Catfish Management Technical Committee
American Fisheries Society - Southern Division

SDAFS – Catfish Management Technical Committee – 2023 State Reports

Alabama

Name of Representative to Technical Committee: Rob Andress

Nothing to report / No future project planned

Arkansas

State Reporting: Arkansas

Name of Representative to Technical Committee: Justin Homan

Project Name or Description: Optimizing Sampling Protocols: Evaluating how electrofishing settings affect the capture of Flathead Catfish in the field.

Contact Information:

Name: Jacob Martin

Coauthors: Tyler Thomsen

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Phone: 870-375-3066

Objective: Compare waveforms to optimize sampling efforts for Flathead Catfish

Current Status: Project Complete

Abbreviated Abstract:

Understanding how varying duty cycle affects capture efficiency and length distributions of Flathead Catfish can aid fisheries managers in data collection and subsequent management decisions. Two pools of the Ouachita River and a segment of the White River were sampled for this project. River kilometers were randomly selected within each study area for low frequency electrofishing. At each randomly selected

river kilometer, two 10-minute long electrofishing runs were conducted using a duty cycle of 10% and a duty cycle of 30%, pulse-width was held constant at 15Hz. Length distributions among the two settings varied significantly in Felsenthal Pool and the White River, but did not differ in Thatcher Pool. Catch per unit effort (CPUE) did not differ significantly among duty cycles for Flathead Catfish overall. However, a zero inflated negative binomial model revealed CPUE of quality sized (≥ 510 mm) Flathead Catfish was 28% higher with a duty cycle of 10 than a duty cycle of 30 (P=0.004). Furthermore, the likelihood of not catching any Flathead Catfish >510 mm during a sampling run is 58% higher when using a duty cycle of 30. These data suggest that a length bias associated with duty cycle for Flathead Catfish may exist and it appears that a duty cycle of 10% is superior at sampling larger Flathead Catfish.

Project Name or Description: An evaluation of the Channel and Flathead Catfish populations in the Little Missouri and Ouachita Rivers after the closure of commercial fishing.

Contact Information:

Name: Tyler Thomsen

Coauthors: Jacob Martin

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Phone: 870-291-5546

Objective: Evaluate the Channel and Flathead catfish populations in the Little Missouri and Ouachita Rivers to determine the effects of the removal of the commercial fishing season.

Current Status: In progress, sampling will end in June of 2024.

Abbreviated Abstract:

Commercial fishing took place on sections of the Little Missouri and Ouachita Rivers until 2005. Anecdotal information from anglers suggested that Flathead and Channel Catfish populations were declining, resulting in the closure of the commercial fishing season. District 6 fisheries biologists evaluated the catfish populations using hoop nets from 2004 to 2006. To determine how the removal of commercial fishing affected the catfish fishery, we started repeating that study in 2022. The lower section of the Little Missouri river is the only section that has been sampled so far. The next two years will focus on the Ouachita River. Data collected during this study will aid fisheries managers in making decisions on the opening or closing of commercial fishing seasons.

Project Name or Description: Tandem Baited Hoop Net Bait and Month Evaluation

Contact Information:

Name: Justin Homan

Coauthors: **Micah Tindall**

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Phone: 870-318-5987

Objective: Compare cheese bait and soap in TBHN for channel catfish in small impoundments and evaluate monthly catch through summer.

Current Status: Writing final report.

Abbreviated Abstract: We evaluated catch rates, size structure, and turtle bycatch of TBHN in two lakes in eastern Arkansas (Lake Greenlee and Lake Des Arc) using Zote™ soap and cheese bait by month from May to October of 2022. We did not detect a difference in catch rates among months. We did find significantly higher catch rates with cheese bait than with Zote™ soap in both lakes. Mean length of Channel Catfish collected was larger with Zote™ soap than with cheese bait in both lakes and the length distributions of fish collected by bait type were significantly different in both lakes. Mean turtle bycatch by bait type was not significantly different in either lake, though Zote™ soap bycatch was overall lower. Due to differences in CPUE and size structure of Channel Catfish collected by the different bait types, TBHN samples collected with Zote™ soap and cheese bait should not be compared or analyzed together. Also, because we did not detect a difference in monthly CPUE, TBHN sampling can be performed during the entire growing season (May to October) in lakes with a similar climate to ours.

Project Name or Description: Low frequency electrofishing monthly evaluation

Contact Information:

Name: **Justin Homan**

Coauthors: **Micah Tindall**

Email: justin.homan@agfc.ar.gov

Phone: 870-318-5987

Objective: Determine if catch rates and size structure of Flathead Catfish and Blue Catfish vary by month on the White River.

Current Status: Sampling complete, analyzing data.

Abbreviated Abstract: We used low frequency electrofishing once a month from May to September to evaluate changes in Flathead Catfish and Blue Catfish catch rates and size structure on the White River near Des Arc during summer 2023. Twelve random river kilometers were selected for sampling and two 10-minute electrofishing transects were completed at each river kilometer. The same river kilometers were sampled each month. The two 10-minute transects at each river kilometer were sampled randomly

using either 15 pulses per second and 30% duty cycle or 8 pulses per second and 10% duty cycle. Flathead Catfish catch rates increased through the summer and peaked in July (58 fish/h; SE=7.5) and decreased slightly in August (54 fish/h; SE=5.0) and September (51 fish/h; SE=5.7). Blue Catfish CPUE increased from 4 fish/h (SE=1.5) in May to 13 fish/h (SE=3.1) in September. Mean size of Flathead Catfish was not significantly different by month while Blue Catfish mean size declined throughout the summer, likely due to increased catch of young-of-year or age-1 fish. The waveform data have not been analyzed yet.

Project Name or Description: Mississippi River low-frequency electrofishing pilot project

Contact Information:

Name: Justin Homan

Coauthors: Micah Tindall, Chelsea Gilliland

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Phone: 870-318-5987

Objective: Perform pilot electrofishing for catfish to inform a more robust catfish evaluation on the Mississippi River

Current Status: Sampling complete, analyzing data.

Abbreviated abstract: We sampled twelve randomly selected river miles

A one over 34-inch regulation change for catfish in the Mississippi River was discussed by the Arkansas Game and Fish Commission during 2023 but was never proposed due to low public support and much opposition from commercial fishermen. The Mississippi River has never been sampled for catfish by the Arkansas Game and Fish Commission and this pilot project was performed to help design a sampling protocol for catfish along the Arkansas section of the river. We sampled via low frequency electrofishing during May (five river miles), June (10 river miles), and September (10 river miles). Catch rates in May were low as flow was still high and dikes were not even visible. Catch rates increased in June and September as flows decreased. We did not see a significant difference in catch rate for Flathead Catfish by month but catch rate of Blue Catfish was highest in September (121 fish/h; SE=19) versus June (75 fish/h; SE=15). Flathead Catfish size distribution was highly skewed toward small fish that were captured along rip-rap banks in flow. Blue Catfish mean size was not significantly different by month. Of the 759 Blue Catfish collected during the study, 5% were over 34 inches and 52% were between 18-28 inches. A final protocol has not been developed but low frequency electrofishing in the fall similar to this study will likely be used to assess the Blue Catfish population on the Mississippi River. Other methods may be needed to increase catch of larger Blue Catfish. Flathead Catfish were not sampled effectively in our study and effect of habitat type on catch rates needs to be assessed as most of our catch came from a few sites with similar habitat type (small fish from rip rap in flow).

