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Newsletter of the Iowa Chapter
of the American Fisheries Society
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2011 PRESIDENT-ELECT

Congratulations Kim Bogenschutz!



Kim received a BA in Biology from Gustavus Adolphus College (St. Peter, Minnesota) and an MS in Fisheries Science from South Dakota State University. She has worked as a Fisheries Management Specialist for the Minnesota Department of Natural Resources, a Fish and Wildlife Biologist for the U.S. Fish and Wildlife Service, an Ecologist for the Iowa Department of Transportation, the Environmental Review Coordinator for the Iowa Department of Natural Resources (IDNR), and a Wildlife Diversity Biologist for the IDNR. Since 2000, she has been the Aquatic Nuisance Species Program Coordinator for the IDNR. Kim is vice-chair of the Association of Fish and Wildlife Agencies Invasive Species Committee and a member of the Mississippi River Basin Panel on ANS, Missouri River ANS Work Group, Introduced Fish Section of the American Fisheries Society, Midwest Invasive Plant Network, and Aquatic Plant Management Society.



PRESIDENT'S CORNER—Andy Fowler



"There's a fine line
between fishing and
standing on the shore like
an idiot."

--Steven Wright

Recently, our chapter was approached to draft a position statement on the use of lead in recreational fishing. Toward that end, I formed a committee to draft this statement which will likely be brought to a vote before the chapter membership at or before our next annual meeting. The committee is comprised of 7 fellow chapter members: Kim Bogenschutz, Mark Flammang, Jonathan Meerbeek, Donna Muhm, Joseph Morris, Ben Wallace, and myself. We currently are researching relevant material before we begin to draft an initial statement. If you have any comments on this topic, please direct them to one of the members shown above.

By the time you read this, we should be in the midst of or have ended the election for president-elect of our chapter between our excellent candidates, Kim Bogenschutz and Ben Wallace. We are lucky to have such good nominees as both of them will most certainly do a great job and lead our chapter well. As we near the beginning of their term, I near the end of my mine. It seems like only yesterday that I was writing an article for my first president's corner and now here it is my last. I have enjoyed being involved with the chapter throughout the past year and feel like we have accomplished some good things, for our chapter and fisheries in general. These accomplishments are due to the hard work of a lot of people and thus, much appreciation is deserved. Andy Otting has done a wonderful job putting up with

me and despite all of it, has decided to stay a second year as our Secretary-Treasurer. Please take the time to thank Andy for all of his hard work. His position takes on a huge roll for our chapter. He kept everything running smoothly, from continuing education classes to annual meeting preparations and more. Additionally, Lewis Bruce, George Scholten, Clay Pierce, and Darcy Cashatt need a big thank you for putting together a great continuing education class this year. We have received a lot of interest in it and it looks to be a good fundraiser for our chapter. Also, please take the time to thank Kim Hawkins for her role as the newsletter editor and Mike Colvin as the web-editor. Our ability to communicate with all our members efficiently and effectively has greatly increased due to their efforts. I even believe that our chapter has a good chance to win the Best Communications Award from the North Central Division this year at the Midwest Fish and Wildlife Conference because of their work! Last but not least, I would like to thank my remaining associates on the executive committee: Chad Dolan, Bryan Hayes, and Chris Smith. Through their hard work our chapter is and will remain in good standing.

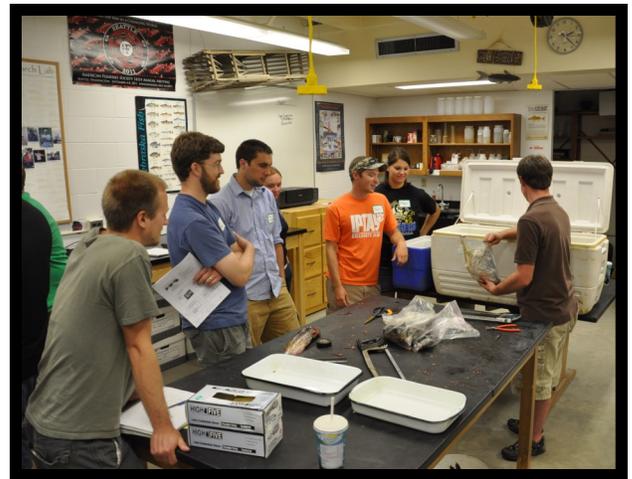
Thank you for allowing me to serve you throughout the past year and hope to see you at the next annual meeting held during the Midwest Fish and Wildlife Conference!

Andy



2011 CONTINUING EDUCATION WORKSHOP AGE & GROWTH July 19-20, 2011 Ames, Iowa

Fish of the Midwest have put down another annuli since last year's continuing education. Forty-one people attended this year's 2-day course to improve their skills at recognizing and counting this annuli. Lewis Bruce organized the course with help from Clay Pierce. The course was instructed by University of Wisconsin – Stevens Point Assistant Professor Dan Isermann and assisted by Jonathan Meerbeek, Darcy Cashatt, Andy Fowler, Jesse Fischer, Michael Colvin and Kris Stahr. There was a diverse group of participants from Iowa, Wisconsin, Illinois, Nebraska, Michigan, Canada, USGS and FWS. Valuable hands on experience was gained in removing, preparing and aging structures. An aging test was completed by all participants to highlight the variability in readers. The course gave participants enough knowledge and experience to begin reducing this variability.



THE QUEST OF THE GOLD

On person's roadmap to achieve the Master Angler Gold



Iowa Outdoors

DNR Press Release

On a recent trip to his rural Louisa County home, DJ Vogeler was discussing the new master angler program with his father who is a passionate angler. The discussion led to the trip to a nearby farm pond and a short time later, the elder Vogeler had his first entry into the new program – a bluegill.

The Iowa Department of Natural Resources established the master angler program to promote fishing in Iowa. The program replaces the big fish award with three levels of recognition.

Anglers who catch one fish meeting the minimum length criteria are awarded a certificate and a boat or car decal with the master angler logo. Anglers who catch five different species are recognized with a silver level master angler medallion, in addition to the certificate and decal. Anglers who catch 10 different species are recognized with the gold medallion in addition to the silver medallion, certificate and decal.

