Final Minutes of the
MICRA PADDLEFISH/STURGEON COMMITTEE WINTER MEETING
Sheraton Westport Hotel, St. Louis, MO
January 13 & 14, 2004

Tuesday, January 13, 2004 Meeting Convened 1 pm

Attendance: 20 participants over a two day period including: Bobby Reed (LA), Joanne Grady (FWS), Trish Yasger (MO), Ann Runstrom (FWS), Chris O'Bara (WV), Jeff Quinn (AR), Gerald Mestl (NE), Jason Sorenson (SD), Duane Chapman (USGS), Jan Dean (FWS), Greg Conover (FWS), Ed Heist (SIU), Aaron Delonay (USGS), Robb Todd (TN), George Scholten (Tenn Tech); Matthew Schall (SIUC), Rick Mayden (SLU), Aaron Schrey (SIUC), Mike Bessert (UNL), Greg Conover and Duane Chapman.

Agenda

- ► Overview of 2003 activities (report of the chairman)
- ► Project update: paddlefish stock assessment
- ► Committee budget development
- ► Strategic Plan Implementation update
- ► Committee operating protocol
- ► Strategic Plan Development for shovelnose sturgeon
- ► Regional Paddlefish Management Plan Updates
- ► Technical Presentations

Call to Order, Introductions and 2003 Overview

The winter 2003 meeting of the MICRA Paddlefish/sturgeon Committee was called to order by chairman Bobby Reed at 1 PM on January 6, 2003 at the Sheraton Westport Hotel, St. Louis, MO. Approval of Minutes from last year's meeting. (Bobby sent to us in Feb) Rob Todd motioned. Jeff Quinn seconded. Approved by consensus.

Procedural issue – speakers need to provide notes to Bobby for the minutes. Last year agreed to take turns taking minutes. Butch took notes for IL last year. Bobby would like to have system in place so we know ahead of time who is responsible for meeting minutes. Will provide text for this in draft committee SOPs.

Report of the Chair

2 MICRA Excom meetings have occurred since our last meeting. Bobby prepared committee summaries for both of these meetings (see handouts).
Board approved $7000 in Little Rock Meeting in 2003. We still have some of this money left. Greg Conover represented Bobby Reed & committee at MICRA meeting at December 2003 Midwest meeting. Exec Board approved a total of $ 22,000 at this

meeting. Jo's shop is getting $5000 for computer database stuff. Greg's shop is getting $10K for tag reading. There is $2-3K for tags & equipment. $2K for subbasin management plans. ExCom did not approve $2K to support COE pallid sturgeon meeting in July 2004. This meeting was a surprise to the fish chiefs. Bobby would like MICRA to support this symposium; however, COE is in for a bit of surprise if think they can pull off a meeting in July. (Bobby handed out portion of minutes from Dec. 2003 ExCom meeting dealing w/ our committee.)
Other Chair Activities – LMRCC met in June. Started working on Lower MSR Basin management plan for paddlefish. TX in basin (Red River) stocked ~ 1 million fish. OK is stocking & tracking fish. Jeff Quinn will give presentation on AR's program tomorrow. Group is getting new information such as ages to add to knowledge from historical data. MS has little data, paddlefish not a priority. Group has general idea of where to go, will get it done in next 1-2 years. Plan will have to be flexible & open-minded. Mark Boone filled in for Vince at that meeting. Doug Henley was there from KY.
Other Chair Activities – Bobby is also on Excom 'cause he's chair of AR/Red River Basin. He represented Doug Nygren at recent Mississippi River Panel ANS meeting in New Orleans.
Correspondence 1-Doug Carlson (NY) correspondence regarding their paddlefish stocking program (see handout). Chris O'Bara commented that there's also a tribal subsistence fishery there and that the reservoir was small.
Correspondence 2 – involved Lon Wilkens paddlefish CWT effects on behavior study.
Correspondence 3 – MO tag retention study Trish Yasger.
Last Year commented that would include list of completion of items in Strategic Plan in meetings. 1) Draft Strategic Plan done (thanks Scott Hale!). Bobby wants to get cover on it & get it on our web page. 2) Need SOPs for the committee (had listed 09/01/03 as completion date for the Strategic Plan). Bobby worked some w/ Exec board on MICRA Bylaws (adopted 11/07/03) – will be guide for how committee will operate. Needs to include how agenda is put together, 3) Still working on group reporting of harvest & trade. List of needed information went to state chiefs. 4) Update subcommittee directory (in progress). 5) Update paddlefish bibliography – someone needs to take the list & provide any of our additional information. 6) Expedite updates of website. (Jerry is good at updating site if information/pictures are sent to him) 7) Plan paddlefish symposium for 2004 annual AFS meeting. May need to look at 2006 AFS meeting. This needs to be a group project approach. Just the basin reports would make a good subset for the symposium. We need to develop a committee for this. 8) Continue work w/ stock assessment for our states.

