

Iowa Chapter AFS Business Meeting Agenda
Friday, March 10, 2017
3:00 PM
Iowa State University Memorial Union, Ames, IA

- I. CALL TO ORDER
- II. INTRODUCTION OF EXECUTIVE COMMITTEE MEMBERS AND SPECIAL GUESTS
- III. APPROVAL OF AGENDA
- IV. QUORUM COUNT (1/5 chapter membership or unanimous vote of at least 20 members present)
- V. TREASURER'S REPORT Ryan Hupfeld
- VI. COMMITTEE REPORTS
 - a. Auditing – Ben Dodd
 - b. Membership – Lewis Bruce
 - c. Best Paper – Chad Dolan
 - d. Resolutions – *Vacant* *Nominations*
 - e. Nominations – *Vacant* *Nominations*
 - f. Program – Jonathan Meerbeek
 - g. Student Affairs – Mike Weber
 - h. Student Subunit – Stephen Grausgruber
 - i. Continuing Education – Clay Pierce
- VII. TECHNICAL COMMITTEE REPORTS
 - a. Walleye – Randy Schultz
 - b. Centrarchid – Michael Weber
 - c. Rivers and Streams – Greg Gelwicks
 - d. Esocid – Jonathan Meerbeek
 - e. Ictalurid – Dan Kirby
 - f. Fish Culture – Alan Johnson
 - g. NCD – Randy Schultz
 - h. Reservoir – Rebecca Krogman
- VIII. PRESENTATION OF AWARDS
 - a. Best Professional/Student Papers and Best Student Poster (2016 Honey Creek Meeting)
 - b. Past President – Lewis Bruce
- IX. OLD BUSINESS
 - a. Discuss ExCom ability to distribute funds
 - b. Information regarding approved Iowa AFS grants
- X. NEW BUSINESS
 - a. Other new business
- XI. ADJOURN

2016/17 TREASURER'S REPORT

The chapter started report period (2/1/2016) with a balance of \$23,888.37 (\$3,229.22 in the Warm Water Account and \$4,572.80 in Mike Mason Memorial Fund, resulting in 16,086.35 available for AFS). Disbursements since the last financial report equaled \$12,625.95 and receipts equaled \$10,921.60. The continuing education class resulted in a profit of \$600.00. The annual meeting, dues, raffle along with parent society returns resulted in \$9,894.00.

Noteworthy expenditures included memberships in Iowa Environmental Council for 2016 and 2017 (\$100.00 per year), Iowa Conservation Alliance for 2017 (\$250.00). Other expenditures included funding for the Maynard Reece Project (\$2,500.00) and an IA AFS grant which was awarded to Andy Jansen (\$904.00). Expenses associated with the annual meeting totaled \$6,783.83. Raffle and auction proceeds from the 2016 IA AFS meeting were split with the ISU Student Subunit for an amount of \$1,037.00.

All account activity resulted in a balance of \$22,184.02 on 2/10/2017. The Warm Water Account has \$3,229.22; Mike Mason Memorial Fund has \$3,272.80, resulting in an AFS available balance of \$15,682.00.

Proposed budget keeps payments to the Iowa Environmental Council, the REAP Alliance, the Iowa Conservation Alliance, a 2017 Iowa AFS grant, and a 2017 ISU scholarship.

2016/2017 Iowa AFS Financial Report			
Balance as of February 1, 2016			\$23,888.37
	Balance in Warm Water Account		\$3,229.22
	Balance in Cool Water Account		\$0.00
	Mike Mason Memorial Fund		\$4,572.80
	AFS Available Balance		\$16,086.35
Receipts:	-Meeting Income (dues, registration, raffle, sponsorship)	9,894.00	
	-2015 Continuing Ed. Class Registration	600.00	
	-American Fisheries Society Chapter Dues Refund	227.60	
	-Mike Mason Memorial Fund- Mark Flammang	200.00	
Total Receipts:		\$10,921.60	
Disbursements:			
	-Gambling permits 2017	15.00	
	-Maynard Reece Project	1,000.00	
	-Iowa Environmental Council 2016 & 2017	200.00	
	-Iowa Conservation Alliance 2017	250.00	
	-IA AFS Grant- Andy Jansen	904.00	
	-ISU Scholarship	500.00	
	-Wells Fargo Transaction Fees	16.00	
	-AFS Awards	200.00	
	-IA DNR Maynard Reece Project from Mike Mason Memorial Fund	1,500.00	
	-2016 Annual Meeting Expenses	6,783.83	
	-ISU AFS raffle/auction proceeds split	1,037.00	
	-IA Chapter Insurance Enrollment	150.00	
	-State Sales Tax	70.12	
Total Disbursements:		\$12,625.95	
Balance as of February 10, 2017			\$22,184.02
	Balance in Warm Water Account		\$3,229.22
	Balance in Cool Water Account		\$0.00
	Mike Mason Memorial Fund		\$3,272.80
	AFS Available Balance		\$15,682.00