“Fishing stories are usually about the one that got away,” said Joe Larscheid, chief of fisheries for the Iowa DNR. “This new program celebrates the one that didn’t get away. It’s about bragging rights and competition among friends, each with their own plan on how they are going to get the gold.”

Vogeler, who is a fisheries technician with the Iowa Department of Natural Resources at the Onawa office, has been fishing over much of the state as he gets transferred between offices.

Based on his experiences, Vogeler offered his roadmap if he were to go for the master angler gold medallion in one year.



UPPER MISSISSIPPI RIVER NORTHERN PIKE STUDY

Royce Bowman, Iowa DNR



Whether casting crank baits, retrieving top water plugs, or suspending live bait, not many fish species can smash and inhale your bait like northern pike. Pike are often caught incidentally. I recall fighting a huge pike that picked up my three-way rig last fall while walleye fishing the tail-water at Bellevue. The battle raged on for what felt like ten minutes drawing a lot of attention from fellow anglers. Sadly, it ended with another “one that got away” tale.

Many anglers travel to Minnesota or Canada to fish for northern pike but Iowa offers some great pike fishing opportunities. Northern pike provide an important recreational fishery in the Upper Mississippi River (UMR) and rank 8th to 10th in harvest on Pools 11 and 13. A growing number of anglers are interested in catching more and larger pike in the UMR. Generally, these anglers would be supportive of more restrictive regulations and have the perception that restrictive regulations will result in better catches. Then you have the other folks (like me), that target pike because they're great in the fryer with a side of coleslaw! To date, little is known about the abundance of northern pike in the UMR and managers need more current information to effectively manage these fisheries. The Mississippi River Fisheries Research crew initiated a new Federal Aid study this spring to evaluate the status, distribution and habits of northern pike in the UMR.

In the 1950's, exploratory fish sampling found northern pike indigenous to all pools of the Mississippi River north of Caruthersville, Missouri. In fact, pike were commercially harvested from Iowa waters until 1959. Iowa is definitely on the southern tip of the

northern pike range as they are intolerant of water temperatures exceeding 77°F for extended periods. Summer water temperatures in the UMR frequently exceed 77° and anglers target pike that are seeking thermal refuge at the confluence of cold water streams, seeps and artesian wells. These cold water inputs are areas we plan to sample northern pike this summer using electrofishing and fyke nets.



The Guttenberg Fish Hatchery has collected northern pike broodstock and reared pike fry for stocking into Iowa waters for many years, so naturally it was a great area to start sampling pike for this project. The great contribution of staff from other field stations assisting the Guttenberg crew with broodstock collection allows us to build upon their fyke netting effort to achieve hatchery goals while collecting fish needed for our research. We were very thankful for the support we received from Scott Gritters and Kevin Hanson at the Guttenberg fish hatchery as we invaded their station with boatloads of nets, gear and gadgets to start this project. The ice began to break-up in March, and netting with standard 3'x6' fykes commenced on March 20th.

As sampling progressed, collecting enough broodstock to satisfy hatchery fry requests was easily achieved. In 176 net nights, a total of 678 northern pike were netted (CPUE = 3.9 fish/24 hour set) between March 20th and April 8th in Pools 10 and 11. Northern pike lengths ranged from 8.6-37.9 inches and male to female sex ratio was 1.00:0.68. To estimate population size and exploitation for the project, all northern pike over 12" receive an individually





numbered Floy tag that includes the Bellevue office phone number (to facilitate angler returns). Floy tags were inserted below the dorsal fin through the pterygiophores. These fish also received a secondary mark to estimate tag loss. Removed fin rays were used for age and growth determination. Pike captured in Pool 11 received a white tag, and fish from Pool 10, a yellow tag. By using the alternate colors in each pool, we hope to assess movement between pools during the study. Near record flooding on UMR this spring left the roller gates out of the dam for the entire sampling season. We feel our catch rates were undoubtedly impacted as shorelines and islands became inundated with flood water. Near the end of the spawn and our sampling, it became increasingly more difficult for fyke nets to fish properly. To date, five Floy tagged pike have been harvested and reported by anglers.

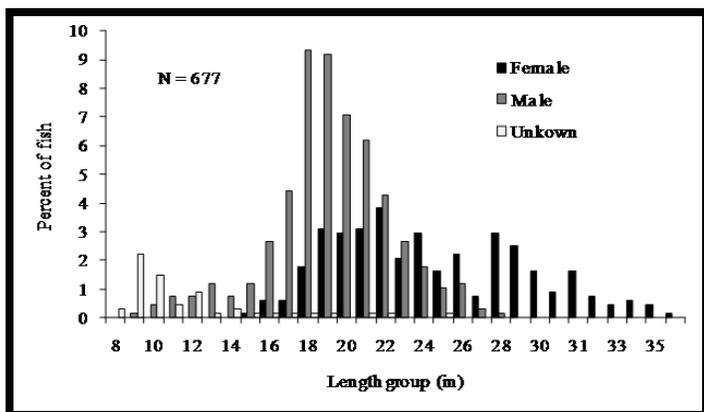
Another important goal of the northern pike project will be determining age and growth in the UMR. In addition to taking a fin ray for age and growth, we hope to improve our aging accuracy and precision by

initiating a “known age” northern pike project. The Fairport Hatchery staff had a 0.2 acre hatchery pond available this spring and 20,000 pike fry, hatched at the Guttenberg hatchery, were delivered and stocked there on April 21st for this project. Raised in the flooded vegetation of the hatchery pond, the fry had reached 2-3” very quickly and on May 20th the pond was drained. Pike were collected and moved into a raceway at the hatchery. With a lot of great help, we freeze branded more than 7,000 pike and they were stocked into Bussey Lake (Pool 10) that same evening. We plan to freeze brand pike again next year if pike fry and hatchery space are available. With luck, we will collect branded pike from Pool 10 each year during the study, remove the aging structures and build a known age pike dataset for UMR.



This fall when water temperatures drop, we plan to surgically implant 20 northern pike with radio transmitters, track them weekly, and begin collecting habitat information at the locations of the tagged fish. By incorporating the use of radio telemetry in this study over the next five years, we will document northern pike habitat use and water quality preferences. This information will be valuable in guiding the management and improvement of habitat for northern pike. In the future, as the effects of riverine habitat degradation, including backwater sedimentation, loss of side channels, flow alterations and water quality continue, we will be able to provide information to make decisions needed to protect and enhance this valuable resource.