Florida

State Reporting: Florida

Name of Representative to Technical Committee: Ryan Henry

Project Name or Description: Stock Assessment of Invasive Flathead Catfish in the Chipola River

Contact Information:

Name: Ryan Henry

Coauthors: Andy Strickland, Morgan Winstead

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Objective:

1) Determine the relative abundance of invasive Flathead Catfish as well as native catfish species in the Chipola River
2) Evaluate stomach contents of Flathead Catfish
3) Produce an age at length key

Current Status: In Progress

Abbreviated Abstract:

Non-native Flathead Catfish were first documented in Florida Panhandle rivers in the early 1950s. The first record of Flathead Catfish in Florida was in the Apalachicola River, where they were intentionally stocked for sport. Since their introduction in the 1950s, Flatheads have been spread throughout Panhandle rivers by anglers and can now be found in every major Florida Panhandle river, including the Ochlockonee, Choctawhatchee, Yellow, and Escambia rivers. Catfish monitoring has been nearly non-existent within Florida over the years, with the most recent targeted Flathead Catfish sampling being conducted in 2012 in the Choctawhatchee River. Other rivers such as the Apalachicola and Ochlockonee have not been sampled since the late 2000s. The Chipola River is a tributary of the Apalachicola River. The first Flathead Catfish to be collected from the Chipola River was in 1989, but managers were not concerned about the population becoming an issue due to it being a low productivity, spring fed river with little suitable Flathead Catfish habitat. The Chipola River is home to Snail and Spotted Bullheads, which can be negatively affected by non-native Flathead Catfish populations (Dobbins et al 2012; Guier et al. 1984; Mickey & Simpson 1988; Thomas 1995; Moser & Roberts 1999). Spotted Bullheads are listed as a taxa of concern by the Florida Fish and Wildlife Conservation Commission (FWC). There has been limited targeted catfish sampling in the Chipola River, and no targeted Flathead Catfish sampling or removal efforts. Hurricane Michael made landfall in the Florida panhandle in October 2019 and caused significant devastation to the riparian area of the Chipola River. Habitat mapping pre and post hurricane

suggest that there were major increases in large woody debris throughout the river due to downed trees. Following Hurricane Michael, FWC biologists began to observe an increase in the frequency of Flathead Catfish during long term monitoring (high frequency) sampling efforts. This led to concerns regarding the status of Flathead Catfish in the Chipola River. Our objective of this research was to assess the abundance, diet, and growth of Flathead Catfish within the Chipola River, as well as provide a baseline of abundance for native catfish species. We conducted standardized low-pulse electrofishing surveys with 2 boats side-by-side, targeting all catfish species in September 2023. The river was split into 3 reaches and the entire length of the Chipola River from Yancey Landing to Johnny Boy Landing was sampled (48-km in length). Each catfish was identified, measured (TL) and weighed. A subsample of 141 Flathead Catfish were kept for stomach content analysis, sex determination and aging. Lengths of sacrificed catfish ranged from 150-951 mm. Stomach contents were identified to the best of our abilities, with any contents unable to be fully identified being put in the closest category such as unidentified fish remains. All sacrificed fish were determined to be either male, female, or immature. Lapillar otoliths were removed from the sacrificed fish and will be aged in Winter of 2024. Relative abundance revealed that Flathead Catfish are the most abundant ictalurid species in the Chipola River (0.28 fish/min ± 0.06), followed by Channel Catfish (0.16 fish/min ± 0.08), Snail Bullhead (0.11 fish/min ± 0.04), and Spotted Bullhead (0.03 fish/min ± 0.01). Spotted Bullhead had the lowest abundance throughout the river and were not nearly as abundant as Snail Bullhead. The abundance of Flathead Catfish increased downstream, with Reach C having the highest abundance throughout the river. There are two possibilities to explain this increase in abundance downstream. One is the possibility that Flathead Catfish are still slowly making their way from the Apalachicola River up into the Chipola, therefore the higher densities are found further downstream. Another possibility is the increase of suitable habitat for Flathead Catfish. Reach C appears to have the largest amount of woody debris and has the most riparian damage in the river following Hurricane Michael. The results of our diet study showed that the most common food item found in Flathead stomachs was crayfish (40%). Thirty three percent of Flathead Catfish stomachs were empty, and 23% had fish, with 12% being unidentified fish remains, 6% ictalurids, and only 1% sunfish. Diets varied based on fish size. For Flathead Catfish in the 150-550 mm range, crayfish made up a majority of their diet (63%), whereas fish only made up a small portion of their diet (15%). Twenty-one percent of their stomachs were empty. In comparison, larger Flatheads in the 550-950 mm size range had a diet that consisted more of fish (31%) than crayfish (23%), and the majority of stomachs were empty (46%). Notable prey items found in Flathead Catfish stomachs were Bowfin and Shoal Bass. Of all 141 Flatheads sacrificed, 51% were female, 48% were male and 1% were unknown. Current plans are to finish processing the collected otoliths to determine age at length, which will provide information on how fast Flathead Catfish are currently growing in the Chipola River. Future research will focus on monitoring Flathead Catfish throughout the Chipola River as well as increasing the frequency of standardized targeted catfish sampling throughout Panhandle rivers. This will also provide insight on the effects of Flathead Catfish invasions over time within Florida.

Georgia

Name of Representative to Technical Committee: Jim Page

Project Name or Description: Noteworthy Recreational Angler Catches

Contact Information:

Name: Jim Page

Coauthors: Hunter Roop, Greg Abercrombie

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Phone: 912-285-6485

Objective: To report catches of noteworthy catfish captured by recreational anglers

Current Status: Ongoing

Abbreviated Abstract: The Georgia Dept. of Natural Resources (GADNR) is tasked with managing natural resources in our state, including those enjoyed for the purposes of fishing. In that realm, GADNR celebrates and promotes the diversity of fish species we have to offer to the fishing public, including several catfish species. During the reporting period, the following notable catfish catches were reported:

NEW LAKE AND RIVER RECORDS:

Etowah River – Channel Catfish – a new record 7lb channel catfish was caught in April 2023.

Etowah River –Blue Catfish – a new record 50lb blue catfish was caught in April 2023.

Clarks Hill Reservoir –Flathead Catfish – a new record 70lb flathead was caught in March 2023.

Lake Oconee –Flathead Catfish – a new record 62lb, 10oz flathead catfish was caught in March 2023.

Lake Oconee –Blue Catfish – a new record 70lb blue catfish was caught in April 2023.

Lake Lanier –Blue Catfish – a new record 15lb, 8oz blue catfish was caught in March 2023.

Oostanaula River –Flathead Catfish – a new record 40lb, 13oz flathead catfish caught in May 2023.

Ogeechee River – Channel Catfish – a new record 29lb, 11oz channel catfish was caught in April 2023.

Etowah River – Blue Catfish

Etowah River – Channel Catfish

Clarks Hill – Flathead Catfish

Lake Oconee – Flathead Catfish

Lake Lanier – Blue Catfish

Oostanaula River – Flathead Catfish

Ogeechee River – Channel Catfish

Lake Oconee – Blue Catfish

NOTEWORTHY CATCHES:

Catfish continue to be a favorite target species for many of our youth anglers. Below are photos of just a few of many youth who caught some award-sized catfish at various Kids Fishing Events around the state.

We congratulate each of the anglers who captured these impressive fish, and we are excited to see records continue to fall! For those who haven't done so yet, **GO FISH GEORGIA**!!!!

Project Name or Description: Flathead and Blue Catfish Removal on the Satilla River

Contact Information:

Name: Jim Page

Coauthors: Jason Mitchell, David McGhin, Chad Sexton

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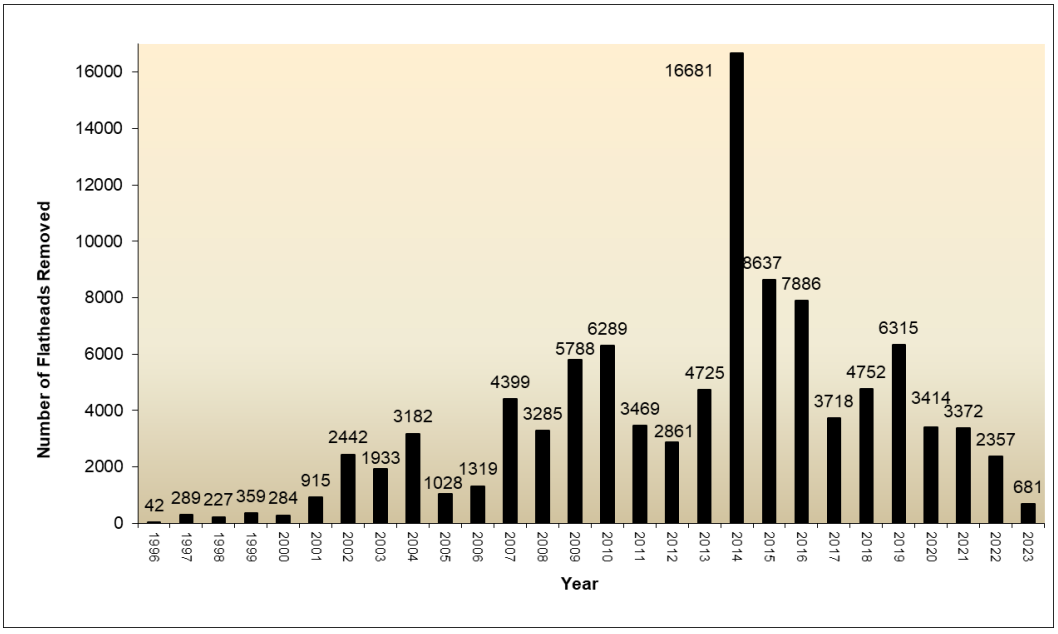
Phone: 912-285-6485

Objective: To evaluate the effects of long-term boat electrofishing removals on the survival, biomass, condition, relative abundance, size structure, and age structure of flathead catfish in the Satilla River, GA.