Paddlefish Stock Assessment Update

Greg's shop is pretty far behind on tag reading. They're currently recruiting for a tag reading technician. Have money from FWS & MICRA to support this position. Jo was working with Debin Benish of Delta Systems on the database. She added some data QA/QC components to data entry forms. Debin has been out due to illness. Jo will start work with another programmer at Delta Systems next month. Plan is to have tags read through 2002 to Jo by June 1st. Jo will be working w/ Delta Systems on programming in

interim. Plan is to have new CD by July 1st w/ query screens, data through 2002, and data errors fixed. Jo distributed CDs with updated dataset.
Group would like to see Jo & Greg produce an annual report for the committee & ExCom. Need attitude that this is a stock assessment program, not just a tagging program. Status of the project, not just what Jo & Greg are doing. Guys give bulleted lists to their fish chiefs every year. ORFMT produces March document. Jo agreed to produce a report for the fall meeting. Greg requests group submit their 2002 & 2003 data as soon as possible. Also passed around a needs list for equipment repairs and tags.

Budget Development

Bobby would like us to stay about a year ahead in planning our committee budget. Will Greg need $10K in perpetuity for tag reader? Maybe. Have used our own FWS $$ to fund the tag reading since 1997 w/ some funds from MICRA. Committee needs that work done, its very important. We need annual reports done every year as we did the first few years.

Break

Strategic Plan Review & Planning

Objective 1.1
Strategy 1.1.1 Action Item Review current MICRA paddlefish genetics plan written by Kim Graham, Jerry Rasmussen, and Jeff Koppelman. Current plan does cover using fish from the same sub-basin/basin. Ed Heist has recommendations for hatcheries. If collecting new fish every year than can go with 5-10 fish plan. Are fish going in where fish already are? If so, that changes some of your broodstock concerns. Bobby – LA does not use tagged fish for their broodstock, they always collect fish from the wild. Most states do this. Chris O'Bara suggested we need to write some hatchery operation guidelines. Ed – if we archive tissue samples from broodstock we use – can find out parents later. Similar formula to use large number of males, need to be careful the males are all productive or might as well have used a small # of males. Jan Dean – points out that might need to wait for second cleavage to see if their fertilized. Maximize the pop size is to have reproductive potential of parents equal. Want to have equal numbers of progeny for each family. Jan still wants to know what is the right point to combine eggs. Bobby – MO says 48 hours, they're ready to move eggs then. Aaron – more endangered the fish is… the more worried you'd be about equal family sizes. (Note: Ed Heist has student who's going to be working on genetics of paddlefish. Will cover later.) Bobby is marking Strategy 1.1.1 as an action item – sending back out to states, take a look at it & see if its adequate. Scrutinize Table 1 – comment on locations. Sub-basin groups should prioritize their drainages.
Deadline – March 31, 2004.

Strategy 1.1.3 Do we want to wait 'til sub-basin reports are done to start working on updated genetic analysis? Probably not. Should start collecting samples now.

Ed Heist comments - A good location would be 30-50 fin clips. Ed Heist uses 95% ethanol (not denatured stuff). He's doing PCR work. Ed sends out vials w/ little instruction sheet w/ directions. Ed can turn around 50 fish in 4-6 weeks. MICRA's genetics plan also calls for mitochondrial DNA – Ed can do it too. Ed will send a proposal for funding a basin-wide. If any states can send it a little $$ for parts of it/regions that would be great too.