We would like to thank the many people that assisted with the start-up of this project, and we hope to see you all again in the next couple years at ice out. If you have questions or are interested in the northern pike study, don't hesitate to contact us at the Mississippi River Fisheries Station: 563-872-4976.



Length frequency histogram and sex of northern pike sampled from Pool 10 and 11, Upper Mississippi River in 2011.



SPIRIT LAKE'S NORTHERN PIKE PATTERNS

Jon Christensen, Iowa DNR

Each year anglers notify staff at the Spirit Lake Fish Hatchery that they caught something rare. I happened to receive a call this spring from a muskie angler that thought he had caught a clear patterned muskie. I knew what he had and I told him he likely caught a silver northern. The silver northern look like the traditional spotted northern pike but lack the spots. The silver northern is often confused with a muskellunge by anglers. I have handled enough silver northern and muskellunge to identify both species. The identifying characteristics I look for on the silver northern are; the dark fin rays on the dorsal fin and tail, the tail is more rounded on pike, and they have a dark stripe on the front and back of the eye. The northern pike will also have up to five jaw pores per side while the muskellunge will have six to eight.

One of my first experiences with a silver northern was when I worked part time as a winter creel clerk on Spirit Lake back in January 2000. I happened to

check Willy Wackerbarth now retired IADNR fisheries employee and his son Terry that day. Terry caught a nice silver northern shortly before I creel him. I weighed and measured the fish and took the other needed info. Willy asked me "Hey Jon boy!, Does Iowa recognize a silver northern as a state record fish?" We checked a copy of the Iowa Fishing Regulations I had along and there wasn't a separate entry for the silver northern. The Wackebarth's kept the silver northern and with a little research they were able to find out that the National Fishing Hall of Fame in Hayward Wisconsin recognizes the silver northern separately. The Fishing Hall of Fame has different divisions for each fish species. Terry Wackerbarth's silver northern from Spirit Lake still stands as the Division 4- Ice Fishing Pole and Line World Record. Terry donated his record silver northern to the Spirit Lake Fish Hatchery where it is mounted and proudly displayed.



Figure 1. Terry Wackerbarth's National Fishing Hall of Fame World Record Silver Northern. Division #4 – Ice Fishing Pole /Line Caught in Spirit Lake on January 8, 2000.



Another question folks will ask is “How common are silver northern in Spirit Lake?” Spirit Lake Fish Hatchery began collecting brood stock northern pike from Spirit Lake in 2001. During the early spring, brood stock northern pike are collected for egg take from Spirit Lake each year. Table I below represents the number and percentage of northern pike caught during the 2010 and 2011 spring brood stock collection seasons based on pattern and gender. Spirit Lake’s pike are the typical spotted pattern, however, pike from Spirit Lake can also have a silver or tiger pattern. The silver pattern isn’t common and the tiger pattern is considered rare.

2010			2011		
Gender and Pattern	Number	Pattern Percentage	Gender and Pattern	Number	Pattern Percentage
Female	147		Female	63	
Spotted	113	77%	Spotted	55	87%
Silver	34	23%	Silver	8	13%
Tiger	0	0%	Tiger	0	0%
Male	139		Male	116	
Spotted	116	84%	Spotted	94	81%
Silver	21	15%	Silver	19	16%
Tiger	2	0%	Tiger	3	3%
Grand Total	286		Grand Total	179	

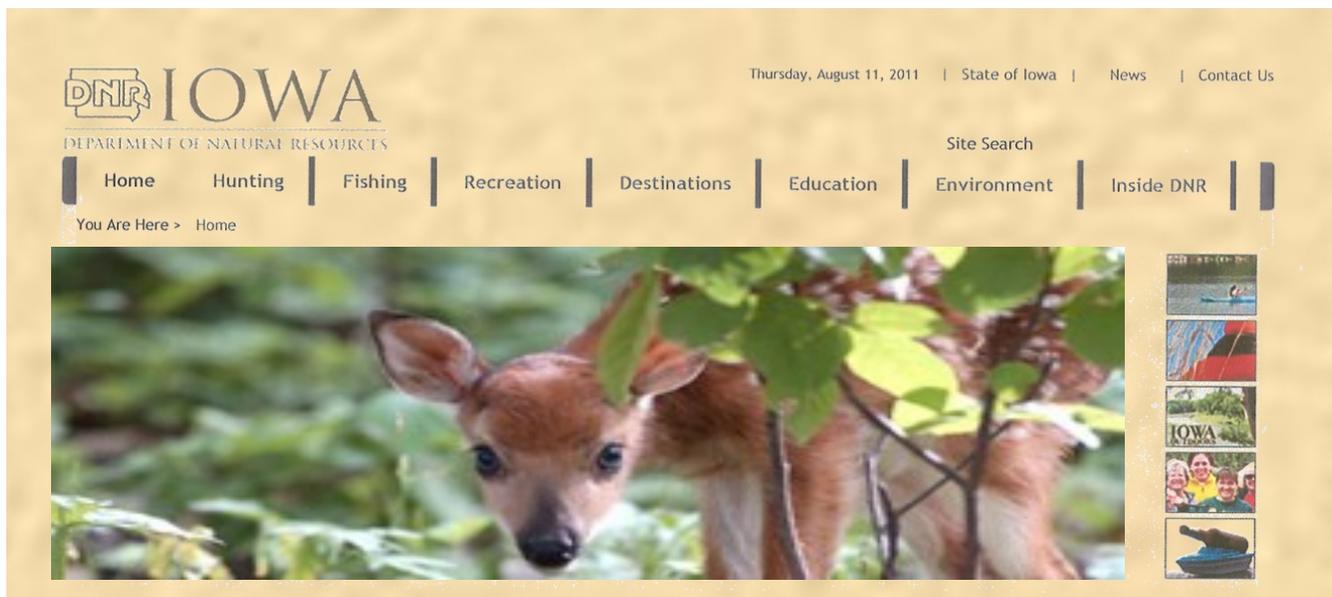
Table I. Spirit Lake 2010 and 2011 brood stock northern pike patterns based on number and percentage.



Figure 2. The three patterns found on Spirit Lake’s Northern Pike: Spotted, Tiger, and Silver.