Current Status: Ongoing effort

Abbreviated Abstract: Modeling indicates that increased exploitation on the flathead catfish (*Pylodictis olivaris)* can be an avenue for native species recovery. After flatheads were introduced into the Satilla River in the 1990's, the GADNR initiated an intensive electrofishing removal effort in 2007. From 2007 to 2023, 88,629 flatheads (681 in 2023) totaling 82,239 kg (1,370 kg in 2023) were removed from roughly a 150-km stretch of the Satilla River. Size structure has changed substantially from containing many large individuals (≥510mm TL) in 2007 to mainly small fish (≤375 mm TL) in recent years. Total biomass per effort ranged from 57.05 kg/hr in 2007 to a new low of 9.68 kg/hr in 2023. The average weight of removed fish ranged from 2.6kg in 2007 to 0.4kg in 2013, equaling 1.1kg in 2023. Fish age structure continues to be truncated, and there is evidence for higher recruitment and earlier maturation, which would require that intensive harvest be maintained to prevent the population from rebuilding within 2-5 years. Catch-curves revealed total annual mortality (*A*) rates for the 10-year period (2007-2017) ranged from 37-63%, averaging 51%. For a long-lived species that presumably cannot withstand excessive rates of exploitation (i.e., >25% U), flatheads do seem to be responding to removal efforts. Our results indicate that an electrofishing removal program is a reasonable management option for state agencies aiming to control this apex predator, though continual removal will be required.



The discovery of 7 blue catfish (*Ictalurus furcatus*), a second non-native, in 2011 led to GADNR staff to remove this species as well. Zero fish were seen from 2012 – 2015. In 2016, 224 blue catfish were removed, including a large gravid female (840mm and Age 7), suggesting reproduction is occurring. In 2019, staff removed 663 blue cats, followed by 187 in 2020 and 80 in 2021. In 2022, staff removed the highest number of blue catfish ever from the river, with 1,552 blue catfish being harvested. This was followed up by staff removing 1,127 individuals in 2023. This significant increase is alarming, and the presence of gravid females suggest reproduction is occurring in the river. In an effort to better understand movements and fishing mortality of blue cats in the river, GADNR staff initiated tagging of blue cats in the Satilla River in 2023.

Project Name or Description: Annual Standardized Sampling of Catfish on Various GA Rivers

Contact Information:

Name: Jim Page

Coauthors: Several DNR staff

Email: Jim.Page@dnr.ga.gov

Phone: 912-285-6485

Objective: To Monitor and Manage Catfish Populations in Various Georgia Rivers

Current Status: Ongoing effort

Abbreviated Abstract: The GADNR conducts standardized sampling of catfish populations via electrofishing in several Georgia rivers and gillnet in some lakes. Catch rates varied by river and lake, but were as follow (CPUE is #fish/hr unless otherwise stated):

Altamaha River (CPUE): Blue Catfish (2023: 43.53; 2022: 97.33); Flathead Catfish (2023: 73.28; 2022:129.67); Channel Catfish (2023: 11.29; 2022:7.33)

Ogeechee River (CPUE): Snail Bullhead (2023: 81.0 fish/hr; 2022: 47.8 fish/hr); White Catfish (2023: 9.7 fish/hr; 2022: 30.98 fish/hr)

Satilla River (CPUE): Flathead Catfish (2023: 4.5 fish/hr; 2022: 15.38 fish/hr); Channel Catfish (2023: 15.5 fish/hr; 2022: 36.1 fish/hr); White Catfish (2023: 5.5 fish/hr; 2022: 1.5 fish/hr)

Savannah River (CPUE): Snail Bullhead (2023: 17.33 fish/hr; 2022: 21.0 fish/hr); White Catfish (2023: 4.33 fish/hr; 2022: 20.0 fish/hr); Flathead Catfish (2023: 13.33 fish/hr; 2022:16.7 fish/hr)

Lake Tugaloo (CPUE): Channel Catfish (2023: 6.0 fish/net night; 2022: 10.0 fish/net night)

Major takeaways from 2023 sampling, as compared to the previous year, were that blue catfish catches in the Altamaha were significantly down but channel catfish numbers were up; flathead catfish and channel catfish in the Satilla were down, while white catfish numbers were up; snail bullhead numbers were up in the Ogeechee, while White Catfish numbers were down; and White Catfish numbers in the Savannah River were down.



Project Name or Description: New or Recent Discoveries of Non-Native Catfish in GA Waterbodies

Contact Information:

Name: Jim Page

Coauthors: Several DNR staff

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Phone: 912-285-6485

Objective: To identify new or recent discoveries of non-native catfish in waterbodies across Georgia.

Current Status: Ongoing effort

Abbreviated Abstract: The GADNR has ramped up efforts in recent years to encourage members of the public and angling community to not introduce fish species, including catfish, into waterbodies in which they are not native. While these efforts have been well received and do seem to impact decision-making processes by some anglers, we continue to get reports of new species being discovered in various waterbodies across the state. For instance, blue catfish, which are not native to the Chattahoochee River basin, were first documented by GADNR staff in Lake Lanier in the fall of 2020 during annual standardized gillnet sampling. Since then, several additional fish have been observed, including a small (234 mm) blue catfish that was captured in 2023 in a gillnet near the Chattahoochee River, thus indicating that natural reproduction may be occurring in the system. As non-native omnivores, blue catfish could compete with Lake Lanier's only other highly abundant, native catfish species—channel catfish.

The most recent discovery of non-native catfish introductions are flathead catfish being discovered in the Ogeechee River along coastal Georgia. GADNR staff conducts annual catfish sampling in coastal rivers to monitor native species and detect any potential non-native species invasions. In December 2021, a single flathead was caught by a commercial fisherman. Until this commercial catch, no flatheads had been reported in the Ogeechee. Initially, hopes were that this was a single, isolated fish that made its way from the nearby Savannah River. In response, GADNR increased targeted flathead sampling efforts to determine if the species had spread further. Although sampled extensively in 2021 and 2022, no additional flatheads were found in the Ogeechee River. However, in August 2023, GADNR staff captured the first flathead in directed sampling efforts. Since this collection, over a dozen individual fish have been captured and removed. GADNR staff will continue to remove Ogeechee flatheads as they are encountered.

Ogeechee River Flatheads

Kentucky

Name of Representative to Technical Committee: Jay Herrala

Project Name or Description: Evaluation of new recreational and commercial regulations on catfish in the Ohio River

Contact Information:

Name: Jay Herrala

Coauthors:

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Objective: 1) Determine abundance (CPUE), size structure, and condition of blue catfish, channel catfish, and flathead catfish in the Ohio River. 2) Evaluate the effects of new regulation on blue catfish, channel catfish, and flathead catfish in the Ohio River, particularly trophy-size catfish. 3) Quantify age, growth, and mortality of the three species.

Current Status: Ongoing

Abbreviated Abstract:

The conflict between commercial fishermen and recreational catfish anglers on the Ohio River has been apparent for nearly a decade, with the main issue being a perceived switch from a harvest market predominantly for flesh to a largely trophy fish harvest for sale to pay lakes component. In 2013, KDFWR standardized its catfish data collection methods and began expanding the effort river-wide to more accurately estimate population dynamics of blue catfish, channel catfish, and flathead catfish. On December 1, 2014 the following regulation became law:

> Recreational anglers on the main-stem Ohio River are allowed one blue catfish ≥35.0 in, one flathead catfish ≥35.0 in, and one channel catfish ≥28.0 in per day. Harvest of fish below their respective length limits is not regulated.
>
> The majority of commercial fishers fishing in the legal waters of the Ohio River and its tributaries are allowed one blue catfish ≥35.0 in, one flathead catfish ≥35.0 in, and one channel catfish ≥28.0 in per day. However, up to 50 commercial fishers (This number was reduced to 15 commercial fishers in 2019) that harvested over 10,000 lbs of catfish in at least 2 of the last 3 years along with an additional six commercial fishers, who are chosen by a lottery drawing, are allowed a daily harvest of four (in aggregate) blue catfish and flathead catfish ≥40.0 in and channel catfish ≥30.0 inches in Kentucky's portion of the Ohio River and its tributaries open to commercial fishing

below Cannelton Lock and Dam. Harvest of fish below their respective length limits is not regulated.

Accusations by recreational anglers that overharvest was still occurring surfaced again in 2018. Multiple meetings were held with KDFWR staff, recreational anglers, commercial fishermen, and paylake owners all present to work towards another compromise. Several regulations were passed into law:

The number of commercial fishers awarded trophy permits was reduced to 15 (previously 50).