Auditing Committee – Ben Dodd

- Reviewed and approved Treasurers Report

Membership – Lewis Bruce

- No report

Best Paper – Chad Dolan

- Will be presented during Annual Meeting

Resolutions –

Vacant

Nominations needed

Nominations –

Vacant

Nominations needed

Program – Jonathan Meerbeek

- See meeting program

Student Affairs –

Mike Weber

- See attached report

Student Subunit –

Stephen Grausgruber

Iowa State University Student Subunit of the Iowa Chapter of the American Fisheries Society President

This past year has provided many unique opportunities of career development for members of the Iowa State University Student Subunit of the Iowa Chapter of the American Fisheries Society. The primary focus of the club this past year was preparing and educating members about various professions in the fisheries field. The subunit participated in a myriad of events that focused on professional development as well as opportunities to practice field skills (e.g., various sampling techniques including gillnetting and boat electrofishing).

In attempts to inform members about different fisheries related career paths, the subunit orchestrated a semester long seminar series. Fisheries professionals from the fields of aquaculture, fisheries management, and conservation law enforcement spoke with the subunit about how they landed in their current positions as well as providing advice about how members could get experience in their respective fields. This unique opportunity not only opened members' eyes to different career opportunities, but also allowed them to interact with future potential seasonal employers. Additionally, the subunit orchestrated a résumé workshop and interview blitz meeting that proved to be instrumental for several of our members to obtain seasonal fisheries positions. The club is extremely grateful to all of the professionals that accepted our invitation to share their knowledge and provide advice.

In addition to interactions with fisheries professionals, the subunit also organized several opportunities for members to get into the field and get their hands wet. Last winter, members got the chance to help with trout stocking at Ada Hayden Lake. The stocking allowed members to not only participate in a fisheries field operation, but gave them a chance to practice public communication skills as well. In the spring, members assisted the IDNR with their annual broodstock collection. While not only an exhilarating experience, this opportunity allowed members the chance to interact with professionals from around the state of Iowa as well as provide the opportunity to net fish while boat electrofishing. In addition to volunteering with the IDNR, members got opportunities to go into the field with graduate students from the Iowa State University Fisheries Ecology and Management Lab. Graduate students invited subunit members to aid in the sampling of Asian carp on Mississippi River tributaries as well as sampling stocked advanced fingerling Walleye at the Iowa Great Lakes. Lastly, the student subunit developed and implemented a pre-habitat restoration fish sampling research project at an Iowa State University Research Park stream. This research opportunity was done in collaboration with Story County Conservation. Collectively, these experiences offered subunit members numerous opportunities to practice field skills including gill netting, boat electrofishing, backpack electrofishing, seining, fin clipping, pulsed gastric lavage, and data collection.

The combination of field and classroom activities makes the student subunit an encouraging environment for any aspiring fisheries professional. We strive to educate our members about the fisheries profession as well as provide opportunities to practice essential field skills. This past year's activities would not have been possible without the generosity of numerous IDNR professionals volunteering their time to come and share their experiences with the group. Additionally, collaborations with the Iowa Chapter of the American Fisheries Society and Iowa State University's NREM department have provided unique experiences for subunit members.

Continuing Education Committee Report

Clay Pierce, Chair (cpierce@iastate.edu)

Course Offered in 2016

- **“Database Concepts, Design, and Application in Fisheries Management”**
 - Taught by Keith Hurley, Nebraska Game and Parks Commission
 - Assisted by Courtney Zambory, ISU and Clay Pierce, ICFWRU
 - August 10-11, 2016, Science II Building, ISU
 - 15 participants
 - \$600 income

This course was applicable to anyone who collects and works with data. The focus was fish and wildlife examples, but folks from any field or discipline were welcome. The course met in a modern classroom with laptops provided and wireless internet access. Instruction included lectures, demonstrations, and hands-on activities, and students had the opportunity to create their own database using a fisheries example.