DNR LAUNCHES REVAMPED WEBSITE AT WWW.IOWADNR.GOV



Iowa Outdoors

DNR Press Release

DES MOINES — A newly redesigned Iowa Department of Natural Resources website provides a number of new services for Iowans.

About 150,000 unique visitors from more than 140 countries and territories go to www.iowadnr.gov every month for information on enjoying and protecting Iowa’s natural resources. Now, they can navigate a streamlined, improved site.

New features include RSS news feeds, an event calendar and dynamic applications. The site also offers improved search functions, including finding information on specific state parks and fishing spots. Visitors will find more educational materials for teachers and more than 600 forms and permits for download.

“The DNR website is one of our most important customer service tools, and this redesign will allow us to improve our level of service to Iowans and those around the globe that use our site,” said DNR Director Roger Lande.

The site’s new design, layout and navigation were built upon research that studied what users looked for on the DNR website and how they looked for it.

MEDIA CONTACT: Kevin Baskins, DNR, at 515-281-8395 or Kevin.Baskins@dnr.iowa.gov



NEW STATE RECORD WHITE BASS



Iowa Outdoors

DNR Press Release

SPIRIT LAKE - A new state record white bass was caught from a dock Saturday evening on Big Sprit Lake. Josh Zylstra, 23, of Laurens, landed the 18.7-inch, 4.16 pound fish while he was waiting to go back out for an evening of walleye fishing.

Zylstra said he had finished eating supper when he thought he would fish a little from the dock in Anglers Bay before going back out in the boat. His shiner under a bobber was intended for walleyes he said, but instead, it hooked a new state record white bass.

"I looked over and my bobber was gone," Zylstra said. He reeled in the slack, felt the tension and set the hook. The battle ensued and Zylstra thought he was going to lose the fish by getting tangled with the boat hoist.

He didn't know what he had until it was out of the water. "I knew it was a good fish," he said. "I never thought twice about a state record."

Zylstra has caught a lot of large white bass from the area lakes, but this one was special and his uncle said that fish would probably push for the record.

The new record was verified by fisheries biologist Mike Hawkins who weighed the fish on a certified scale at Pioneer Beach Resort.

The previous record white bass came from West Okoboji Lake and was 17 inches and 3.9 pounds.

MEDIA CONTACT: Mark Hawkins, Fisheries Management Biologist, Iowa Department of Natural Resources, 712-336-1840



INITIAL SPRING SURVEY FINDS NO SHAD IN LAKE SUGEMA



Iowa Outdoors

DNR Press Release

Based on preliminary sampling from early spring through summer of 2011, the effort to eliminate gizzard shad from Lake Sugema, one of southeast Iowa's most popular lakes, appears to have worked.

Last November, the Iowa DNR lowered the lake level and fisheries staff applied the fish toxicant, Rotenone, at 3 percent of the normal dosage in a slow, deliberate manner to create a drawn out fish kill targeting gizzard shad and sparing as many game fish as possible.

Unfortunately, it appears that it may have also have negatively impacted the walleye population, a prized species in this 574-acre lake.

"We would much prefer to have left this outstanding resource as it were, supporting high-quality fishing for all species present; however, the misguided and illegal introduction of gizzard shad to this system sealed the fate of these fish," said local fisheries biologist, Mark Flammang.

"Had we not moved to eliminate gizzard shad, we would have eventually lost the entire fishery. If we find that we successfully eliminated shad then our mission was accomplished. The negative impacts to the walleye population are unfortunate collateral damage of an illegal act," Flammang said.

Spring sampling of the lake has found no trace of gizzard shad and while that is a sign for optimism, Flammang said intensive sampling will continue through 2011. If they have not collected a single gizzard shad by late summer, he would then declare the lake shad-free.

Flammang has requested 10-inch walleye fingerlings that will be stocked in the lake in October, if the lake remains shad free.

"It is certainly unfortunate that walleyes exhibited a lower tolerance to rotenone than other game fish. However, the bottom line is excellent populations of largemouth bass, bluegill, and crappie remain, essentially unaffected by the recent shad introduction and subsequent treatment," Flammang said.

"The sad part is, that the walleye fishery was starting to catch on and people were becoming more aware of it," he said. "Even with this setback, Sugema has excellent bass, bluegill and crappie fishing anglers have come to expect."

Another low dosage rotenone treatment completed last fall at Badger Creek Lake in Madison County, Iowa was less successful. It is for this reason that the Iowa Department of Natural Resources is partnering with Iowa State University to develop a preferred methodology for gizzard shad elimination in small lakes. The goal of this study is to reach the desired goal, complete shad removal, with minimal game fish impacts. Additional laboratory and lake trials will be completed in the fall of 2011. "While there is a fair amount of gray literature on this issue, there have been few if any intensive scientific investigations into control of shad with rotenone while preserving quality sport fish populations. It is our hope our evaluation will result in the return of quality angling for Iowa sportsmen where shad are illegally introduced" said Flammang

Iowa law makes it illegal to possess live gizzard shad. It is also illegal to stock fish in any public water of the state, including game fish. The public is asked to report any of this illegal activity to their local conservation officer or by calling the Turn-in-Poachers (TIP) hotline 1-800-532-2020. Callers can remain anonymous.

MEDIA CONTACT: Mark Flammang, Fisheries Management Biologist, Iowa Department of Natural Resources, 641-647-2406.



DRAINING PRAIRIE ROSE LAKE NEXT STEP FOR RESTORATION

Iowa Outdoors

DNR Press Release

HARLAN – The process of draining Prairie Rose Lake ahead of the \$3 million restoration project will begin early next week. Once the water control gate is opened, the water level will fall about three feet per week, until the lake is completely drained sometime after Labor Day. Boat ramps will likely not be usable after August 1.

Bryan Hayes, fisheries biologist with the Iowa Department of Natural Resources for Prairie Rose Lake, said the next two years of the project include modifying the spillway to prevent carp from entering the lake, fixing the gate valve, placing riprap along shore to prevent shoreline erosion, and installing fish habitat and fishing jetties.

“The project has been going on since 2008 but most of the work has been done behind the scenes,” Hayes said. “Beginning next week, the progress will be much more visible.”

