills have occurred during high flows as well, and more information is needed to identify water level scenarios and tailwater conditions contributing to large-scale fish mortality downstream. In addition, many smaller fish kills are known to occur but may not be reported or investigated until too late. This knowledge gap has been identified as a priority by a collaborative team working on environmental flows, including the Iowa DNR, the U.S. Army Corps of Engineers, and the Sustainable Rivers Program (E-Flows 2016).

In addition, a hydropower plant has just begun operation at Red Rock, funneling excess water through two Kaplan turbines capable of producing enough power for the entire county. Power production began earlier this summer. Turbine passage has been shown to cause physical damage and disorientation of fish passing through, resulting in increased mortality (Kent et al.



Potential turbine blade strike on a Bigmouth Buffalo.

1998), and is related to turbine design, water velocity, and fish length (Amaral et al. 2015). Overall turbine passage survival may be high across species (nearly 80%: Bell and Kynard 1985; over 90%: Amaral et al. 2015); however fish of greater concern are typically larger in size and are at higher risk of physical entrainment (Amaral et al. 2015). Sportfish species suffered almost 20% acute mortality after passage (Navarro et al. 1996). Similar dominance by *Lepomis* panfishes was found in South Carolina reservoirs, with escapement being most likely during surface spillway discharge (Paller et al. 2006). Escapement was less likely during hypolimnetic releases through a cooling outlet. The Red Rock hydropower inlets span a wide range of depths in the reservoir, potentially including both epilimnion and hypolimnion. In addition to turbine-related fish injury, the pressurization of water through the turbine system can lead to reduced levels of dissolved gas, including dissolved oxygen.

The Large Reservoirs Research team at Iowa Department of Natural Resources initiated field work for a new study this summer to investigate fish health issues in the tailwater of Red Rock Reservoir. Fish sampling at Howell Station, in the Red Rock tailwater, has yielded ever-changing conditions that variably show gas bubble trauma, stress associated with low dissolved oxygen, and possible turbine blade strikes. We are continuing to collect data through the early fall (end of September) and will have much more to share with you in the future, but wanted to show you the variety of stressors impacting the fish community at Red Rock.

Already, we have noticed a connection between dam operations and fish health during the sampling. For example, we did not find turbine strikes until the hydroelectric plant was operating, and we found a high

(Continued on next page)

Fish Health in the Red Rock Tailwater (continued)



Gas bubble trauma in a Walleye (pop-eye), Shortnose Gar (bubbles on caudal fin), and a Freshwater Drum (bubbles under skin).

level of stress (based on gill color/condition) when dissolved oxygen was very low, forcing the hydroelectric plant to cease operations. We have noted the gas bubble trauma occurred during weeks when low flows were passing through the sluice gates at the bottom of the dam. However, the severity of the trauma varied, and it is unclear which combination of factors (outflow, total dissolved gas levels, stratification upstream, sluice gate usage) led to one week being worse than another. We are continuing to sample water quality and fish in the Red Rock tailwater and downstream on a weekly basis throughout the summer, and will continue each year as we develop a better understanding of the effects of water level management on river conditions and fish health.

Given the changes in water level management expected with hydropower production at Red Rock Reservoir, better knowledge of the environmental conditions contributing to large-scale fish mortality could affect future flow discussions. Potential hydropower development in other reservoirs, such as Saylorville Reservoir, will also be affected by these discussions, and a failure to monitor and evaluate environmental conditions would limit the DNR's ability to contribute to environmental flow discussions, identify when hydropower mitigation action may be needed, and protect tailwater fisheries.



Gill conditions reflective of stress and potentially permanent damage. We will correlate gill conditions with water chemistry after summer data collection is complete.

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Fish Health in the Red Rock Tailwater (continued)

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Upcoming Professional Meetings

- [Association of Fish and Wildlife Agencies 111th Annual Meeting](#)— Providence, RI. September 8—14, 2021. (Virtual Sept. 8-10)
- [AGA201 Conservation Genomics](#)—Current Applications & Future Directions. Snowbird, Utah. October 10-13, 2021.
- [Southeastern Association of Fish and Wildlife Agencies 75th Annual Conference](#)—The Outdoors are Better Together. Roanoke, Virginia. October 17-20, 2021.
- [North American Sturgeon and Paddlefish Society Annual Meeting](#)— Virtual, October 25-29, 2021.
- [American Fisheries Society 151st Annual Meeting](#) — Investing in People, Habitat & Science. Baltimore, Maryland. November 6 - 10, 2021. Virtual and In-Person options for attending.
- [North American Lake Management Society](#) — Valuing Water: Economics, Ecology, & Culture. Oklahoma City, Oklahoma. November 15-18, 2021
- [World Aquaculture 2020](#)—Next Generation Aquaculture: Innovation and Sustainability will Feed the World. Singapore,. December 5-8, 2021
- **2022 Mid-Continent Fish Culture Workshop**—Ashland, Nebraska. February 7-9, 2022. SAVE THE DATE!
- [82nd Midwest Fish & Wildlife Conference](#) — Fish & Wildlife Stewardship in Working Landscapes. Des Moines, Iowa. February 13-16, 2022. SAVE THE DATE!
- **UMRCC 2022.** Cape Girardeau, Missouri. **TENTATIVE DATE** March 21-24.
- **Iowa Water 20 Conference 22**— Our Watershed Moment: Building Communities for Conservation. Dubuque, Iowa. March 29 and 30, 2022. First call for [presentations](#) & [posters](#).
- [Joint Aquatic Sciences Meeting \(JASM\)](#) — Rapid Changes ~ Collaborative Solutions. Grand Rapids, Michigan. May 14-20, 2022.