There will be no more than two licensed commercial fisherman per boat. If more are present, they may only keep a two limits of trophy catfish.

A possession limit (twice the daily limit) was placed on trophy catfish for commercial fishers. This applies when on the water and when trailering fish.

Regulations talk resurfaced once again, and KDFWR suggested the following regulations which were passed unanimously by the Commission and are currently going through state filing processes:

All commercial fishers are allowed one blue catfish ≥35.0 in, one flathead catfish ≥35.0 in, and one channel catfish ≥28.0 in per day on commercially fishable waters statewide. Trophy permit harvest is now only allowed on the Ohio River from Cannelton Dam downriver to the Ohio River's confluence with the Mississippi River.

Commercial fishing on several waterbodies across the state was closed permanently due to low use, low harvest, and/or low abundance of fish (identified by KDFWR sampling).

Trotlines—CPUE of blue catfish in 2023 was 5.3 fish/50 hooks). Catch rate of blue catfish had been gradually increasing since 2013 until this year. Catch rate of trophy-size (≥35.0 in) blue catfish has remained consistent since 2018.

Hoop nets— Catch rate of channel catfish was 1.3 fish/net-night and has continually decreased since 2017. Flathead catfish CPUE was 0.6 fish/net-night, and was the lowest recorded catch rate since this sampling began in 2019. It is believed that below average temperatures and low flow during the sampling period negatively influenced catch rates.

Electrofishing— Blue catfish CPUE (14.2 fish/hr) was one of the lowest catch rates observed since sampling began in 2004. CPUE of flathead catfish was 48.4 fish/hr, and was the third highest catch rate historically.

Age, growth, and mortality—Otoliths (up to 10 per inch class in each pool) were taken from blue catfish (n=489), channel catfish (n=290), and flathead catfish (n=491). Growth rates of all three species did not differ from growth rates in 2017; however, differences in blue catfish and channel catfish growth were noted between pools. Total annual mortality of all three species did not differ from estimates in 2017, but flathead catfish annual mortality (both total and estimated fishing) was found to be higher downriver where commercial fishing is more prominent.

Project Name or Description: Can channel catfish nesting boxes replace stocking in small impoundments?

Contact Information:

Name: Tom Timmerman

Coauthors:

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Phone: (606) 783-8650

Objective: The objectives of this project are to (1) determine if artificial nesting boxes can create a self-sustaining population of channel catfish and (2) if so what rate of boxes are needed to maintain high quality populations of channel catfish.

Current Status: Ongoing

Abbreviated Abstract: In most small impoundments, channel catfish do not produce a self-sustaining population of fish, and anglers are reliant on state agencies to stock fish in order to maintain fishable populations. The limiting factor in most instances is a lack of spawning habitat such as: hollow logs, undercut banks, and rock crevices. Several other states have experimented with adding artificial spawning habitat in the form of nesting boxes to their lakes and have had success in creating habitat necessary to have self-sustaining fish populations in small impoundments. With hatchery space limited and expense of raising and stocking these fish high, alternative strategies for providing fish to small impoundments is of particular interest to state agencies. If channel catfish can self-sustain through artificial nesting boxes, then hatcheries can be freed up to use space and funding for other projects. At this point, results have varied largely between impoundments. Often times, a spawn occurs but recruitment of fry to fingerling or larger fish is not evident.

Louisiana

Name of Representative to Technical Committee: Brian J. Heimann

Project Name or Description: Lake Maurepas Monitoring Project

Contact Information:

Name: Dr. Kyle Piller

Coauthors:

Email: kyle.piller@southeastern.edu

Phone: 985-549-2191

Objective: Catfish population assessment

Current Status: Ongoing

Abbreviated Abstract: Lake Maurepas is a large (59,000-acre) coastal lake in southeast Louisiana. It is currently the proposed site for an underground carbon sequestration project. As part of the preliminary work for the project, a seismic survey was performed in 2023 to locate preferred areas for carbon injection. Through the normal course of the seismic survey, some fish mortality was observed due to detonation of seismic charges. As a result, Southeastern Louisiana University has been and will be performing independent, scientific monitoring of the Lake Maurepas ecosystem. The overall goal of the monitoring project is to target the entire fish assemblage in order to understand spatial and temporal variation across the lake. One particular aspect will be to quantify population dynamics of catfishes in the lake. Basic information on condition and abundance of channel, blue, and flathead catfish populations will be collected using experimental gill nets, open water trawls, and boat electrofishing throughout the lake across seasons.

Mississippi

State Reporting: Mississippi

Name of Representative to Technical Committee: Buford Lessley

Project Name or Description: Mississippi River Angler Catfish Tagging Project

Contact Information:

Name: Buford Lessley

Email: Buford.lessley@wfp.ms.gov

Phone: (601) 859-3421

Objective: To obtain recapture and movement data for large angle caught catfish in the Mississippi River

Current Status: ongoing

Abbreviated Abstract:

MDWFP is cooperating with trophy catfish fishing guides to monitor large catfish recapture and movement on the Mississippi River. The fishing guides are collecting length (in) and weight (lbs) for catfish caught, along with GPS coordinates of the release locations. Catfish are caught using hook and line, double tagged with floy tags, and released at or near the capture locations. Fishing guides report the data to MDWFP on a monthly basis. The tagging project began in March 2020 and as of January 10, 2024 two recaptures have been reported. A total of 238 catfish fish have been tagged consisting of 233 Blue Catfish and five Flathead Catfish.

Missouri

Name of Representative to Technical Committee: Kyle Winders

Project Name: Flathead Catfish Population Assessments in Several of Missouri's Large Reservoirs and Small Impoundments

Contact Information:

Name: Zach Ford (Missouri Department of Conservation)
Co-PI: Dr. Leah Berkman (Missouri Department of Conservation)
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Phone: 660-885-8179 x4936

Objectives:

1.) Sample Flathead Catfish populations in a suite of large reservoirs (ranging from 2,400 to 55,600 acres) and small impoundments (<200 acres) to determine population demographics (e.g., mean total length, proportional size distributions, age structure, total annual mortality, etc.).
2.) Examine the population genetic structure including genetic effective population size (N_e), level of inbreeding, population mixing/isolation, and predict the effects of low, medium, and high exploitation on N_e and reproductive variance of Flathead Catfish in each waterbody.
3.) Conduct modeling simulations of each Flathead Catfish population to assess existing regulations and explore the potential to improve or sustain each fishery.
4.) Develop long-term standard sampling protocols for managers to examine population trends.

Status: Low-frequency electrofishing (15 Hz/30% duty cycle pulsed DC) was conducted again in 2022 (Year 2) in large reservoirs (Table 1) and small impoundments (Table 2) using

standardized electrofishing outputs recommended by Thomas and Morris (2020). Processing and aging of >2000 total pectoral spines and genetic analysis from sampled Flathead Catfish continued in 2022.

Population genetic analysis focused on developing and testing microsatellite primer pairs, testing primers for reliable amplification in a multiplex framework, extracting DNA from fin clip samples of *P. olivaris* individuals collected in 2021-2022, genotyping *P. olivaris* individuals using the identified markers, and analyzing the preliminary data for effective population size & population genetic structure. The accuracy and precision of N_e estimates has also been conducted to determine remaining tissue samples needed for further analysis.

Additional project sampling will be conducted in 2023 to obtain additional population data and fill sample size quotas for age-growth and genetic analysis.

Table 1. Catch statistics for Flathead Catfish in each **reservoir** collected with boat electrofishing in 2021. Ranges are shown in parentheses. Effort is the time (h) electrofishing output power was on. CPUE is number of fish/hour. Proportional-size distributions (PSD) of Flathead Catfish collected in each waterbody were calculated using Flathead Catfish length categories described by Anderson and Neumann (1996) as follows: stock (14 in or 350 mm), quality (20 in or 510 mm), preferred (28 in or 710 mm), memorable (34 in or 860 mm), and trophy (40 in or 1020 mm).

Reservoir	Surface Acres	Year	Sample Runs[1] (N)	Fish Collected (N)	Total Effort (hrs)	Total CPUE	$CPUE_{<14"}$	$CPUE_{\geq 28"}$	Mean TL (in)	PSD_Q	PSD_P	PSD_M	PSD_T
Pomme De Terre[2]	7,820	2021	5	49	1.69	29.0	17.2	2.4	14.2 (3.3 – 39.9)	45	20	5	0
Smithville	7,190	2021	27	427	6.75	63.3	26.7	12.9	19.0 (3.3 – 46.3)	73	35	17	5
Stockton	25,900	2021	38	109	8.50	12.8	2.1	1.8	19.9 (6.8 – 46.8)	45	17	8	1
Table Rock	43,100	2021	10	100	3.09	32.3	4.2	1.6	19.6 (9 – 38.8)	53	6	2	0
Truman	55,600	2021	59	421	13.89	30.3	11.4	3.9	18.2 (4.1 – 51.25)	57	21	11	3

[1]Number of individual sampling runs conducted with electrofishing power on for a discrete amount of time (~3-15 minutes) across a range of sample dates and sites distributed throughout each reservoir.
[2]Pilot sampling conducted to explore habitats and examine electrofishing success for future sampling efforts.