“Our goal is to minimize the time that the lake is down, so the plan calls for mechanical dredging while the lake is down then switch to hydraulic dredging in future years. We will hopefully be putting water in early next summer,” he said. “One important piece of the puzzle is to put more storage capacity in the wetland east of the highway so it will function as a sediment and nutrient trap, as intended.”

The DNR is partnering with the Iowa Department of Agriculture and Land Stewardship, the Shelby County Soil and Water District and the Natural Resources Conservation Service on the watershed portion of the project. David Brand serves as the Prairie Rose water quality project coordinator. The renovation plan is based on a 2008 lake study and recommendations from Iowa State University.

“We have worked with landowners in the watershed to install 40 miles of terraces, install grassed waterways, and to better manage nutrients on the land,” Hayes said. “We purchased a containment site last year where the dredge material will be deposited, hopefully beginning in late fall.”



Picture provided by outdoorhub.com

The lake protection features installed in the watershed should extend the benefits of the in lake work far into the future. “Our goal is to improve the water quality that will get Prairie Rose off the impaired waters list and have a sustainable, healthy lake system,” Hayes said.

Prairie Rose Lake is in one of Iowa’s more popular state parks of the same name. The lake has an annual economic impact of \$3.37 million and the campground hosts more than 21,000 camper nights per year. The campground and other park facilities will remain open during the project.

“I know it’s no fun to give up fishing your favorite lake but it is necessary to get the lake on the right track. We have a number of examples at nearby parks, of what benefits anglers and park visitors will see after the work is done. Lake Anita and Viking Lake are both experiencing excellent fishing and improved water quality since the projects were completed,” Hayes said.

“We are excited to get this project to the next step, now we will need some cooperation from Mother Nature to keep us on schedule,” he said.

The lake will refill in 2012 and be stocked with largemouth bass, bluegills, crappies and channel catfish. Hayes said they are collecting adult bass from Prairie Rose this week that they will hold until next summer to encourage reproduction early on. He said they will also stock larger fingerling bass and catfish to jump start the fishery.

MEDIA CONTACT: Bryan Hayes, Fisheries Biologist, Iowa Department of Natural Resources, 712-769-2587.



COHORT CONTRIBUTION OF LARVAL AND JUVENILE BLUEGILL (*Lepomis macrochirus*): A BETTER UNDERSTANDING OF RECRUITMENT BOTTLENECKS

K.J. Stahr, M.A. Kaemingk, and D.W. Willis

Department of Wildlife and Fisheries Sciences, South Dakota State University

Introduction

Understanding how larval fishes survive to the juvenile life stage is essential to predict year-class strength. In Pelican Lake, Nebraska bluegill *Lepomis macrochirus* (BLG) year-class strength is often highly variable (Figure 1). The timing of recruitment bottlenecks is not well understood. Therefore, understanding how larval BLG survive to the juvenile life stage enhances the ability to manage this population by improving the predictability of future year-class strength.

Objectives

- 1) Determine contribution of 10-d larval bluegill cohorts to fall age-0 recruitment.
- 2) Compare growth rates among 10-d hatching cohorts for both larval and juvenile BLG.
- 3) Compare instantaneous mortality rates between early - and late-hatched individuals for both larval and juvenile BLG.

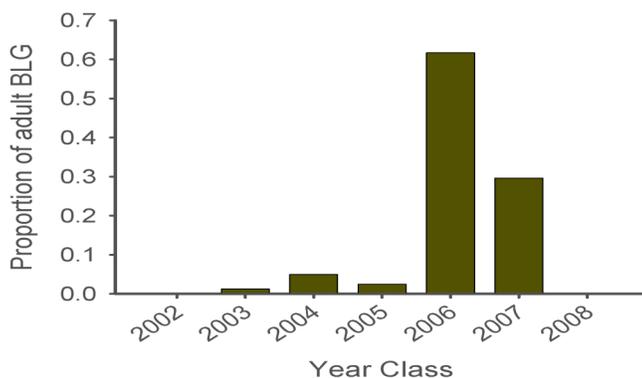


Figure 1. Age structure of adult BLG in Pelican Lake based on a 2009 trap-net sample.

Methods

✦ Pelican Lake (332 ha, mean depth = 1.3 m) is located in Cherry County, Nebraska within the Valentine National Wildlife Refuge.

✦ Larval BLG were sampled approximately every 10 d during the 2009 spawning season. Larval BLG (< 13 mm, total length) density was indexed using a surface trawl (0.76-m diameter; 1,000- μ m mesh) with a flowmeter attached at the mouth of the trawl.

✦ Juvenile BLG were subsequently sampled in September 2009 with cloverleaf traps (6.4-mm bar mesh, 12.7-mm wide openings, 50-cm diameter and 41-cm high lobes).

BLG were separated into four 10-d hatching cohorts to evaluate contribution to age-0 recruitment. The hatching dates for each cohort were: cohort 1: June 14-23, cohort 2: June 24-July 7, cohort 3: July 3-12 and cohort 4: July 13-22.

✦ Otoliths were extracted from both larval and juvenile BLG and mounted on a glass slide with thermoplastic cement. For juvenile BLG, 1,500-grit sandpaper was used to improve clarity.

✦ Both larval and juvenile BLG were aged by two readers and ages were assigned if reader agreement did not differ by greater than 10%. In the case of discrepancies between readers, otoliths were re-aged until agreement was reached or the otolith was removed from the sample.

✦ Larval and juvenile BLG cohorts were divided into early (cohorts 1 and 2) and late (cohorts 3 and 4) hatching periods to estimate instantaneous mortality rates. Juvenile daily growth (mm/d) was not calculated for



cohort 1 due to the lack of survivors to the juvenile stage.

✦ Differences in growth rates (mm/d) among larval and juvenile BLG cohorts were detected using analysis of variance (ANOVA).

✦ Instantaneous mortality rates were compared between larval and juvenile BLG hatching periods (i.e., early, late) using analysis of covariance (ANCOVA) with age as the covariate.

An alpha of 0.10 was used for all statistical comparisons.

Results

✦ Among 10-d cohorts, later-hatched BLG larvae contributed most to fall age-0 recruitment (Figure 2).

✦ Later hatched BLG larvae exhibited faster growth than early-hatched larvae (ANOVA: $F_{3,94} = 4.98, P = 0.003$; Figure 3).