Strategy 1.1.5 Action Item Bobby will send email to all the states requesting historical hatchery stockings of paddlefish . Should be in central location….Bobby thinks Jo's shop is the place to go. Turn around time – March 31st for states to get information to Jo. Bobby wants summary from Jo for next meeting.

Objective 1.2
Strategy 1.2.1 In progress. Reporting needs to state fish chiefs.
Strategy 1.2.2 Action Item States will send their harvest data to Robb Todd for compilation. Need trend line information for committee…not specific fisherman information. Deadline – March 31, 2004.

Objective 1.3 Some of this covered w/ basin plans. No assignments.

Objective 1.4
Strategy 1.4.1 Action Item Jeff Quinn is wanting to double tag fish & is interested in using this technique. Bobby does something like this by making small incision (1 suture wide) in fish. Aaron – can use endoscope, boroscope, ultrasound. Swab type test in development. Todd says Bettoli's been doing some of this too. Aaron - seeing gynogens in sturgeon sampling – same fish w/ both ripe eggs & testes. Jan – pulling eggs/sperm for staging – real difference internally w/ blunt probe that's not true w/ sturgeon….probe turns quickly left or right for male, push through a membranous membrane into female uterous structure to extract eggs. Should tell w/i a couple of cms. Jan will provide his notes to the group so everyone can try with their fish. Jan looked at length, weight, and girth.
Action Item assigned to Jan, Bobby, Jeff & NE/SD for 2004 field season.

Objective 1.5
Strategy 1.5.1 Jerry Rasmussen has this information.
Strategy 1.5.2 Addressing strategic plan goals.
Strategy 1.5.3 Committee could ask folks annually to provide a one page proposal.
Strategy 1.5.4 Bobby mentioned award donors/project sponsors for paddlefish project. Bobby still has 3-400 paddlefish pins. If need/want some, let him know. Bobby will work w/ Jerry on this front & ask about 501(c)(3) status.

Objective 1.6
Strategy 1.6.1 There is an HIS blue book for paddlefish. Duane says there's a research need for winter habitat information. Ann did some limited tracking in winter. Did student in OK track fish in winter? Gene Wilder at Texas Tech has some tracking data too. Duane Chapman would like everyone's grey literature with habitat information.

Goal 2

Add Strategic Plan to website.
Objective 2.1 Action Item SOPS. Bobby was waiting on MICRA by-laws & constitution. Assigned to Bobby. Draft SOPS w/ April 30th deadline.
Objective 2.2. Working w/ Robb's harvest information & Jo's summaries of the database.

Objective 2.3
Strategy 2.3.1 Action Item Bobby will send out email to group & ask for contacts in various agencies asking for law enforcement contact information. Then he'll prepare letter of introduction & invitation to any future meetings. Agents might be interested in learning about information we have, they might be interested in genetic technique information. Deadline – April 30.
Strategy 2.3.2 Need to poll enforcement officers to see if they see a need for this strategy. Add to letter in 2.31. Ask them how we can help them.
Objective 2.4 Talked about this topic earlier.
Objective 2.5 Bobby will send note to state reps informing them that $$ is available if restricted travel funding is prohibiting their attendance at the meetings. Bobby will add this information to Members Roles in Objective 2.1.

Objective 2.6 Action Item Bobby April 30th deadline.
Objective 2.7 Update webpage. Email your stuff to Jerry Rasmussen.

Objective 2.8 Action Item Paddlefish bibliography. Assigned to Gerald Mestl. Will discuss with professor. Deadline – April 30.

Strategic Plan Development for shovelnose sturgeon?

Rob Todd – yes. Do we have enough current information in next year? Bobby will use paddlefish plan as draft and send it out to group for comment. Bobby has Sept. 1 deadline to get draft plan out to committee members. Rob will help him draft it.

Meeting Adjourned at 6 pm.

Wednesday, January 14, 2004 Meeting Convened at 8 am.