Please consider submitting an article for one of the upcoming issues of LakeLine.

Fall Issue – The fall issue of LakeLine will be the fun and spooky topic of Haunted/Spooky Lakes, but with some scientific explanations! If you have any good histories or stories about haunted lakes or lakes with interesting histories (within lake or nearshore area), please share! Please feel free to think outside of the box with this one, for example, how about a story of a lake that turned blood red under the ice or not (cyanobacteria blooms, etc), disappearing lakes, bizarre gases, colors or other phenomena. Articles are due by September 15, for publication in October.

Winter Issue – Urban Lakes will be the focus on the winter issue of LakeLine. These important resources tend to be highly impacted due to population densities, land uses that are high in impervious surfaces, and runoff with excess nutrients and other contaminants. Please consider sharing articles that relate to the common problems observed in urban systems, partnerships for restoration, rehabilitation of these systems for recreational uses, what urban lakes mean to those who live near them, or other angles related to studying and managing urban lakes. Articles for the winter issue are due by December 15, for publication in January.

Articles are typically 2000 words, and should include photos and graphs to help convey information. Co-authors are welcome. Articles can be submitted to Amy Smagula, LakeLine Editor, via email at LakeLine@nalms.org.

Lots of Fishing Licenses Were Sold in 2020, Now What?

Jeff Kopaska, IA DNR Fisheries Research Biometrician

2020 was a banner year for fishing license sales in Iowa, and beyond. In terms of Iowa residents, 333,330 purchased a fishing license last year, which was the highest total in over a decade. We are all well aware of the craziness that was 2020, but why so many fishing licenses sold? A recent survey of license purchasers from 10 states around the country found that “social fishtancing” was viewed to be a safe and viable recreational activity during the pandemic, and that stress relief was a primary motivation to go fishing last year.

The assessment of resident fishing license sales in Iowa since 2001 shows that regardless of how many licenses are sold in a year, about 15% of the buyers are new recruits who have never before purchased a license in Iowa, 65% are folks who purchased last year, and 20% have purchased a license at some point in time in the past, just not last year. This pattern has been very stable throughout time, until 2020 came along. The one thing that was constant last year was new recruits, which comprised 16% of licenses sold. The big change was in the balance between retained anglers (purchased the previous year) and reactivated anglers (purchased sometime in the past). Reactivated angler purchases surged to 32%, which caused the percent of retained anglers to drop to 54% – even though the total of retained anglers was quite high (Figure 1).

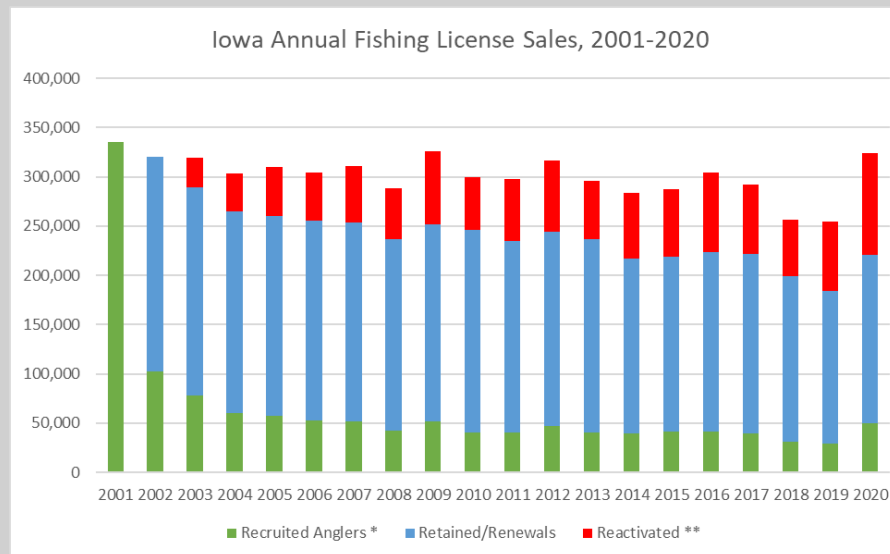


Figure 1. Iowa Annual Resident Fishing License Sales, 2001-2020.