Courses Offered in Previous Years

2015 Fish Population Analysis and Simulation with FAMS
2014 Basic/Intermediate GIS for Fisheries Biologists
2014 Advanced GIS for Fisheries Biologists
2013 PIT Tag Use in Fisheries
2012 Turtle biology, identification and sampling methods
2011 Age and growth
2010 Identification of aquatic plants
2009 Routine fisheries analysis using the R program
2007 Identification of Iowa fishes
2006 Using IRIS for stream fisheries management
2005 Web-based tools for fisheries and natural resources in Iowa
2002 Using FAST software
2001 Interactive dynamic graphics for data analysis
2000 Advanced GIS in natural resources
1999 Introduction to GIS in natural resources

Course Planned for 2017

- **“Electrofishing”**
 - Suggested by Mike Siepker and Lewis Bruce, Iowa DNR
 - To be taught by Alan Temple, USFWS and Jan Dean, Dean Electrofishing, LLC

Excerpt from an email from Mike Siepker: “Goals of the training would be to provide the tools users need to examine their electrofishing setups, evaluate the output and determine if this is appropriate for your species and waters, and how to troubleshoot problems with your system. This will include boat systems, and possibly backpack systems. The training will not evaluate all boats in our fleet but will teach participants

the proper methods to evaluate their boats and provide the tools necessary for a successful evaluation.”

- Potential dates: August 1-3 or 8-10, 2017
- Potential Location: Rathbun
- Potential cost: approx. \$3500

Walleye Technical Committee

Walleye Technical Committee Business Meeting Minutes Ak-Sar-Ben Aquarium, Gretna, Nebraska July 28th, 2016

- Meeting was called to order at 9:05 am by Walleye Technical Committee chair, John Bruner.
- 54 people were in attendance for the Walleye Technical Committee business meeting.
- Before the three technical committees split off for their separate business meetings, the location of the 2017 summer meeting was discussed.
- Chair-elect, Jeff Koch brought up the idea of holding the meeting in Minnesota. Dale Logsdon said that MN DNR would be supportive of it.
- Bruce Bolding (WA) mentioned possibly hosting the meeting in Spokane, WA. But discussed travel difficulties with getting multiple people out west to Washington.
- Jeff Koch pointed out that since MN is a good possible location within the NCD, we can discuss holding the meeting in WA in the future.
- Steve Gilbert brought up our reporting for the technical committee meeting. We currently report twice a year, at the summer meeting and at the winter meeting. Steve suggested that we only report once a year at the winter meeting, instead of twice a year. A lot of the information winds up being redundant. In addition, field staff generally has more time to work on getting reports written up during the fall and winter months. Secretary Report
- Secretary report (Hilary Meyer): we had an excess of approximately \$2300 from the 2016 meeting. We are planning on donating around \$300 to UNK students that assisted with the meeting set-up, and will "donate" the rest of the profits (~\$2,000) to the ETC since Keith Koupal is the one who did the local arrangements this year. Treasurers Report 08/15/2016 2016 WTC Description Expenses Deposits Balance 01-Jan \$12,771.59 24-Jan sander award \$100.00 02-Aug summer meeting \$2,471.18 \$2,740.00 \$2,571.18 \$2,740.00 12,940.41 Presentation of Past-Chair Plaque
- Chair-Elect Jeff Koch presented past-chair Randy Schultz with a plaque of appreciation for serving as the Walleye Technical Committee Chair for 2015.
- Report of Chair, John Bruner: The Walleye Technical Committee has ~250 members on our email listserv. Randy, Hilary and John updated the operations manual in 2015, which is posted up on the website. John also discussed how the NCD website lost a number of documents during the switch from their old website onto the new website that is hosted by the parent society. The majority of the files on the WTC webpage have been recovered.
- NCD archives are currently located at DC Booth fish hatchery in Spearfish, SD. These files were supposed to be digitally archived, but have not been converted yet. Eventually, these files will be transferred to Brian Borkholder in northern MN to include on the website.
- Chair Bruner reported that he's had a number of conference calls with Melissa Wuellner (NCD President) and that she's trying to get more and better communication between groups in the NCD (WTC, ETC, CTC, State Chapter presidents, etc.)
- Chair Bruner wanted to remind everyone about the Sander travel grant deadline of October 1st , 2016. He also wanted to remind students that apply, to include how their research pertains to walleyes. The WTC generally tries to match funds (\$100 from WTC and then \$100 from the students state chapter), but it's not guaranteed.