Table 2. Catch statistics for Flathead Catfish in each **small impoundment** collected with boat electrofishing in 2021 during population marking (day 1) and recapture (day 2) runs where fish were marked with fin clips. Ranges are shown in parentheses. Effort is the time (h) electrofishing output power was on. CPUE is number of fish/hour. Proportional-size distributions (PSD) of Flathead Catfish collected in each waterbody were calculated using Flathead Catfish length categories described by Anderson and Neumann (1996) as follows: stock (14 in or 350 mm), quality (20 in or 510 mm), preferred (28 in or 710 mm), memorable (34 in or 860 mm), and trophy (40 in or 1020 mm).

Small Impoundment	Surface Acres	Day 1 Marking Run (N)	Day 2 Recap Run (N,%)	Total Fish Collected (N)	Total Effort (hrs)	Total CPUE	$CPUE_{<14"}$	$CPUE_{\geq 28"}$	Mean TL (in)	PSD_Q	PSD_P	PSD_M	PSD_T
Bilby Ranch	110	166	21 (12.7%)	307	1.70	180.6	96.5	20.0	16.4 (4.2 – 41.3)	66	24	11	4
Cameron #3 (Eagle Lake)	96	71	10 (14.1%)	120	1.67	72.1	11.4	39.0	28.4 (7.2 – 47.2)	91	64	42	21
Che-Ru Lake	160	44	13 (29.5%)	94	1.81	52.0	26.0	3.9	15.8 (7.5 – 40.5)	34	15	11	2
Higginsville City Lake	150	57	7 (12.3%)	86	3.04	28.3	2.6	9.5	24.7 (7.8 – 43.8)	77	37	17	5
Limpp Lake	29	6	2 (33.3%)	15	0.76	19.9	0	4.0	24.4 (18.8 – 30.2)	87	20	0	0
Little Compton Lake	40	7	3 (42.9%)	22	1.25	17.7	3.2	4.8	23.9 (10.3 – 35.8)	100	33	6	0
Willow Brook	100	72	4 (5.6%)	130	1.78	72.9	9.5	21.9	23.7 (8.2 – 38.8)	86	35	8	0

Project Name or Description: Post-regulation evaluation of a protected slot-length limit for Blue Catfish at Harry S Truman Reservoir and Lake of the Ozarks

Contact Information:

Name: Zach Ford (Missouri Department of Conservation)
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Objectives: 1) Evaluate changes in length distributions and age structure of Blue Catfish populations that have occurred since the regulation change in 2014. 2) Characterize current angler satisfaction and support for the regulations.

Status: The Department implemented a regulation change for Blue Catfish *Ictalurus furcatus* at Truman Reservoir (55,600 acres) and Lake of the Ozarks (54,000 acres) effective March 1, 2014: a protected slot-length limit of 26 ─ 34 inches total length (TL) and a daily limit of 10 with no more than 2 Blue Catfish (of the 10-daily limit) longer than 34 inches.

Abbreviated Abstract: The management objectives of this regulation change were to:

1) Protect medium-sized and increase the number of larger Blue Catfish
2) Increase harvest of smaller Blue Catfish below the protected slot to improve growth rates across the population
3) Retain the level of participation by catfish anglers
4) Maintain good relations with all stakeholders while continuing to promote local catfish-based economy
5) Provide a sustainable, quality, Blue Catfish fishery for present and future generations to enjoy

For this evaluation, three consecutive years of post-reg sampling will be conducted using methods identical to three years of baseline sampling (prior to the reg change) at randomly selected sites (from a pool of known angling sites) throughout each reservoir during late summer into fall (August to November). Anchored jug lines baited with Gizzard Shad will be deployed at sites throughout both reservoirs in desired habitats (e.g., river channel bends and flats close to timber, etc.) to maximize catch rates of larger Blue Catfish during each sampling period. This method is commonly used by catfish anglers and is effective at both reservoirs to catch Blue Catfish during the fall. Sampling commenced in August-November 2022 with data entry/analysis and pectoral spine processing underway.

Project Name or Description: Big Rivers Catfish Questionnaire and Public Comment
Contact Information:

Name: Kyle Winders
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Phone: 660-646-3140 x1377

Name: Joe McMullen
Email: joe.mcmullen@mdc.mo.gov

Phone: 314-301-1506 x4215

Status: Completed
Abbreviated Abstract: To determine public preferences related to catfish fishing and management on

Missouri's big rivers an electronic questionnaire was distributed during July 2021. All licensed Missouri residents with an email address on file were invited to complete the questionnaire. A public comment period was advertised and comments were collected from 7 July to 15 August 2021.

Email invitations were sent to sport (n = 447,405) and commercial (n = 123) fishing permit holders. Among sport fishing respondents (n = 46,083; 10.3% response rate), 30,613 indicated that they fished for catfish, which ranked third in popularity behind crappie and largemouth bass. Of those who sport fished for catfish, 6,381 fished the Missouri River and 3,625 fished the Mississippi River. The preferences of big rivers catfish anglers and commercial fishers included:

- Most sport anglers fished St. Louis and Central regions.
- A majority of sport anglers and commercial fishers indicated that the size and number of catfish caught were equally important.
- Sport anglers and commercial fishers indicated that catching catfish to eat was more important than catching trophy size catfish.
- Sport anglers preferred creels of intermediate numbers and weights of catfish (four 5-pound fish); commercial fishers preferred larger flathead catfish (two 10-pound fish) and preferences varied for blue catfish.
- A majority of sport anglers and commercial fishers preferred keeping catfish 18" in length or smaller.
- Sport angler support for/opposition to a '1-over' rule (one catfish over 30" may be kept as part of a daily limit) for blue and flathead catfish was split.
- Sport angler support for/opposition to a minimum length limit on blue and flathead catfish was split; a majority of commercial fishers were opposed.

Project Name or Description: Commercial Fishing Program

Contact Information:

Name: Joe McMullen
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Phone: 314-301-1506 x4215

Objectives: Document and summarize Missouri's commercial fish harvest for 2021 and annual harvest trends since 1945.

Status: Ongoing

Abbreviated Abstract: Blue catfish accounted for the largest proportion (63%) of the total catfish harvest and increased from 75,281 lbs. in 2020 to 91,752 lbs. in 2021. Flathead catfish accounted for 22% of the total catfish harvest, decreasing 32,840 lbs. in 2020 31,202 lbs. in 2021. Channel catfish accounted for 15% of the total catfish harvest, increasing from 16,619 lbs.

in 2020 to 21,176 lbs. in 2021 (highest harvest since 2012). No bullhead harvest was reported during 2021.

Pounds of commercially harvested catfish, by river and for all rivers combined during 2010.

Species/ Species Group	Mississippi River	Missouri River	St. Francis River	Total
Blue Catfish	91,613	Prohibited	139	**91,752**
Flathead Catfish	29,983	Prohibited	1,219	**31,202**
Channel Catfish	20,324	Prohibited	852	**21,176**
Bullheads	0	0	0	**0**
Total	**141,920**	**0**	**2,210**	**144,130**

North Carolina

Name of Representative to Technical Committee: T. D. VanMiddlesworth

Project Name or Description: Carolina Madtom propagation work

Contact Information:

Name: Michael Fisk

Coauthors: Mike Walter

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Phone: 919-758-9024

Objective: To propagate Carolina Madtoms to augment existing populations

Current Status: Ongoing

Abbreviated Abstract: As part of ongoing propagation efforts to enhance the federally endangered Carolina Madtom, NCWRC staff collected and transferred 5 adult Carolina Madtoms from Fishing Creek to Conservation Fisheries, Inc. in May 2023 to be used as brood stock. Over 400 Carolina Madtoms were produced in the summer of 2023. In October, 200 Carolina Madtoms were released into Sandy (n = 100) and Fishing (n = 100) creeks to enhance existing populations. The remainder were transferred to the

NCWRC Conservation Aquaculture Center in Marion, NC to grow out and be released in spring 2024. Surveys will be conducted in 2024 to evaluate stocking efforts from 2021–2023 cohorts.