Historical data from license sales had been previously used to develop a model to predict license sales to Iowa residents based on springtime weather (April-June), because

the weather and the economy are the two primary influences on fishing license sales. The weather from April-June 2019 was slightly better than in 2020, and thus the weather model predicted a moderate (2%) reduction in licenses sales for those months in 2020. The reality is that fishing license sales in those months were 25% higher than in 2019!

When 2021 rolled in, the question became, can we retain these folks who showed up in 2020, and keep them fishing? We had some information from our marketing efforts in the past to try to guide our efforts in 2021. In 2012 our marketing effort included an email-only campaign. The response rate to those efforts was ~30%. We sent out around ~10K emails, and those recipients responded by purchasing ~3K fishing licenses. Many more individuals purchase their licenses online in 2021 than did so in 2012, so there are a lot more folks for whom we have an email address today. Also, the new license vendor (Brandt) that Iowa DNR has is much more active in trying to engage our constituents and encourage them to buy a license than we as an agency were previously.

The target audience to receive an email from Brandt to encourage them to buy a license were folks that reactivated in 2020. In May 2021, just under 22,000 emails were sent out to 2020 reactivated purchasers statewide. From those emails, 36 people “clicked through” and purchased a license, for a response rate of 0.16%. That’s a lot less than the 30% that was achieved in 2012.

As I mentioned before, this set of individuals were multiple year purchasers. They did not purchase in 2019, but did in 2020. If they responded similarly to our 2012 effort, there would have been ~6500 licenses sold. If it were only 1/10 the response rate of 2012, it would have been 650 licenses sold. It was 36. In 2012, the emails were sent on April 26 and May 17, and the evaluation was completed in June. License sales for April and May of 2012 and 2021 were roughly equivalent (123K v. 121K).

Previous research indicated that making outreach efforts more localized and individualized was worthwhile. The license database was queried to find license buyers who purchased in 2020, but had not yet purchased as of 6/1/2021, and their email address and zip code were also

Lots of Fishing Licenses Were Sold in 2020, Now What? (con't)

accessed. This data was used to determine appropriate emails to distribute. Multiple zones around the state were delineated, by county, based on significant fishery resources within those zones. The five most populous of these zones were selected for inclusion in a localized email campaign, and many DNR staff assisted in creating “go fish for this, now” messaging for these emails. The zones were:

- Des Moines area (Polk, Warren, Dallas, Madison, Adair and Guthrie counties) which highlighted fishing opportunities at Easter Lake, Badger Creek Lake, Beaver Lake and urban ponds.
- Iowa City/Cedar Rapids/Quad Cities areas (Muscatine, Scott, Linn, Johnson, Cedar, Clinton, Jones and Jackson counties) which highlighted fishing opportunities at Lake Macbride, Lost Grove Lake and the Mississippi River.
- Fort Dodge/Ames/Marshalltown areas (Boone, Greene, Grundy, Hamilton, Hardin, Marshall, Story, Webster and Wright counties) which highlighted fishing opportunities at Brushy Creek Lake and Pine Lakes.
- Trout Country (Allamakee, Chickasaw, Clayton, Bremer, Delaware, Dubuque, Fayette, Howard and Winneshiek counties) which highlighted trout stream fishing opportunities as well as the Mississippi River.
- Waterloo area (Black Hawk, Benton, Buchanan and Tama counties) which served as a control and no emails were sent.

Using the same methodology as our license vendor, sending an email and tracking click-throughs to purchases, we achieved the following results:

- Des Moines area; 15,543 individual emails sent, 56 users engaged, 26 transactions
- Iowa City/Cedar Rapids/Quad Cities area; 14,689 individual emails sent, 43 users, 16 transactions
- Fort Dodge/Ames/Marshalltown area; 6,600 individual emails sent, 21 users, 7 transactions
- Trout Country; 6,315 individual emails sent, 8 users, 2 transactions

The click through and purchase rates from our emails were similarly abysmal to the rates that Brandt reports to us. However, even using just those numbers, we achieved over \$1,700 in sales, which is more than the cost of the time spent by staff on this endeavor.

Since we did this work ourselves, we have the DNR IDs for all individuals who received an email, so we have the ability to see not only if these folks clicked through, but also if

they actually purchased via a mechanism other than the click through. To make appropriate comparisons, we used the Waterloo area as a control (no emails sent), with 4,451 individuals. DNR staff pulled the data for all license sales associated with our selected DNR IDs that occurred from June 1-18, 2021. The assessment included only annual fishing privileges purchased (resident fishing, outdoor combo, and trout fee).

- Waterloo area; 4,451 individuals, 188 purchasers (4.2%), 219 privileges purchased
- Des Moines area; 15,543 individuals, 665 purchasers (4.3%), 727 transactions
- Iowa City/Cedar Rapids/Quad Cities area; 14,689 individuals, 722 purchasers (4.9%), 819 transactions
- Fort Dodge/Ames/Marshalltown area; 6,600 individuals, 294 purchasers (4.5%), 326 privileges purchased
- Trout Country; 6,135 individuals, 260 purchasers (4.2%), 332 privileges purchased

This methodology most closely matched the methods employed in 2012, thus our response rates dropped from around 30% in 2012 to just under 5% in 2021. Also, within 2021 we had a small lift in either response rates or average value of purchase over our control population (Trout Country buyers commonly bought licenses and trout privileges). The value of this lift over about ~2.5 weeks was approximately \$4,000.