New Business

- Charlie Munger (TX) - Mentioned that there is a way to record all the presentations given at a meeting. They can make pod-casts of the slides and audio so that folks can go back to review presentations if they cannot travel to meetings.
- Dale Logsdon – Mentioned using the possibility of doing remote presentations. This might be a way to accommodate more presentations in the future for folks that can't travel
- Dan Isermann mentioned that he has taught workshops and classes using the program Zoom, and that it works really well to do distance work.
- Dan Isermann discussed the difficulty in publishing smaller case studies of more management driven work in the current fisheries related journals. He has discussed with Jeff Koch about being able to publish more qualitative smaller scale studies. The discussion is more about whether a new peer-reviewed publication should go through the NCD or through the parent society, or should it be from work done at the Midwest. Lots of questions up in the air.
- Charlie Munger mentioned that it's possible to do more of a local peer-reviewed outlet. The State of Texas publishes proceedings of all of their meetings, and makes them available to the public/fisheries professionals.
- John Bruner asked Dan Isermann to form a committee on the topic. Dan agreed.
- Dan said that he would go to the parent society meeting and talk to some folks at the FMS meeting as well as at the editorial board.
- Steve Gilbert said that management biologists in WI would likely be very interested in an outlet like that.
- Dan Dembkowski (CTC-WI) mentioned that the CTC discussed doing a block of speed talks, mostly for folks that have preliminary data or have a project proposal they would like to include, at their next meeting.
- Dan Isermann was supportive of having a block of speed presentations. Jason DeBoer was also very supportive of having speed presentations available for both students and professionals. Call for chair-elect-no volunteers. If anyone is interested, please contact John Bruner (jbruner@ualberta.ca) or Hilary Meyer (Hilary.Meyer@state.sd.us)
- Dale Logsdon mentioned doing a workshop on Mille Lacs and the current state of the fishery and different issues fisheries managers are facing.
- There was support from Isermann, Schultz and Koch about showcasing Mille Lacs. Meeting was adjourned at 10:22am

Centrarchid Technical Committee

- See attached report

Rivers and Streams Technical Committee (RSTC)

Report to Iowa Chapter AFS

The RSTC held their annual spring meeting March 29 and 30, 2016 at the Rock Island Conservation Club in Milan, IL. The meeting was well attended by people from state and federal agencies, organizations, universities and private consulting firms. In addition to state chapter reports, there were 15 oral presentations on a variety of river and stream projects in the Midwest, including 3 presentations by Iowa DNR Fisheries staff. The meeting also included a tribute to RSTC founding member Bernie Schonhoff.

The 29th Annual Spring Meeting of the Rivers and Streams Technical Committee will be held on March 14th and 15th, 2017 in Milan, IL, at the Rock Island Conservation Club. This year we welcome presentations on all topics related to the rivers and streams in North Central Division. Greg Gelwicks will be coordinating out-of-state travel for Iowa DNR Fisheries employees and will be compiling information on river and stream research and management projects in Iowa for the Iowa Chapter Report.