Present: In addition to Tuesday's attendees: George Scholten (Tenn Tech); Matthew Schall (SIUC), Rick Mayden (SLU), Aaron Schrey (SIUC), Mike Bessert (UNL). Note: Greg Conover and Duane Chapman left Tuesday pm.

Sub-Basin Reports

Chris O'Bara – ORFMT

Group did such a good job w/ 2001 paddlefish plan, chiefs want it for other OHR species too!
Now have on-line SQL Server for all OHR fishes data. All their Paddlefish data for last 3-4 years is on there.
Struggled to have all their commercial fishing data reported in same way. The 2001-2002 season say an 8% decline in roe harvest, but a 72% increase in flesh harvest.
Only OHR broodstock are allowed for OHR stocking.
Conducted 12-18 month creels in 2003 on 8 tailwater areas.
Tagged 1580 paddlefish in 2002-2003. Have rewards up to $1000. Only 88 recaps were carrying CWT's – indicates large population size. They get more jawtag returns than CWTs, because their guys are not going to save rostrums. Paddlefish show an affinity for the pool where originally tagged
Shovelnose sturgeon – Commercial fishing in IN, KY & on Wabash in IL. Les is PIT tagging fish on Wabash & working well w/ commercial fishers. OH & WV started restoration stocking/translocating fish. WV going to expand to other OHR tributaries.
See ORFMT 2003 annual report handout in the presentations.

Bobby & Rob – LMRCC

OK, LA, AR, TN getting stock assessment data, age & growth, creels.
There is significant illegal caviar activity in TN. Caviar buyers required to have wholesale dealers license to buy eggs. Law enforcement personnel used fishermen's records to find illegal activity. Hales of Royaloff Caviar convicted. Admitted to possessing $400K of illegal caviar. Commercial anglers admitted to illegally harvesting pallid sturgeon & to being able to identify them in the field.
Several fish chiefs meeting later this month to discuss commercial sturgeon harvest & regulations.

Gerald Mestl– MRNRC

Cliff Stone is now a Regional Supervisor. Jason Sorensen has been filling in for Cliff. South Dakota should get Cliff's old position filled sometime this year. Group should be able to get a sub-basin report done in the next year.

Trish Yasger– MDC

Conducting a long-term coded wire tag retention test because only 7% of couple thousand paddlefish picked up below Bagnell Dam were CWT recaps. Trying to keep paddlefish in ponds on hatchery grounds, but having problems w/ otter & osprey predation.

Ann Runstrom - USFWS

shovelnose sturgeon harvest information (3 handouts). Pool 9 = 90% of WI shovelnose harvest & reflects one fisherman. Previously he fished enough to satisfy his meat market…but now he keeps fishing for roe and has additional market for flesh. Now other folks are interested, so harvest may increase. Last graph shows data for UMRCC states. Bobby glad fish chiefs will be working together on this shovelnose issue.

Thanks to presenters for their presentations & to Jo for meeting arrangements.

Meeting adjourned at 12:45 pm.

APPENDIX A (presentations, abstracts, and state reports)

Kansas State Report

From: Tom Mosher [tomm@wp.state.ks.us]
Sent: Friday, January 16, 2004 3:30 PM
To: Bobby Reed
Subject: State report - KANSAS

Bobby,
It was good to see you last week. Hope your meeting went well. I should have at least sent you a report for Kansas. Actually there is nothing to report. We sampled no wild fish and tagged no hatchery fish in 2003. We recorded a sport harvest of 1850 fish at Chetopa Dam on the Neosho River and 3 fish on the Marais des Cygnes River. Sorry I couldn't make it, there's just too much else going on with ANS and administrative needs.

Tom Mosher
Fisheries Research Coordinator
Kansas Wildlife & Parks
PO Box 1525
Emporia, KS 66801
620-342-0658

New York's paddlefish recovery program in Allegheny Reservoir

Our objective was to establish a reproducing population, and we have a couple more years to wait for individuals stocked from 1998-2003 to reach maturity. The Reservoir extends upstream almost to the historic spawning area for paddlefish, but paddlefish

disappeared long before the reservoir existed. Allegheny Reservoir is about 30 miles long and its boundaries are clearly multi-jurisdictional.