Project Name or Description: Exploratory coastal catfish survey

Contact Information:

Name: T.D. VanMiddlesworth

Coauthors: Nick Shaver

Email: todd.vanmiddlesworth@ncwildlife.org

Phone: 919-210-4320

Objective: Targeted catfish surveys for Pungo, White Oak, New, and Newport rivers for monitoring and aid in management

Current Status: Completed (final report in progress)

Abbreviated Abstract: Non-Native and invasive catfish species have been documented in eastern North Carolina since the early to mid-1900's, respectively. Declines in native catfish species have also been documented since the establishment of invasive catfish species. The goal of this work was to establish targeted catfish surveys to monitor and manage catfish species in the Pungo, White Oak, New, and Newport rivers in eastern North Carolina. This survey was completed at each river using a boat-mounted, APEX electro-fishing unit at multiple, randomly selected, 1 KM-long sites until salinity exceeded gear suitability. High pulse (120 Hz) and Low-pulse (15 Hz) settings were employed at alternate sites, moving downstream. Catches were dominated by native catfish species (White Catfish, Black Bullhead, Yellow Bullhead) in each river. No non-native or invasive catfish species were observed. Total length (mm) and weight (g) was collected to assess population characteristics.

Project Name or Description: Lake Waccamaw Sport Fish Survey, 2023

Contact Information:

Name: April Boggs Pope

Coauthors: Kyle Rachels

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Phone: 910-309-0683; 252-548-4938

Objective: Evaluate species composition, relative abundance, and size structure of fisheries resources in Lake Waccamaw.

Current Status: Completed (final report in progress)

Abbreviated Abstract: On November 6th, 2023, WRC Inland Fisheries Biologists sampling Lake Waccamaw regarded a welcome sight – a Broadtail Madtom (*Noturus* sp. Broadtail Madtom) found using boat electrofishing. This undescribed species of catfish is tiny and rare – this is only the 2nd time they have been located in Lake Waccamaw since 2002 (the other was in 2019). Survival of this tiny species of catfish is threatened by predation by invasive catfish, including Flathead Catfish and Blue Catfish, and habitat loss. WRC Aquatic Diversity Biologists have built and deployed "Madtom Motels" in Lake Waccamaw and other areas to provide cover for Broadtail Madtoms that can be readily monitored. AWD Biologists continue to sample for Broadtail Madtoms and have successfully found individuals in the Lumber River Basin using kick seines and D4 Fisheries Biologists found another individual in the Lumber River in 2022 using boat electrofishing. However, the presence of invasive catfish has in all likelihood eliminated Broadtail Madtoms from the Cape Fear River.

Project Name or Description: Lockwood Folly River Sport Fish Survey, 2023

Contact Information:

Name: April Boggs Pope

Coauthors: Kyle Rachels

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Phone: 910-309-0683; 252-548-4938

Objective: Evaluate species composition, relative abundance, and size structure of fisheries resources in the Lockwood Folly River.

Current Status: Completed (final report on NCWRC website)

Abbreviated Abstract: Due to its geographic location, the Lockwood Folly River is uniquely susceptible to hurricane-induced fish kills. Previous sampling indicates the Lockwood Folly River has relatively few nonnative fish species and hosts a native ictalurid community, which are rare in coastal North Carolina and earned it the designation as a Native Catfish Conservation Unit in the North Carolina Wildlife Resources Commission 2019 Catfish Management Plan. This is the first sampling event since native catfish were designated as Inland Game Fish. Two species of ictalurids were collected, including White Catfish (n = 52) and Flat Bullhead (n = 17). Low frequency electrofishing at five sites for a total of 1.3 h, targeting catfish, yielded 17 Flat Bullhead and 49 White Catfish. White Catfish mean CPUE (SE) using low frequency electrofishing was 38.5 (7.5) fish/h. Flat Bullhead mean CPUE (SE) using low frequency electrofishing was 13.2 (6.4) fish/h. High frequency electrofishing for a total of 1.3 h, targeting all species, yielded 3 White Catfish. No non-native or invasive ictalurids were captured during 2023 sampling.

Oklahoma

State Reporting: Oklahoma

Name of Representative to Technical Committee: Jeremy Duck

Project Name or Description: Gear bias of low-frequency electrofishing for sampling Blue Catfish populations in Oklahoma reservoirs

Contact Information:

Name: Douglas Zentner - *Oklahoma Department of Wildlife Conservation, Oklahoma Fishery Research Laboratory, 500 East Constellation, Norman, OK 73072*
Coauthors: Graham Montague - *Ohio Department of Natural Resources, Fairport Harbor*
Dan Shoup - *Oklahoma State University, Department of Natural Resource Ecology & Management*
Richard Snow - *Oklahoma Department of Wildlife Conservation, Oklahoma Fisheries Research Laboratory*
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Objective: Evaluate the accuracy of low-frequency electrofishing (LFE) size-structure data for Blue Catfish in Oklahoma Reservoirs

Current Status: sampling complete, data being analyzed

Abbreviated Abstract: Blue Catfish, *Ictalurus Furcatus*, are a popular sportfish amongst anglers in the United States, particularly due to their trophy size potential and quality table fare. In Oklahoma, anglers can harvest 1 Blue Catfish over 760 mm with the goal being increased abundance of larger fish. Anecdotal evidence from Oklahoma Department of Wildlife Conservation (ODWC) standardized sampling suggests that low-frequency electrofishing (LFE; 15 pulses per second) inaccurately samples the true population and may underrepresent larger size classes of fish (>760 mm), making the assessment of upper size classes of Blue Catfish populations difficult to interpret. Therefore, we designed a study to quantify the capture probability of Blue Catfish sampled with LFE by conducting a mark-recapture study in 3 Oklahoma reservoirs (Lake Arcadia, 2021; Wiley Post Reservoir, 2021; and Lake Ellsworth, 2022). We captured fish using LFE, gill nets, and juglines and tagged and released fish > 200-mm TL with modified Carlin dangler tags. Each lake was further sampled with LFE, gill nets, and juglines to collect

recapture data. Size structure data suggests that LFE collects small individuals relative to gillnets and jug lines with low overlap in the density of observations when comparing LFE with the other two gear types. Preliminary Cormack Jolly Seber mark-recapture models suggest that capture probability decreases as fish size increases for LFE, while capture probability increases as fish size increases for gillnets and juglines.

Project Name or Description: Retention of operculum Carlin dangler tags in Flathead Catfish and Blue Catfish

Contact Information:

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Objective: Evaluate retention of operculum placed modified-carlin dangler tags for Blue and flathead catfish

Current Status: sampling complete, data being analyzed

Abbreviated Abstract: Mark-recapture is commonly used to estimate fisheries metrics such as abundance, growth, survival, movement, and exploitation, but requires the assumption that tags are retained. Blue and Flathead Catfish are popular sportfish across North America. However, tag retention estimates for these species are less studied than other popular sportfishes. We estimated short- and long-term retention of Carlin Dangler tags placed between the opercle and preopercle of Blue and Flathead Catfish. Short-term retention (15-day) was estimated by laboratory observation of tagged Blue (TL 195-715 mm) and Flathead Catfish (TL 201-637 mm). Long-term retention (up to 833 days) was estimated by tagging and recapturing Blue (TL 201-949 mm) and Flathead Catfish (TL 165-1,075 mm) using multiple gears across six Oklahoma reservoirs. A subset of fish were double tagged with Carlin Dangler tags or triple tagged with Carlin Dangler, passive integrated transponder (PIT), and self-piercing tags. We used single-tagged fish to determine if species, total length, study duration, or sample gear influenced discrete tag retention. We used double and triple tagged fish to estimate discrete retention and instantaneous tag loss. Short-term tag retention and survival in the laboratory were 100% for both species. Mean discrete

retention estimates from single-tagged fish in the field ranged from 97 to 100% for Blue Catfish and 89 to 100% for Flathead Catfish. Species, study duration, and total length correlated with tag loss. Mean discrete retention estimates from double and triple tagged fish was 97% for Carlin Dangler tags, 84% for PIT tags, and 65% for self-piercing tags. Instantaneous retention estimates were similar for Carlin Dangler and PIT tags but were significantly lower for self-piercing tags. Our results suggest that opercular placement of Carlin Dangler tags are suitable tags for Mark-Recapture experiments on Blue and Flathead Catfish.