Esocid Technical Committee Report

Prepared by Jonathan Meerbeek

Muskellunge Stocking, Tagging, and Population Dynamics (Contact: Jonathan Meerbeek jonathan.meerbeek@dnr.iowa.gov) - Thirteen lakes and impoundments are currently being managed as Muskellunge fisheries. In 2016, approximately 3,400 yearling (mean TL = 13.0") Muskellunge were stocked in 2 natural lakes and 8 reservoirs/small impoundments. In lakes where Muskellunge are used as broodstock, populations are monitored via annual spring gillnetting and population metrics are estimated using the Jolly-Seber model. In 2016, 490 broodstock Muskellunge were captured (318 recaptures) ranging from 26.8-52.2 inches in these lakes. Adult (≥ 30 inches) Muskellunge population estimates for 2015 in the Spirit Lake/Okoboji Chain and Clear Lake were 0.06 and 0.13 fish/acre, respectively. Currently, spring-stocked, pellet-started minnow finished yearlings are used in Iowa's Muskellunge culture program. All yearling Muskellunge stocked into Iowa's natural lakes are tagged via PIT tags prior to stocking (since 2011). In 2011 and 2012, yearlings were tagged in the check and tag retention was poor (52%; 118 of 225 tagged) at 2-3 years post-tagging. Since 2013, all yearling Muskellunge were tagged in the dorsal musculature. Retention (2-3 year) of 46 recaptured yearlings was 98% (45 of 46). Short-term PIT tag retention studies conducted by IA DNR and IA State, as well as other published literature, have found high retention rates for PIT tags inserted in this location. Conversely, PIT tag retention for tags (12mm, 23mm, and 32 mm) inserted in the body cavity of fall age-0 Muskellunge has been relatively poor. Evidence of natural reproduction has been observed in both Clear Lake and the Okoboji Lakes as several yearling Muskellunge have been captured during non-stocked years. Although natural reproduction has been documented in the past, this is the first time that several individuals were captured from each system.

Big Creek/Brushy Creek Muskellunge Emigration Study (Principle Investigators: Ben Dodd Ben.Dodd@dnr.iowa.gov, Ben Wallace Ben.Wallace@dnr.iowa.gov, and Michael Weber mjw@iastate.edu) - Iowa State University, the U.S. Army Corps of Engineers and the Iowa DNR are collaborating on a Muskellunge emigration study at two central Iowa impoundments, Big Creek Lake (814 ac) and Brushy Creek Lake (690 ac). A horizontal bar barrier was installed at the Big Creek spillway in 2012. Brushy Creek has no barrier but is similar in size, depth and watershed:lake ratio, and is serving as a reference lake for this study. PIT tag readers and antennas were installed on the spillways of both impoundments to quantify fish escapement and evaluate the efficacy of the barrier. Nighttime boat electrofishing and gill nets were used to collect Muskellunge in April 2016. We collected 16 Muskellunge at Big Creek and 30 Muskellunge at Brushy Creek Lake and implanted a 32mm HDX PIT tag into the dorsal muscle of each fish. Additionally, approximately 500 age-1 Muskellunge were PIT tagged prior to being stocked into each lake. To date, no Muskellunge have escaped from Big Creek (barrier) whereas two adult Muskellunge (7%) have escaped Brushy Creek (no barrier). No age-1 Muskellunge have escaped from either lake to date. The project will be continued through 2020 to evaluate annual variation in escapement.

Known-age Muskellunge Research Project (Principle Investigators: Derek Crane dcrane@coastal.edu and Jonathan Meerbeek jonathan.meerbeek@dnr.iowa.gov) - The Iowa DNR is collaborating on a Muskellunge known-age project that is being led by Dr. Derek Crane a researcher out of Coastal Carolina University. In 2015, we recaptured 132 Muskellunge of known-age and collected several aging structures on many of those fish. In 2016, we recaptured another 59 fish of known age. Of particular importance, the age structure from known age fish collected from Iowa ranges from age 3-25 and is well distributed amongst the different age classes. The objectives of the study are to: (1) evaluate the accuracy of fin rays as an aging structure, (2) determine if rays from different fins result in the same estimated age, (3) determine if rays from within a fin result in the same estimated age, (4) determine if the location viewed within a ray affects age estimation, and (5) validate cleithra as an aging structure. Known-age structures from Muskellunge managed from several other systems are also being collected. Samples are currently being processed and read.

Yearling Muskellunge Survival Study (Principle Investigators: Jonathan Meerbeek jonathan.meerbeek@dnr.iowa.gov and Michael Weber mjw@iastate.edu) - Muskellunge angling opportunities in Iowa are a direct result of stocking since natural reproduction is extremely