This work was done on the largest population segments in the state, the biggest pools of 2020 purchasers who had not yet purchased in 2021. We learned that our response rate to emails has dropped substantially from the last time we have comparative data, 2012, from ~30% to 4-5%.

Contemplating these results, I reflect on the numbers of emails I now receive daily versus how many I received a decade ago. This method of reaching customers and potential customers has grown dramatically, and it seems that it is a primary marketing tool for many entities. I believe that the utility of using this outreach mechanism is greatly diminished due to the popularity of this use in society. I'm not sure what tools we will try to develop in the future, but the challenges to engage and retain anglers will remain formidable.





Cyclone Corner



ISU Student Sub-Unit Updates

Marcus Prull , President

Last spring our club participated in a variety of activities. We hosted Tyler Stubbs to talk about artificial structures in ponds and we also hosted Ryan Hupfeld who talked about his station's shovelnose sturgeon research. Besides speakers, we hosted a fly tying event which provided a nice change in pace from the rest of the year. It was a difficult semester with many club restrictions due to the ongoing pandemic, however, the officers and I have optimism that things will move closer to "normal" this semester. We are actively looking for guidance from the university on what we can/can't do as a club this semester. If anyone has any cool research or fishery related topics that you would deem important for college students to learn about we would be grateful to host you for a meeting (online or in-person). You can reach me at my email: mprull@iastate.edu.

Thanks everyone,

Marcus

The current officers are:

- President:** Marcus Prull
- Vice President:** Devin Miller
- Treasurer:** Justin Gard
- Secretary:** Brayden Crew

(Like us on Facebook, search @ISUAFS)



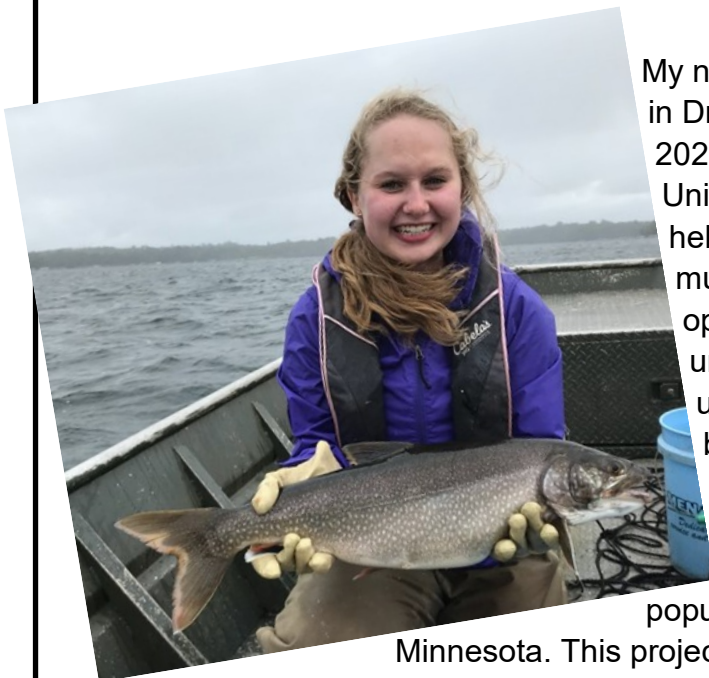
Cyclone Corner

Some New Faces and Research Projects at Iowa State

Hello all! We welcomed a number of new people to NREM this summer/fall and would like for you to get to know them. Here is a bit about who they are and what they are working on!

Michael Weber

My name is Erik Griffen and I hail from Ashland, Missouri. I received my Bachelor's in Natural Resources with an emphasis in Fish and Wildlife from the University of Missouri. Growing up, I was exposed to many outdoor activities and opportunities, which inspired my career choice. I am an avid fly fisherman pursuing large brown trout and muskies among others things. I also enjoy fly tying and deer hunting. I worked several summers on the Missouri River with the Missouri Department of Conservation sampling for age-0 pallid sturgeon and capturing other big river fishes. As an undergraduate I also conducted a diet study on juvenile blue and channel catfish in conjunction with sturgeon sampling. My thesis at ISU involves assessing the effects of experimental flows on riverine fish communities downstream from Red Rock Dam on the Des Moines River.



My name is Claire Rude and I am an incoming MS student in Dr. Weber's lab. I started at ISU in June 2021. In May 2020 I graduated with a bachelor's degree from the University of Minnesota-Twin Cities where I was able to help with research examining the impact of zebra mussels on walleye food webs and I also had the opportunity to work in the fish collection at the university's natural history museum. As an undergraduate, I had internships focused on fisheries biology with the Minnesota Department of Natural Resources and the Minnesota Pollution Control Agency. At Iowa State, I am working on a research project using acoustic telemetry to study walleye population dynamics and movement in a reservoir in

Minnesota. This project is a cooperative effort between ISU, the US Army Corps of Engineers, and the Minnesota Department of Natural Resources.