✦ Juvenile BLG cohort 4 experienced slower growth compared to cohorts 2 and 3 (ANOVA: $F_{2,108} = 10.48, P < 0.001$; Figure 3).

✦ Larval BLG growth was not related to mean water temperature during each 10-d period ($r = 0.10, P = 0.90$).

✦ No difference in mortality rates was detected between early and late-hatched BLG larvae (ANCOVA: $F_{1,10} = 0.02, P = 0.896$; Figure 4).

Early-hatched juvenile BLG experienced higher mortality compared to late-hatched juveniles (ANCOVA: $F_{1,10} = 3.80, P = 0.071$; Figure 4).

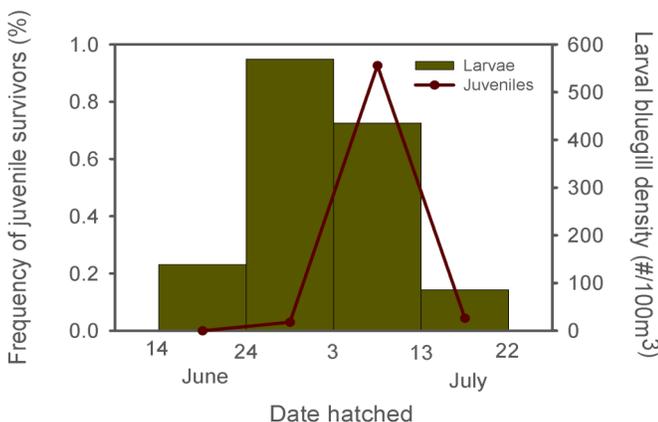
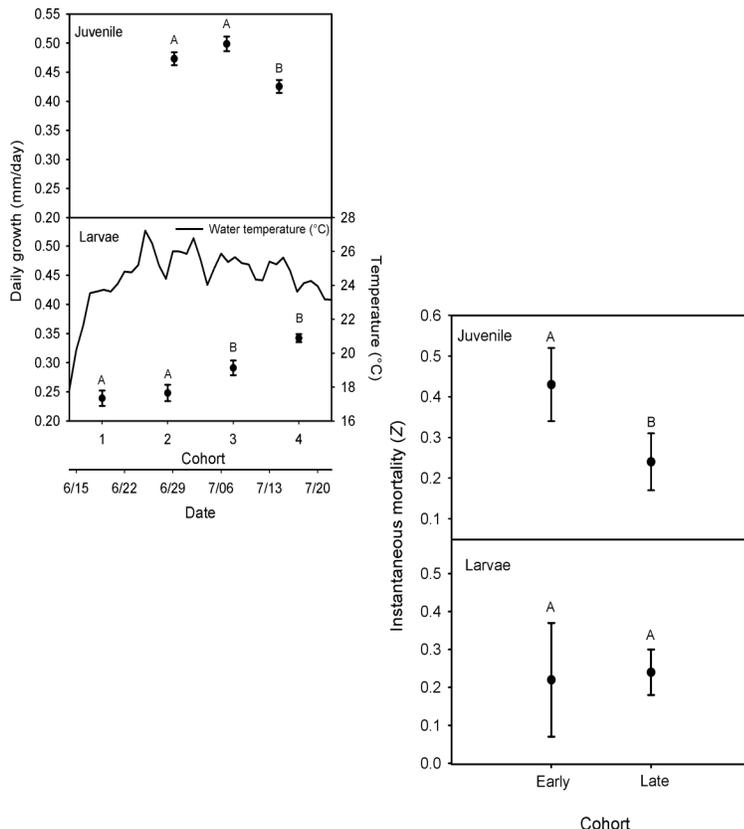


Figure 2. Frequency of fall age-0 BLG survivors compared to larval BLG densities during the 2009 spawning season.

Conclusion

✦ Recruitment of BLG in Pelican Lake does not appear to be established at the larval stage, but rather in the transition between the larval and juvenile life stages. Further research is warranted.

✦ Differences in instantaneous mortality (Z) among juvenile BLG cohorts may be related to largemouth bass *Micropterus salmoides* northern pike *Esox lucius* predation, due to early-hatched larval BLG being more vulnerable to predation for longer periods of time^{1,2}.

Future research should focus on the use of fall age-0 BLG abundance as an index of year-class strength in Pelican Lake.

Literature Cited

Garvey, J.E., T.P. Herra and W.C. Leggett. 2002. Protracted reproduction in sunfish: the temporal dimension in fish recruitment revisited. *Ecological Applications* 12:194-205.

2. Partridge, D.G., and D.R. DeVries. 1999. Regulation of growth and mortality in larval bluegills: implications for juvenile recruitment. *Transactions of the American Fisheries Society*. 128:625-638.



IN THE NEWS

Scientific American

Armadillo Moves North Across a Warmer North America

The armadillo is moving north thanks to climate change, as are mice and other mammals

Here's one advantage to armadillos' steady northward march across the Southeast United States:

They're awfully handy to have as bait if, say, you're a wildlife biologist looking to trap an alligator that has inexplicably settled into your local pond in north Georgia.

That's what happened last month near Atlanta: A biologist with Georgia's Department of Natural Resources, on the way to trap an alligator scaring residents, stopped en route to pick up some fresh road kill.

Now it's true that the armadillo was more of a random choice. "Our biologist just happened to see it on the side of the road," said agency spokeswoman Robin Hill. "It could've been a squirrel."

And it's also true the southern fare failed to tempt the alligator. "No," said Hill, "there was so much attention on that

pond that the alligator just got spooked, and we haven't seen him since."

But there's no question armadillos - and other small mammals - are on the move in the United States, expanding into terrain biologists thought highly unlikely just a few years ago.

Some of that migration can be attributed to opportunity: The armadillo in particular has been moving northward since it arrived in Texas in the 1880s and Florida in the 1920s, according to Colleen McDonough, a biology professor at Valdosta State University in Georgia.

Some, however, is clearly triggered by a changing climate. Armadillos have settled into southern Illinois, Indiana, Kansas and Missouri - all areas that were "totally unexpected," McDonough said.

They're not the only ones. White-footed mice and southern flying squirrels have expanded their range northward some 140 miles in Michigan, according to University of Michigan biology professor Philip Myers, who described the migration in a recent paper as "an unusually clear example of change that is likely to be the result of climatic warming."