limited. Research studies conducted in the 1990s found that spring stocked minnow-finished yearling Muskellunge survived much better than those stocked in fall and, since 2002, the Iowa Department of Natural Resources (DNR) has exclusively used this approach for all Muskellunge stockings. Initially, success of spring-stocked yearling Muskellunge greatly improved population densities in many of Iowa's lakes. However, since this initial surge, adult populations in some lakes have decreased to levels below management objectives, despite increases in stocking rate and frequency. Mark-recapture studies indicate that individual stocked yearling cohort survival to age-4 was highly variable and has been as low as 7% in recent years. Anecdotal observations at stocking suggest that transportation stress and initial predation may be contributing to these observed decreases in survival. For example, in an effort to prevent the spread of zebra mussels, the Iowa DNR treats all water that leaves their hatchery facilities with the Edwards Treatment procedure. This additional treatment in conjunction with a 6 hour transport time may have potential negative effects on survival of stocked yearling Muskellunge. In addition, stocking stressed yearling Muskellunge directly at boat ramps may be contributing to increased predation (avian and/or fish) and hence, reduced cohort survival. Specifically, managers want to know if the reductions are a result of hauling stress, predation, fish condition, or a combination of factors. The objective of this project was to evaluate post-stocking survival of stocked yearling Muskellunge in Spirit Lake, Iowa and to compare cohort survival via three stocking techniques: (1) stocked directly at ramp; (2) transported to holding tanks at Spirit Lake Hatchery for 36 hours (to allow for hauling stress recovery) then stocked at boat ramp; (3) transported off-shore via boat and stocked. Two fish were never located during the study. Twenty-eight of the remaining 59 tagged fish went missing soon during the dispersal event in late May/early June. Twenty Muskellunge yearlings (mean TL = 12.9") from each stocking technique were implanted with radio tags and fish were tracked periodically up to 108 days post-stocking. Both cohorts of yearling Muskellunge stocked near shore had a strong affinity to cover (bulrush/cattail) and most remained near stocking site 2 weeks post-stocking. All yearling Muskellunge stocked from the ramp experienced low Initial mortality (2.4%). Fish stocked offshore were difficult to detect via radio telemetry and initial mortality could not be estimated. Known mortality over 100-d was 10%, 35%, and 20% for direct, hatchery holdover, and offshore stocked fish, respectively. Mortality events appeared to be associated to periods of fish movement from stocking location site (or predators abundances increasing near stocking area) from late May to early June. Overall, short-term (100-d) mortality was at least 22%. A logistic regression model found that total length at time of stocking significantly influenced yearling Muskellunge survival. Based on these data, production techniques that result in larger fish size will benefit Muskellunge populations in Iowa. The project will be repeated next year and findings will guide Iowa's production and stocking techniques.

Northern Pike Propagation and Stocking (Hatchery Manager: Kim Hawkins)

kim.hawkins@dnr.iowa.gov - Northern Pike propagation is still an important component to manage these fish in lakes, rivers and impoundments across Iowa. In 2016, 875,955 Northern Pike fry and 152,265 Northern Pike 1.5-3-inch fingerlings were stocked. An additional 13,750 2-inch fingerlings were obtained from Jake Wolf Fish Hatchery in Illinois to fulfill stocking requests.

Annual Report for the Iowa Chapter of the American Fisheries Society Regarding Activities of the NCD Ictalurid Technical Committee (February 2017)

Submitted by Dan Kirby, Iowa Representative to the NCD Ictalurid Technical Committee (2/13/2017)

- The annual business meeting of the NCD Ictalurid Technical Committee (ITC) was held February 5, 2017 at the Midwest Fish and Wildlife Conference in Lincoln, NE.
- Kirby did not attend the business meeting.
- Rebecca Krogman is currently serving as the Secretary/Treasurer of the ITC
- Ben Neely, Kansas chapter representative was nominated as new chair for the ITC
- State Chapter Reports were submitted to the ITC Chair for the annual business meeting and these reports summarize catfish activities in the NCD. All these reports will be available in forthcoming minutes of the technical committee. Thanks to Iowa Chapter members that submitted information to Kirby.
- New Business for the ITC continues to focus on Catfish 2020. Catfish 2020 will probably be held the Wednesday and Thursday prior to the Southern Division AFS meeting in Little Rock Arkansas in 2020. An exact date is not set, but these meetings are typically in late winter or early spring. A list of committee chairs and help is being compiled and folks are encouraged to help.
- Students, university faculty, researchers, and biologists should begin thinking about Catfish 2020 and the excellent opportunity it provides for research presentation. The previous two symposia proceedings have been very successful. Catfish 2010 proceedings highlighted “research needs” to guide the advancement of catfish conservation and management (it is a good resource for those considering catfish research ideas).

Fish Culture – no report

NCD – no report

Reservoir – no report