Project Name or Description: A comparison of eight Channel Catfish populations across the central region of Oklahoma

Contact Information:

Name: Austin D. Griffin - *Oklahoma Department of Wildlife Conservation, Oklahoma Fishery Research Laboratory, 500 East Constellation, Norman, OK 73072*

Coauthors: Jory B. Bartnicki, Douglas L. Zentner, Richard A. Snow

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Objective: 1) Compare catch rates and size distribution of fish caught using 25-mm mesh vs 12.5-mm mesh hoop nets to determine if populations are properly indexed and if bias occurs when only using 25-mm mesh nets and 2) explore population characteristics of Channel Catfish across eight small impoundments in central Oklahoma.

Current Status: complete

Griffin, A. D., J. B. Bartnicki, D. L. Zentner, and R. A. Snow. 2023. A comparison of eight Channel Catfish populations across the central region of Oklahoma. Proceedings of the Oklahoma Academy of Science 103:85-100.

Abbreviated Abstract: Channel catfish (Ictalurus punctatus) are a popular sportfish in Oklahoma, ranking as the 3rd overall most preferred species from 1985 - 2019. Due to this popularity, species-specific surveys are conducted, and stockings accrue to ensure population dynamics are within acceptable levels and abundances can meet angler demands. Therefore, the goals of this study were to: 1) compare catch rates and size distribution of fish caught using 25-mm mesh vs 12.5-mm mesh hoop nets to determine if populations are properly indexed and if bias occurs when only using 25-mm mesh nets and 2) explore population characteristics of Channel Catfish across eight small impoundments in central Oklahoma. Channel catfish were collected across 8 small impoundments during the months of July and August from 2020 - 2022 using baited hoop nets (tandem set of three nets consisting of two 25-mm bar mesh and one 12.5-mm bar mesh in random order or three 25-mm bar mesh nets per set run concurrently

with sets of three 12.5-mm bar mesh nets). A combined total of 1985 Channel Catfish ranging from 25-657 mm TL were collected during this study with length distribution varying between systems. Weights ranged from 10-3,470 g with a mean Wr of 88. Fish ranged from 0-22 years of age and 95% of individuals reached maturity at 419 mm TL. Richards growth models indicated growth was relatively slow and mortality rates ranged from 13 to 52% depending on impoundment. Of the Channel Catfish sampled, 26% of them were captured with 12.5 mm mesh nets. Kolmogorov-Smirnov test results showed distributions from 25- and 12.5-mm mesh nets to differ significantly.

Project Name or Description: An Evaluation of limitations to Channel Catfish Recruitment in Small Impoundments

Contact Information:

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Objective: To create a more complete picture of Oklahoma Channel Catfish fisheries and increase natural recruitment with the intent to free up stocking resources through the evaluation of spawning habitat, predation, and competition with other species.

Current Status: ongoing

Abbreviated Abstract: Due to the popularity of channel catfish throughout the United States, many natural resource agencies invest substantial effort stocking and managing channel catfish populations to provide harvest and trophy opportunities (Bodine et al. 2013). In lieu of inadequate natural recruitment, it is commonplace for natural resource agencies to maintain put-grow-take channel catfish fisheries in small impoundments (< 500 acres; Michaletsz and Dillard 1999, Michaletz et al. 2011) using advanced fingerling or larger fish to deter predation (Storck and Newman 1988). Management and evaluation of stocking success of these populations requires reliable estimates of population rate functions (including recruitment). Variation in annual recruitment has been documented for channel catfish in reservoirs (Hubert 1999, Holley 2006, Settineri 2015) and recruitment can vary considerably between lakes (Tyszko et al. 2021). Also, minimal research has been conducted examining the habitat effects on channel catfish population characteristics in reservoirs and further research assessing natural recruitment is needed (Tyszko et al. 2021). Griffin et al. (2022) associated higher recruitment with increased exchange rate and volume and lower recruitment with increased total water hardness. However, a follow up tank experiment revealed no significant differences in hatch rate or larval abnormalities associated with increasing total hardness for channel catfish (Griffin et al. *in press*). Most of the previously mentioned factors that potentially effect recruitment are outside the control of fisheries managers. However, a major limiting factor that is likely within our power to manipulate is a lack of high-quality spawning habitat (Porta and Smith 2013).

To aid regional managers in the evaluation of fisheries stocked with seven-inch fish (per ODWC stocking criteria) and decrease the cost of stocking/rearing these fish we propose to evaluate spawning habitat in small impoundments and determine the feasibility of positively impacting recruitment with artificial nest boxes where needed. Twenty-four boxes total were placed in three small central Oklahoma impoundments in 2023. Boxes were checked weekly beginning in mid-May and the first year of observation resulted in a window of active spawning activity that spanned from May 22 to July 24, 2023. On average, fish, eggs, fry, or some combination of the three were present for 28 % of the box checks. Continued installment of boxes and fish sampling will be ongoing.

Project Name or Description: Applying existing recruitment variation methods to assess fluctuations in Channel Catfish year-class strength

Contact Information:

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Objective: Gauge rates of natural reproduction of Channel Catfish in Oklahoma reservoirs through recruitment variability.

Current Status: sampling complete, data being analyzed

Abbreviated Abstract: Management and evaluation of stocking success of Channel Catfish populations requires reliable estimates of population rate functions (including recruitment). Variation in annual recruitment has been documented for channel catfish in reservoirs (Hubert 1999, Holley 2006, Settineri 2015) and recruitment can vary considerably between lakes (Tyszko et al. 2021). Although long-term data likely better explain recruitment dynamics this data is often hard to come by, resulting in methods used to index year class strength from an individual sample (Quist 2007). Methods including the recruitment variability index (RVI) and recruitment coefficient of determination (RCD) have been used with mixed results for other species including Walleye, Black Crappie, and White Crappie (Guy and Willis 1995, Isermann et al. 2002, Quist 2007). However, as far as we know, these methods have not been applied to catfish species. To adequately gauge rates of natural reproduction of Channel Catfish to better inform stocking recommendations, we are looking at the feasibility of assessing recruitment variability across 13 Oklahoma impoundments using RVI and RCD.

Project Name or Description: Population Dynamics of lotic Blue Catfish and Flathead Catfish in Oklahoma

Contact Information:

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Coauthors: Samuel Johnston

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Phone: 918-260-3231

Objective: Establish a baseline contemporary dataset to monitor trends in dynamic rate functions, generate statewide standards for growth and size structure to facilitate population comparisons, and evaluate harvest regulations under an adaptive management framework.

Current Status: Ongoing

Abbreviated Abstract: Surveys of Oklahoma angler preferences have revealed that Blue Catfish *Ictalurus furcatus* and Flathead Catfish *Pylodictis olivaris* are the most sought-after species by anglers in rivers and streams. Therefore, catfish represent an important natural stream resource warranting management in Oklahoma. Despite their popularity, catfish population management has received very little attention in lotic Oklahoma systems. Consequently, lotic catfish population dynamics data are almost non-existent. Beginning in 2016, the Oklahoma Department of Wildlife Conservation Streams Program instituted a catfish monitoring effort for Blue Catfish and Flathead Catfish. In May of 2023, six additional surveys were conducted on the Spring River to augment catfish sample sizes collected in 2019 that were hampered by flooding. We collected 156 Blue Catfish and 58 Flathead Catfish in 2023, which increased our total sample size to 159 and 86, respectively. Data from this sampling will be analyzed this winter. Currently, the ODWC Stream Program has sampled seven rivers since 2016 with cumulative sample sizes of 1,698 Blue Catfish and 821 Flathead Catfish. Max size, max age, fecundity, sex ratios, catch-per-unit effort, proportional size distributions, growth rates, and annual mortality rates are being estimated to inform management decisions for lotic catfish populations. In the future we plan on adding additional rivers to this statewide dataset and supplementing sampling sizes in rivers where necessary.

South Carolina

State Reporting: South Carolina

Name of Representative to Technical Committee: Levi Kaczka

Project Name or Description: Santee Cooper Reservoir Blue Catfish Monitoring

Contact Information:

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Objective: Monitor the population status of Blue Catfish in Santee Cooper Reservoir

Current Status: Project is a yearly survey, first began in the winter of 1984-85, with plans to continue indefinitely

Abbreviated Abstract:

The Santee Cooper Blue Catfish population survey first began in the winter months (December-February) of 1984-85 utilizing floating and sinking experimental gill nets. Lakes Marion and Moultrie, collectively known as Santee Cooper Reservoir, are sampled monthly during the study time frame with gill nets being deployed at four sites per lake (24 net nights/year). With few exceptions, sampling locations and effort has remained consistent year-to-year, offering a nearly 40-year data set. Early years of sampling revealed a population that was dominated by relatively high numbers of young, small fish (<500mm). This trend remained consistent throughout the 1990s, with catch rate declines starting to show in the early 2000s. Regulations were introduced in the mid-2000s to spread the harvest of large BCF across more user-groups by creating a "one over 36" " daily creel. This resulted in an immediate increase in the proportion of large BCF in the dataset, though an overall decline in catch rates continued. In 2013, regulations to set a daily creel at 25 fish/day, with the allowance of two fish > 32" was adopted and remain in place currently. The apparent effect of these regulations has been to retain relatively high numbers of large BCF in the system while also boosting numbers overall.