Netting is completed annually near shore in the deeper part of the reservoir (in PA) by the US Army Corps of Eng., and paddlefish have not been encountered. The New York portion of the reservoir is under jurisdiction of the Seneca Nation, and we don't have cooperative sampling programs. We thought that the gill nets in PA would encounter at least a few paddlefish. Even though the nets are set near bottom to catch walleye, we expected some catches.

Our evidence of paddlefish survival is from incidental record from anglers: one in 2000, 5 in 2001, 9 in 2002 and 1 in 2003. Only 4 of these 16 reports were for paddlefish that were still in the impoundment. Perhaps the best indication of our success will be recognized below the reservoir (in PA), as most of the incidental reports are coming from this downstream area.

Our initial stocking plan was for 5 years with 500 paddlefish/year. We stock in August with the average size at about 14" TL or 200mm ETF length. The reservoir has substantial fluctuations in water level and a fishery dominated by walleye.

Stocking history

date	no.	TL (in)	ETF (mm)
9/19/98	50	15"	226
8/6/99	500	13.4"	258
9/15/00	132	16.5"	211
8/9/01	1900		
8/7/02	762	14	195
7/31/03	778	13.1	196

The most important question here is: should we argue for continuing the stocking for another 3 years, or should we realize that things aren't going particularly well? The costs of the program are very low and we really only have to convince our administrators that we have confidence of its worth. If we quit now and wait for 5 years to detect spawning runs, we certainly will have abandoned the prospect that we are part-way there and just needed a little more foundation.

Doug Carlson
NYSDEC, 317 Wash. St.
Watertown, NY 13601

Dec. 2003 phone 315-785-2262

TECHNICAL PRESENTATIONS

Pallid and Shovelnose Sturgeon Genetics.

Ed Heist and Aaron Schrey
Fisheries and Illinois Aquaculture Center
Southern Illinois University Carbondale
Carbondale, IL
62901

We are using multiple microsatellite loci to investigate population genetics of pallid sturgeon and shovelnose sturgeon. Microsatellite DNA is being screened at multiple loci to determine multilocus genotypes for both pallid sturgeon and shovelnose sturgeon. These data are being used in both traditional population genetic studies and in more modern individual-based assignment testing, with both likelihood and model-based methods. The combination of techniques allow for a powerful genetic investigation of pallid sturgeon and shovelnose sturgeon focusing on identifying individual sturgeon to species.

To date the research has focused on sturgeon from the Middle Mississippi River, a portion of the pallid sturgeon's range which has not yet been thoroughly investigated with genetic markers. We are using the CI of Willis *et al*. (2002) to provide initial identification of sturgeon in effort to exclude as many phenotypically intermediate putative hybrids as possible. This will ensure the best possible baseline data for pallid sturgeon and shovelnose sturgeon source group definitions.

We have analyzed 69 shovelnose sturgeon and 53 pallid sturgeon from the Middle Mississippi River at 12 microsatellite loci . Results show significant genetic differentiation between pallid and shovelnose sturgeons, with promising assignment success. The data support separate pallid sturgeon and shovelnose sturgeon gene pools within the Middle Mississippi River. These analyses show that it is possible for data from genetic markers to discriminate more reliably identified pallid sturgeon and shovelnose sturgeon. The results to date are very encouraging. We have genetic data which finds strong evidence for two groups in the Middle Mississippi River and these two genetically identified groups largely agree with the initial morphological identification.

In addition, we presented initial results from a parentage analysis study of hatchery reared pallid sturgeon progeny. Multiple microsatellite markers were used to identify the most likely parents of eight progeny from a candidate pool of 88 sturgeons. Several of the candidate parents were excluded with a high level of confidence for all progeny, thereby reducing the number of candidate parents that were likely to actually be parents. We also performed assignment testing of this data set, which could be used in the future to identify hatchery reared pallid sturgeon that are not tagged or have shed their tags. The assignment testing effectively grouped all eight progeny to a hatchery pallid sturgeon group. However, the ultimate success of this technique requires investigation of non-brood stock fish from the Missouri River.