"As with any range extension, it's a complicated situation having to do with people, migration corridors and so forth," Myers said in an interview.

Like coyotes, armadillos are opportunistic creatures, unquestionably moving north for reasons unrelated to climate change, cautioned McDonough. That explains their spread into northern Georgia, South Carolina, Oklahoma



and other southern states. But biologists never thought the winters of North Carolina, Indiana, or Missouri were mild enough to support an armadillo population; seeing the animal establish itself in those regions is thought to be a sign of climate change, though a harsh winter or two could knock them back.

"That northern border is going to fluctuate," McDonough said.

The consequences of such changes are unclear.

Armadillos are a welcome help to residents dealing with fire ants, a big concern in the South, McDonough said. But they're also a nest predator and could put added pressure on local quail populations already trying to defend against possums, raccoons and snakes.

Myers' research in Michigan, meanwhile, suggests southern species are replacing northern ones, rather than simply slotting into the local fauna.

"To predict the impact of adding a chipmunk or subtracting a mouse, you have to know a lot more about the natural history of the communities than we do," Myers said.

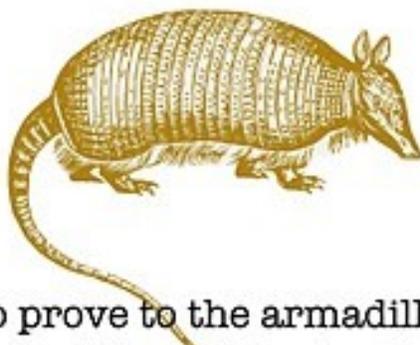
What is certain, Myers added, is that the most common [animals](#) in many ecosystems are changing. These creatures play key roles: They disperse seeds, dig burrows that provide habitat for others, prey on insects, serve as reservoirs for hantavirus and other diseases.

"Potentially there are huge changes that could be a consequence of messing around with the species present," Myers said.

"Basically all we can do is ... sit back and measure the change as it happens, whether we like it or not."

This article originally appeared at [The Daily Climate](#), the climate change news source published by Environmental Health Sciences, a nonprofit media company.

Why did the chicken cross the road?



To prove to the armadillo
that it could be done!

alabamakitchensink.blogspot.com



Answer for Invasive Species: Put It on a Plate and Eat It



New York Times

By ELISABETH ROSENTHAL

Published: July 9, 2011

Erik Olsen/The New York Times

With its dark red and black stripes, spotted fins and long venomous black spikes, the lionfish seems better suited for horror films than consumption. But lionfish fritters and filets may be on American tables soon.

An invasive species, the lionfish is devastating reef fish populations along the Florida coast and into the Caribbean. Now, an increasing number of environmentalists, consumer groups and scientists are seriously testing a novel solution to control it and other aquatic invasive species — one that would also takes pressure off depleted ocean fish stocks: they want Americans to step up to their plates and start eating invasive critters in large numbers.

“Humans are the most ubiquitous predators on earth,” said Philip Kramer, director of the Caribbean program for the Nature Conservancy. “Instead of eating something like shark fin soup, why not eat a species that is causing harm, and with your meal make a positive contribution?”

Invasive species have become a vexing problem in the United States, with population explosions of Asian carp clogging the Mississippi River and European green crabs mobbing the coasts. With few natural predators in North America, such fast-breeding species have thrived in American waters, eating native creatures and out-competing them for food and habitats.

While most invasive species are not commonly regarded as edible food, that is mostly a matter of marketing, experts say. Imagine menus where Asian carp substitutes for the threatened Chilean sea bass, or lionfish replaces grouper, which is overfished.

“We think there could be a real market,” said Wenonah Hauter, the executive director of Food and Water Watch, whose 2011 Smart Seafood Guide recommends for the first time that diners seek out invasive species as a “safer, more sustainable” alternative to their more dwindling relatives, to encourage fisherman and markets to provide them.

“What these species need now is a better — sexier — profile, and more cooks who know how to use them,” she said. She has enlisted celebrity chefs to promote eating the creatures.

Scientists emphasize that human consumption is only part of what is needed to control invasive species and restore native fish populations, and that a comprehensive plan must include restoring fish predators to depleted habitats and erecting physical barriers to prevent further dissemination of the invaders.



“We are not going to be able to just eat our way out of the invasive species problem,” Dr. Kramer said. “On the other hand, there are places where this can be a very useful part of the strategy.”

The United States Fish and Wildlife Service is now exploring where it might be helpful. Models suggest that commercial harvest of Asian carp in the Mississippi would most likely help control populations there, “as part of an integrated pest management program,” said Valerie Fellows, a spokeswoman.

In practice, it is still unclear whether commercial fishing pressure could be high enough to have a significant impact, she said. The Army Corps of Engineers has spent millions of dollars to erect electronic barriers to keep Asian carp from moving from the Illinois River into the Great Lakes.

There are risks to whetting America’s appetite. Marketing an invasive species could make it so popular that “individuals would raise or release the fish” where they did not already exist, Ms. Fellows said, potentially exacerbating the problem; tilapia were originally imported into Latin America for weed and bug control, but commercialization helped the species spread far more widely than intended.

Dr. Kramer is concerned that the marketing of lionfish might increase the number of traps on reefs, which could trap other fish as well. He said spearfishing was the sustainable way to catch lionfish, which are reef dwellers.

Cookbooks do not say much about how to filet an Asian carp, which has an unusual bony structure. And even if one developed a taste for, say, European green crab soup, there is nowhere to buy the main ingredient, though it is plentiful in the sea.

To increase culinary demand, Food and Water Watch has teamed up with the James Beard Foundation and

Kerry Heffernan, the chef at the South Gate restaurant in New York City, to devise recipes using the creatures. At a recent tasting, there was Asian carp ceviche and braised lionfish filet in brown butter sauce.

Lionfish, it turns out, looks hideous but tastes great. The group had to hire fishermen to catch animals commonly regarded as pests. Mr. Heffernan said he would consider putting them on his menu and was looking forward to getting some molting European green crabs to try in soft-shell crab recipes.