(Continued on next page)

New Faces and Research at Iowa State *(continued)*

Claire Rude *con't*

Over the course of the project we will be implanting acoustic tags into 200 walleye and monitoring their movements with a hydrophone array distributed throughout the reservoir and numerous interconnected waters, including several upstream tributaries that feed into the reservoir and also the river downstream of the dam. The large span of our hydrophone array will allow us to monitor potential emigration or dam escapement occurring in the system, as well as seasonal movements such as spawning migrations.



My name is **Madeline Lewis** and I am a PhD student in the Weber Lab. I graduated from Montana State University in June 2021 with a Master of Science in Fish and Wildlife Management. My Master's research focused on evaluating outmigration dynamics of juvenile Bull Trout to better inform management of a downstream trap and haul program. I received a Bachelor of Science in Wildlife Biology (Aquatic Focus) from the University of Montana in May 2018, where I completed an undergraduate research project evaluating life history variation in non-native Brook Trout. While pursuing my undergraduate degree, I spent a field season on a Forest Service crew, monitoring Bull Trout populations in Idaho, and two seasons on an anadromous fish snorkel crew with Idaho Fish and Game. My research at Iowa State will focus on evaluating population dynamics of Walleye and Muskellunge in reservoirs.



My name is **Tom Miles** and I am a new Master's student in Dr. Weber's lab. I will be working on Phase II of the Big Creek Lake and Brushy Creek Lake Escapement project. I grew up just outside of Philadelphia, Pennsylvania in a small suburb called Chadds Ford. My dad is an avid outdoorsman and instilled a deep respect for the natural world in myself and my siblings. We hunted with him from a young age, primarily archery hunting for deer, and fished when we weren't hunting. My dad was no expert fishermen, but I took to fishing and find absolute peace on the water. I knew from a young age that I wanted to turn my passion for the outdoors into a profession, and I started researching college majors and attended a fisheries camp in Central PA in high school where we met with professors from Penn

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New Faces and Research at Iowa State *(continued)*

Tom Miles *con't*

State University, state Fish and Boat Commission employees, and Trout Unlimited employees. I applied to schools with highly ranked Fisheries programs in the Southeast because of the hub of aquatic diversity there, and ended up at Mississippi State University. I pursued my passion for research in multiple settings and got lucky enough to work with some amazing mentors including Dr. Wes Neal, Dr. Peter Allen, and Dr. Donald Jackson. I got involved with the American Fisheries Society and other clubs like Ducks Unlimited and the Wildlife Society, and I also got involved in tournament bass fishing through the Mississippi State Bass Fishing Team. I chose Iowa State for graduate school because the project, which focused on reservoir fishery management, lined up with my professional interests and goals. Eventually, I'd like to get my PhD and work at a University where I can continue to culture my love for research and pass knowledge on to the next generation of fisheries professionals.



My name is **David Yff** and I'm a research scientist here at Iowa State University focusing on larval bigheaded carp research on the Upper Mississippi River. I am originally from Illinois and received my undergraduate degree in fisheries from the University of Wisconsin – Stevens Point. I am currently wrapping up my master's degree at Eastern Illinois University, where I researched larval big-headed carp on tributaries of the Illinois and Wabash Rivers. My passion resides in large river fish-

eries research, in part due to the importance of studying large rivers that have undergone significant anthropogenic changes, along with the dynamic fish communities. Invasive species interest me due to their potential to disrupt native food webs and species compositions. The larval fish research we are working on provides a unique opportunity to study bigheaded carp reproduction along their invasion front. This gives us important information on their spread along with providing information on the fish community as a whole. I look forward to meeting and working with many of you as my project progresses and conferences go back to in person. If you have any questions about my research or want to talk larval fish feel free to email me at Dyff@iastate.edu



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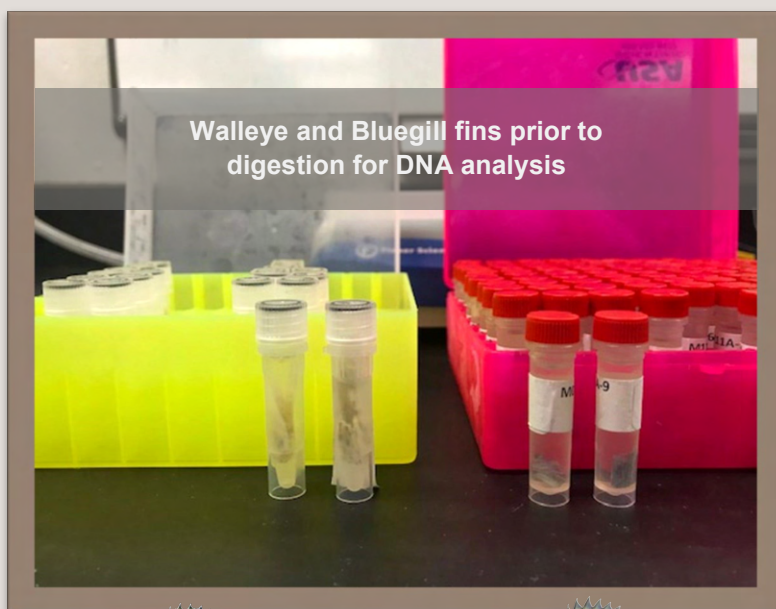
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Berendzen Lab Updates