Although current relative abundance does not match that of the 1990s, the size structure of that population was not desirable among the angling community. Current regulations seem to be producing a BCF fishery that is generally accepted as healthy and desirable. One point to note, though, is that the introduction of a 25 fish daily creel saw the commercial BCF community largely disappear from the system. Although guided fishing trips targeting BCF are widespread year-round on Santee Cooper Reservoir, anecdotal evidence suggests that total harvest of recent years is likely to pale in comparison to total harvest in years where commercial fishing was more prominent. Additionally, there seems to be a burgeoning trend among both BCF guides and recreational anglers to employ catch-and-release fishing. These anecdotes may be evidenced by recent years of declining condition among the sampled BCF population. Continued monitoring of this population may reveal whether increased harvest is needed to maintain the fishery, which is known for both its solid numbers and trophy-sized fish.

Tennessee

Name of Representative to Technical Committee: Eric Ganus

Nothing to report / No future projects planned

Texas

Name of Representative to Technical Committee: Lynn Wright

Project Name or Description: Blue and channel catfish growth, mortality, and size specific exploitation rates in Texas reservoirs.

Contact Information:

Name: Lynn Wright

Coauthors: Michael Homer, Greg Binion, John Tibbs, Greg Cummings, Quintin Dean

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Objective: 1) Estimate instantaneous mortality and growth rates for Blue and Channel Catfish populations, 2) Estimate size specific exploitation on reservoirs with available catfish harvest data, 3) Estimate size selectivity of TPWD experimental gill nets for Blue Catfish and Channel Catfish

Current Status: Fieldwork Completed. Otolith aging and data analysis ongoing.

Abbreviated Abstract: As part of the work done by the TPWD catfish regulation committee, it was identified that we lack estimates on Blue and Channel Catfish dynamic rate functions in Texas, specifically growth and mortality estimates. This project will provide a significant number of needed growth and mortality estimates and help fill a vital data gap, which would allow us to make more informed decisions regarding appropriate catfish regulations. Additionally, size-specific exploitation can be indirectly estimated when creel data is paired with other population level data. Understanding how or if catfish exploitation changes by length would be vitally important when developing length-based harvest regulations. Finally, evaluating size bias in our experimental gill nets would benefit biologist statewide by providing a size-bias correction that can be used to improve the quality of our data.

A total of 10 reservoirs were sampled for Blue Catfish and 7 reservoirs for Channel Catfish totaling 377 gill net nights sampled from 2020-2023. A total of 3,584 blues and 2,266 channels were collected. A total of 2,930 otoliths were retained for age analysis, of which 2,053 (70%) have been aged as of December 2023. Gill net contact selectivity curves for the TPWD gill net configuration have been estimated for both Blue and Channel Catfish and work on a manuscript is ongoing.

Project Name or Description: TPWD Angler Recognition Program

Contact Information:

Name: Grace Simms (Angler Recognition Program Coordinator - TPWD)

Coauthors: NA

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Phone: 903-670-2275

Objective: Reporting of 2023 Catfish entries into the TPWD angler recognition program

Current Status: Established Outreach Program

Abbreviated Abstract: In 2023 a total of 83 catfish (5 species) from 56 different waterbodies were submitted to the TPWD angler recognition program. This included 32 Blue Catfish (largest entry: 73.0 lb. Lake Lewisville), 35 Channel Catfish (largest entry: 37.7 lb. Lake Bob Sandlin), 10 Flathead Catfish (largest entry: 54.31 lb. Lake Granbury), 3 Black Bullhead, and 3 Yellow Bullhead. A Yellow Bullhead weighing 3.66 lb. caught from Lake Tyler qualified as the state record. Out of the 83 entries, 1 was a state record, 36 were waterbody records, and 28 were junior angler (age 16 and under) waterbody records. Out of the 83 entries, 64 were caught by rod and reel, 15 were caught by jug-lines, limb-lines, or other passive gear, and 4 were caught on fly rods.

Virginia

State Reporting: Virginia

Name of Representative to Technical Committee: Margaret Whitmore

Project Name or Description: James River Blue Catfish Movement Ecology

Contact Information:

Name: Margaret Whitmore

Coauthors: Various

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Phone: (757) 406-2168

Objective: 1) Identify spatiotemporal patterns of Blue Catfish movement and distribution and drivers of those patterns 2) Identify spawning, overwintering, and summer aggregation areas 3) Evaluate transboundary movements and spillover from commercially unexploited areas 4) Evaluate behavioral response to low frequency electrofishing

Current Status: 3rd year complete, ongoing

Abbreviated Abstract: Non-native Blue Catfish (*Ictalurus furcatus*) were intentionally introduced into the James River in the 1970's to create a recreational fishery. The success of these efforts has led to increasing abundance and spatial distribution of Blue Catfish within the James River watershed and has prompted concern over the impacts of Blue Catfish on native species. The James River supports an active recreational fishery and a commercial low-frequency electrofishing (LFEF) fishery, with the commercial zone limited to a 100-rkm section of the tidal mainstem. The purpose of this project is to identify movement and distribution patterns and assess Blue Catfish response to LFEF in an effort to inform guidance, management decisions, and angler outreach.

In October 2021, 40 Blue Catfish ranging in size from 319 to 1134 mm total length were tagged with V13 and V16 acoustic tags, with a tag life of three and 10 years, respectively. Tagging of a second cohort of Blue Catfish was completed in spring 2023. This project relies on the existing passive receiver array in the James River in addition to receivers newly deployed in six major tributaries to assess movement into and out of the mainstem. Active tracking methods are being used to identify overwintering areas, spawning habitat, and response to LFEF.

Project Name or Description: Blue Catfish Disease Monitoring

Contact Information:

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Coauthors: Margaret Whitmore, various

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Phone: (757) 406-2168

Objective: Identify cause(s) of sporadic summer mortality events of Blue Catfish and investigate the potential for Blue Catfish density to encourage spread to other species.

Current Status: Preliminary data collected, ongoing

Abbreviated Abstract: In 2021, the VDWR began receiving scattered reports of mortality events and strange behavior by moribund Blue Catfish. These mortality events occurred in different rivers and were variable in size. No other species were observed among Blue Catfish carcasses. Early investigation ruled out water quality and recreational/commercial catch mortality. In 2022, the VDWR began a working with

VIMS pathologists to collect moribund specimen and conduct disease testing. Early results identified *Aeromonas* spp., a ubiquitous genus of bacteria in Virginia's tidal waters. In summer 2023, VDWR and VIMS expanded sampling and testing efforts with results forthcoming.

West Virginia

State Reporting: West Virginia

Name of Representative to Technical Committee: Stephen Floyd

Project Name or Description: Ohio River Catfish Population Assessment

Contact Information:

Name: Katherine Zipfel

Coauthors: Stephen Floyd

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Objective: Assessment of Catfish Population Characteristics in various Ohio River Pools

Current Status: Ongoing

Abbreviated Abstract:

In 2018, our annual catfish population assessment protocol was altered to coincide with KDFWR's pool-wide, multi-gear sampling approach. Previous lock and dam tailwater low frequency boat electrofishing surveys focused primarily on Flathead Catfish populations, and with the growing popularity of Blue Catfish it was necessary to move to a multi-gear approach to allow for the assessment of Blue, Channel and Flathead catfishes. Shore-line low-frequency pulsed DC boat-mounted electrofishing surveys were conducted for Flathead Catfish in the Hannibal and Willow Island pools of the Ohio River from May to June 2023. Low-frequency electrofishing surveys (DC output ~200V, 2 amps, 15 pulse/second) were conducted at six sites (9.5 hrs, 38 transects) throughout the two pools, focusing on areas with outside bends and/or rocky shorelines. Surveys consisted of five 15-min transects at each location with an associated chase boat. All catfish collected were identified to species and measured for total length (mm). A sub-sample of Flathead Catfish were kept for an age and growth analysis. Flathead Catfish CPUE via boat electrofishing surveys ranged from 45.2 ± 16.9 fish/hr in the Hannibal pool to 41.9 ± 10.7 fish/hr in the Willow Island pool. Age and growth analyses are ongoing. Otoliths from nearly 800 individuals across four pools of the Ohio River will be used to assess the Flathead Catfish population throughout the West Virginia section of the river.