Last summer, the Nature Conservancy sponsored a lionfish food fair in the Bahamas, featuring lionfish fritters and more. They offered fishermen \$11 a pound — about the price of grouper — and got an abundant supply. Lionfish, native to the Indian Ocean and South Pacific, arrived in the Caribbean in the early 1990s and are spreading rapidly; voracious eaters, they even eat juveniles of native fish.

Lionfish, like grouper, can carry ciguatera, which causes vomiting and neurological symptoms, so they cannot be taken from water where the microbe that produces the toxin is found. The fish’s venomous spines must be removed before sale, although that is not a serious marketing obstacle.

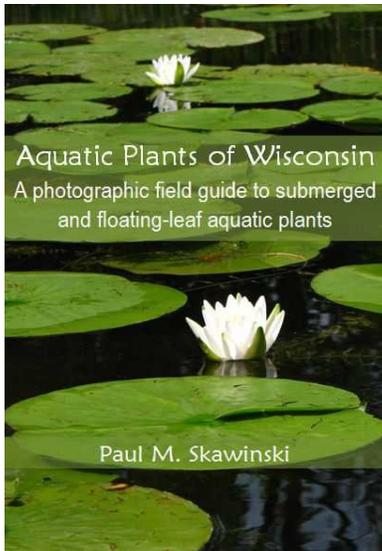
Mitchell Davis, vice president of the Beard Foundation, said other species had moved from being pariah pests to must-have items on American plates, like dandelion greens for salads.

A version of this article appeared in print on July 10, 2011, on page A14 of the New York edition with the headline: Answer for Invasive Species: Put It on a Plate and Eat It.



INTERESTING READS

Aquatic Plants of Wisconsin



A photographic field guide to submerged and floating-leaf aquatic plants

by Paul M. Skawinski

This is a full-color, photographic guide to Wisconsin's true aquatic plants, highlighting 120 species. This guide is designed to be comprehensive and user-friendly for professionals and casual users alike. Species accounts include detailed descriptions, sharp photos, and many magnified inset photos, with special attention to important characteristics that simplify identification.

"This book is an essential botanical reference for anyone interested in Midwestern plants. The full color, high resolution photos by Paul are superb and show all of the diagnostic characters needed to name these difficult-to-identify plants, for example the pondweeds (pages 50-71) and bladderworts (pages 38-43)."

- Emmet Judziewicz

Single Copy: \$34.00 (Including S & H)

<http://www.uwsp.edu/cnr/uwexlakes/publications/aquaticPlantsWi/aquaticPlantsWi.asp>

The Angler in the Environment: Social, Economic, Biological, and Ethical Dimensions

T. Douglas Beard, Robert Arlinghaus, and Stephen G. Sutton, editors

365 pages, Symposium 75

Published by the American Fisheries Society

Publication date: July 2011

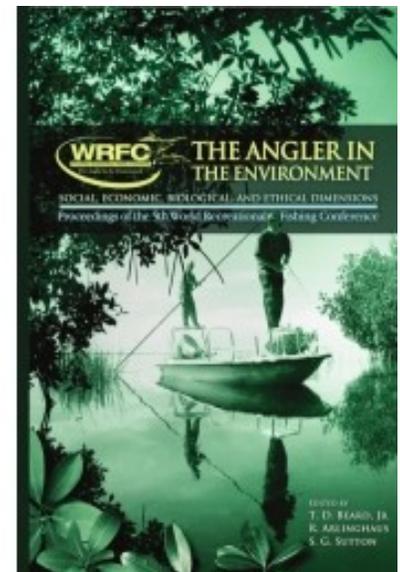
ISBN: 978-1-934874-24-0

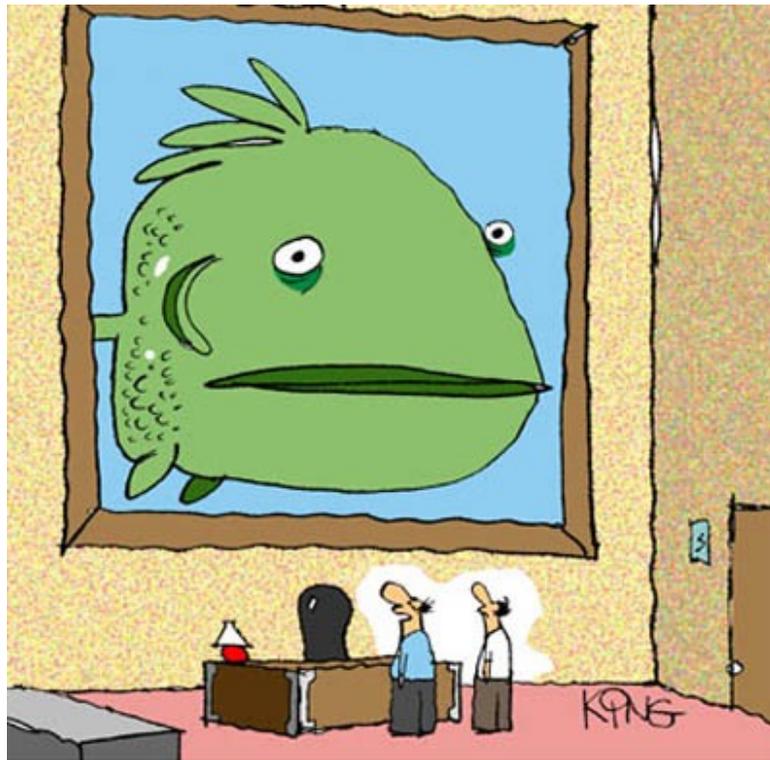
\$79.00 list price, \$55.30 AFS members

To order: <http://www.afsbooks.org/54075P>

Summary

Based on papers presented at the 5th World Recreational Fishing Conference, this timely book focuses on the interactions between recreational anglers and the aquatic environment. Among the many emerging issues covered in the book are the consequences of various fishing rights for sustainable recreational fisheries; partnership approaches among the recreational fishing industry, managers, and researchers for solving sustainability challenges; biological impacts of recreational fisheries; the ethics of the sport; and innovative survey methods for assessing recreational fisheries.





"That's the actual size of the fish that got away...at least I think. I never actually got to see it."





2011 Musky Spawn at the Spirit Lake Fish Hatchery



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: _____



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 and Iowa Chapter member as a sponsor.

Amount needed – Tell us how much you need and the total project cost.

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.

There is a \$1,000.00 limit for each project.

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