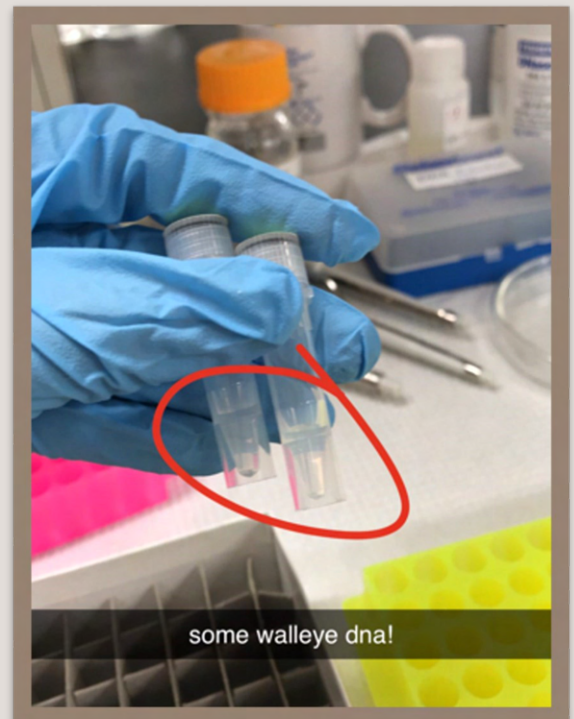
The Berendzen Lab at the University of Northern Iowa is using next generation sequencing technology and genomics to improve stocking practices. Using restriction-site associated sequencing (RAD-seq), we efficiently generate high quality data that is useful in answering a number of important fisheries questions. One application currently underway is to develop genetic markers which can be used to identify lake and river strain walleye to expedite stocking in the relative appropriate environment. Another application is to conduct genome wide association studies on bluegill with the goal of determining if there is a genetic component to growth. Results from this study can also be used to understand the impacts of angling pressure on genetic diversity in Iowa lakes. These projects are being done by graduate students Jeremy Abels, Morganne Borsh, and Rachel McDonnell for the fisheries of Iowa and Kansas. Recent innovations in genomics are providing great tools to better understand these fisheries.



MS Students
Jeremy Ables and Rachel McDonnell



Walleye and Bluegill fins prior to digestion for DNA analysis



some walleye dna!

Fishes & Dishes

Sharing the fun stuff!!



BBQ'd Walleye *submitted by Ben Dodd*

- ◆ Cut strips of bacon in ½, partially cook in microwave
- ◆ Cut filets into strips that are approximately 4" long x 1.5" wide
- ◆ Place a piece of bacon on a filet, roll tightly, and secure with tooth-picks
- ◆ Sprinkle your favorite all-purpose seasoning on the rolled up fish/ bacon
- ◆ Get the coals or grill hot

Spraying the grate before placing it over the coals prevents the fish from sticking to the grate

Place fish/bacon on end and baste with BBQ sauce while cooking over a medium heat

Flip as necessary and cook until the fish begins to flake and bacon edges crisp



Gavin Esser, Lake Rathbun, Crappie Fishing Spring 2021



Bentley Cashatt, with a bass from a Moravia Iowa pond. July 2021

Smoked Salmon Dip *submitted by Rebecca Krogman*

I just made this for the Wild Game Feed at Outdoor Journey for Girls, and it was one of the most popular dishes for the adults. Most of it disappeared in the kitchen before we served...

Serves 1, if you refuse to share!

Mix 1 c sour cream and ½ mayonnaise in medium bowl. Add 1 c smoked salmon, 3 T chopped green onion, ½ tsp Worcestershire sauce, and a dash of garlic powder. Mix well.

Cover and refrigerate at least 1 hour. Serve with butter crackers.

Fishes & Dishes (continued)

Garlic-Butter Bass or Catfish

submitted by Rebecca Krogman

This recipe was requested every other weekend this summer.

Ingredients

- 4 T butter, melted
- 3 cloves garlic, minced
- ½ T lemon juice
- 1 T chopped fresh parsley
- 12 oz. black bass or channel catfish fillets
- ½ tsp salt
- ½ tsp black pepper
- ¼ tsp cayenne pepper
- ¼ tsp onion powder
- ¼ tsp garlic powder
- ¼ c cornstarch

Directions

1. Mix butter, garlic, lemon juice, and parsley for sauce.
2. In small bowl, combine salt, black pepper, cayenne pepper, onion powder, and garlic powder. Season fish evenly.
3. Coat fish with cornstarch
4. Heat 2T oil or butter in a skillet over medium-high heat. Pan fry fish in a single layer, frying until both sides are crispy and golden brown.
5. If you have larger fillets, place them in a baking dish and bake at 400°F for 5-15 more min. Check with a fork every 5 min, until meat is flaky and tender.
6. Drizzle evenly with garlic butter sauce.



Garlic Butter Fish made with Freshwater Drum

“Stuffed Mushroom” Oyster

Pizza

submitted by Rebecca Krogman

Every week I find oyster mushrooms, this recipe is requested. Also THE MOST popular recipe at Outdoor Journey this year!

Serves: 4-6

Ingredients

- 1 pkg Pillsbury Thin Pizza Crust
- 8 oz. cream cheese, softened
- ½ c mayonnaise
- ½ c pizza sauce
- 1 tsp dried parsley
- ¼ tsp black pepper
- ¼ tsp seasoned salt
- ¼ tsp onion powder
- ¼ tsp creole seasoning
- ¼ tsp dried oregano leaves
- 8 oz. crab
- 8 oz. golden or pearl oyster mushroom
- 5 green onions
- 2 oz. Parmesan cheese, shredded



Directions

1. Unroll the pizza crust on a large non-stick baking sheet, and pre-bake for 8 min at 400°F.
2. Combine cream cheese, mayonnaise, pizza sauce, and spices (through oregano), and blend until smooth. Spread sauce in a thin layer on the pre-baked crust. Chop crab, mushrooms, and green onions into bite-size pieces.
3. Sprinkle crab, mushrooms, and green onions evenly over pizza.
4. Sprinkle Parmesan cheese evenly over top, and drizzle lightly with olive oil.
5. Bake pizza another 10 min at 400°F.

Application form
Fisheries Project Grant
Iowa Chapter – American Fisheries Society

Project Name: _____

Project Description: _____

Attach map or supplementary information

Project Location:

Water Body: _____

Address: _____

_____ County: _____

Start Date: _____ End Date: _____

Project Personnel: _____

Fisheries Benefits: _____

Iowa Chapter Representative: _____

Amount needed: \$ _____.____ Total project cost: \$ _____.____

Money will be used for: _____

Up to \$1,000.00 per project.

Approved by Excom Committee Date: _____

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Fisheries Project Grant Application Form Instructions

The Iowa Chapter of the American Fisheries Society is offering to help finance worthwhile fisheries related projects. The completed application form needs to be transferred to the Iowa Chapter President by an Iowa Chapter Member.

Project Name – Give the project name.

Project Description – Give a brief review of the intended project. Include the work to be done, the methods and material that will be used in the project.

Attach a map and any supplementary information that you think will help the Excom Committee evaluate the project.

Project Location – Where will the work be done.

Start and End dates for the project. Month and calendar year will do.

Project Personnel – Include organizations and or individuals who will be directly involved in the work.

Fisheries Benefits – A very important part of the project should be direct benefits to Iowa's fishery. How does the project help and who is the beneficiary?

Iowa Chapter Representative – All projects need to have an Iowa Chapter member as a sponsor.

Amount needed – Tell us how much you need and the total project cost. There is a \$1,000.00 limit for each project.

Money will be used for – Be as specific as you can. Will the money be used to hire people, buy equipment, be seed money for a grant, etc.

The Excom Committee of the Iowa Chapter will review the application and approve or reject the request.

Iowa Chapter of the American Fisheries Society Annual Business Meeting

DRAFT Iowa Chapter AFS Meeting Minutes – Virtual Meeting

3:00 PM, Thursday, February 25th, 2021

CALL TO ORDER

The meeting was called to order by President Chris Larson. Larson introduced the EXCOM: Past-President: Gregory Gelwicks, President-Elect: Tyler Stubbs, and Secretary/Treasurer: Kyle Bales. The NCD Past President Jeff Kopaska was present as a special guest. There was a Quorum.

The 2020 Annual Meeting Minutes were approved.

NCD/AFS Update

Jeff Kopaska gave an update highlighting changes in AFS. Brian Murphy has a 4 point of work idea, rebranding process for AFS, and joint statement on Climate Change (AFS did a lot of the heavy lifting to get it passed). Doug Austin gave an update on the new Job board. NCD had a good virtual Midwest. We need to nominate more people for awards, there were a few awards that only had one nomination.

2019/20 TREASURER'S REPORT

The chapter started report period (2/14/2020) with a balance of \$14,511.01 (\$3,100.38 in the warm water account and \$2,325.10 in Mike Mason Memorial Fund, resulting in \$9,085.53 available for AFS). Disbursements since the last financial report equaled \$12,538.46 and receipts equaled \$11,837.19.

The annual meeting, donation, 2020 dues, raffle along with parent society returns brought in \$10,807.65. The annual meeting had \$5,488.35 in expenses. Raffle and auction proceeds from the 2020 IA AFS meeting were split with the ISU Student Subunit for an amount of \$1750.00. Money brought in minus total expenses and ISU split resulted in a total profit of \$3,569.30.

As for the other accounts that funnel through our account. The warm water account had no changes this year and ended with a balance of \$3,100.38. The Mike Mason fund has been depleted and the balance ends at \$0.

Other noteworthy expenditures included a student scholarship (\$500.00), a Joan Duffy scholarship of \$200 to Brett Kelly, membership in Iowa Environmental Council for 2021 (\$100.00), 2020 and 2021 membership for Iowa Conservation Alliance (\$500.00), and the final payment for an IA AFS grant for mussel propagation equipment (\$658.00).

All account activity resulted in a balance of \$13,809.74 on 2/16/2021. The Warm Water Account has \$3,100.38; Mike Mason Memorial Fund has \$0.00, resulting in an AFS available balance of \$10,709.36.

Proposed budget continues payments to the Iowa Environmental Council, the REAP Alliance, the Iowa Conservation Alliance, the student scholarship, IA Chapter insurance, and the remaining balance for each of the approved grants.

Committee Reports

Rebecca needs any updates for Reservoirs.

No additional comments were made about the Committee Report

Old Business

Approved Grants – No 2020- 2021 Applications

Open committee chairs Rivers and Streams, Escocids, Centrarchid, Fish Culture and Reservoir letter of interest by
(Continued on next page)

Iowa Chapter AFS Annual Meeting ...*(continued, 2nd page)*

April 1

Ben Wallace – Undergraduate scholarship. Is it only for ISU students?

New Business

- Midwest in 2022 – George Scholten

Joined the Conservation fund to plan the Meeting. Profits from one meeting will roll over to the next meeting.

- Ryan Hupfeld – Presentation on Continuing Education. Savanna and Ryan will send out a list of potential classes please respond with any classes that they may have missed.
- Tyler Stubbs – Urban Fisheries technical committee. Should be in full swing soon. Jeff said that the bylaws are getting updated and should be done by the Fall meeting and then the tech committee will be folded into the tech committees
- Silent auction – Thanks for being involved and thanks for putting it together Jeff and student.
- Videos for Iowa State Fish – Great Job. Thanks for putting the videos together! Need to discuss what to do next, what do we like or dislike, etc. Steuck wants to vote on the 4 fish. Kopaska wants to thin the field (fewer fish). Chris Larson says that 4 is pretty thin. Let's vote and see what rises to the top. Steuck makes a motion to vote for entire membership. Second from Ryan Hupfeld. Kopaska is concerned with a 4-way tie. Kirk Hansen, what happens if we get 3 with 33 percent? Rank choice voting? Kopaska makes a motion to remove the orange spot from consideration. Chad Dolan Seconds. Discussion? Jay was wondering if we just have 2 votes top two get voted on for the winner. Kopaska's motion is withdrawn since we liked what Jay had to say. Jeff and Steuck friendly amend the parent motion – vote on all 4. Then vote again on the top 2 vote getters. No further discussion. Motion Unanimously passes

Rebecca Krogman – wants to discuss what message we want to convey. George Scholten had the same question as Rebecca. Do we want the most important to Iowans or Iowa? We could vote differently depending on what we want. Kirk Hansen – how many states have these fish as their state fish already Channel Catfish – NE, KS, MO, TN; Bluegill – IL. Some states have non game fish for their state fish and some states have a game and non-game fish for their state fish. FL has saltwater and freshwater state fish. We will wait and see how Legislation turns out making the Channel Catfish as the state fish as a memorial but we should be ready when the time is right.

Ryan asked if we should open up the scholarship to other schools. Other schools are interested in the scholarship. Kopaska said that if other Subsections are created then we should support them but until then we should keep supporting ISU. Rebecca Krogman said that Heather Stewart was able to create a student subsection in Quebec with multiple universities so maybe that is an option. We need a champion to reach out to these smaller schools so that they are aware they can even create a subunit. Ben Wallace can it only go to the subunit? Or can it go to anyone? Kyle Bales said that right now it is up to ISU to make the decision and only students from ISU can get the scholarship. If we wanted to open it up to another school, we would have to make the decision and get the applications sent to IA AFS EXCOM. Marty Simonson said that last year they didn't recognize the person that won and that IA AFS should probably take over and do it ourself. Mike Steuck looked through his AFS files and he has a document for ISU undergraduate scholarship rules. Do we have an updated scholarship guidelines document? EXCOM should appoint a committee to look into this.

Jeff Kopaska wants to add that Iowa Chapter of TWS gives ICA \$2,500 a year and we only give the minimum at

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Iowa Chapter AFS Annual Meeting ...*(continued, 3rd page)*

\$250 a year. It would be nice if we could do more especially because our wildlife counterparts are doing a lot more than us. We are half the size so maybe we could give \$1,250.

President Chris Larson Adjourned the meeting