Genetic Identification of Paddlefish Management Units Inferred from Multiple Microsatellite Loci

Ed Heist and Matt Schall
Fisheries and Illinois Aquaculture Center
Southern Illinois University Carbondale
Carbondale, IL
62901

Jan Dean
Natchitoches National Fish Hatchery
Natchitoches, LA
71457

The MICRA paddlefish genetics plan defined a management unit (MU) as “a set of populations that exchange enough individuals between them to keep them statistically homogeneous but are functionally separable from other MUs”. Identification of management units can be performed by scoring genetic variation at molecular markers and using statistical approaches to determine whether marker frequencies differ among sampled locations. Identification of paddlefish management units is important to avoid some of the genetic hazards associated with captive release of paddlefish including outbreeding depression due to loss of adaptation or coadaptation and genetic swamping. Previous studies of genetic structure in paddlefish have been hampered by insufficient numerical sampling and/or insufficient genetic variation of the molecular markers employed. We used four highly polymorphic microsatellite loci to examine genetic stock structure in paddlefish from four geographic samples: Bayou Nazpique (n=48), Red River near Natchitoches, LA (n=48), Red River below Dennison Dam Oklahoma (n = 38), and Neosho River, Oklahoma (n=41). We examined allele frequency at four microsatellite loci with 7 to 20 alleles per locus and observed heterozygosity of 0.40 to 0.95. Analysis of molecular variation (AMOVA) indicated that all pair-wise comparisons among samples were significant except the two Red River samples. The greatest genetic difference was found between the Neosho River sample and Bayou Nezpique. We concluded that at least three management units were present (Red River, Neosho River, and Bayous Nezpique) and that the two Red River samples were consistent with a single management unit.

THE LIFE HISTORY OF PADDLEFISH *Polyodon spathula* IN THE MERMENTAU RIVER BASIN, LA. **Bobby C. Reed. Louisiana Department of Wildlife and Fisheries, Lake Charles, LA. Email address: reed_bc@wlf.state.la.us**

Paddlefish from the Mermentau River basin were sampled from August 1990 through March 2003. Migration of males from the summer habitat of natural marsh lakes to the upstream reaches of Bayou Nezpique to spawn precedes that of females and begins in December/January. Actual spawning was determined to occur in February and March when water temperatures reach 13 to 15 C, based upon the capture of running ripe females, spent females and one day old "swim up" paddlefish larvae. Sex ratios of paddlefish were skewed at the spawning grounds, ranging from 2.1 to 1, and 5.2 to 1, males to females, respectively. This is indicative of a spawning periodicity of two to five years as reported in several other studies. Telemetry and tag return results indicated males make the spawning migration annually and may move up to 40 km in a single day. River discharge is an important spawning cue and in 1994, 11 radio tagged fish aborted spawning efforts when a flood pulse failed to occur and surface temperatures reached 18 to 19 C. Males mature as early as age 4 with 100% maturity by age 7, while some females mature as early as age 7 with most maturing by age 10. Total fecundity was determined for 90 females spawned for propagation efforts at state and federal fish hatcheries from 1991 to 2003, and ranged from 38,400 to 226,800 ova, with a mean of 125,040 eggs per spawn. Spawning females ranged from 8.2 to 15.0 kg in body weight with a mean of 11.62 kg. Ovary weight in mature females accounted for 17.8% of the total weight of the fish. Recovery of the paddlefish population in the Mermentau system has been slow and steady since commercial fishing ended in 1985.

A Report of the Commercial Roe Harvest 2002-03

Prepared by:

Bill Posey
Malacologist/Commercial Fisheries Biologist

Commercial Roe Harvest
2002-03

Executive Summary

Paddlefish and sturgeon provide an important commercial fishery in Arkansas. Arkansas currently manages its paddlefish and sturgeon through a combination of observations of commercial catch, licensing, reporting, minimum size limit, season, and closed water restrictions mandated by the Arkansas Game and Fish Commission. Several new regulations to aid in the management of this fishery were passed in 2002 and became effective December 1, 2002.

A total of 59 permits and 480 net tags were sold to Arkansas paddlefish fishermen for the 2002-03-harvest season, totaling $28,700.00 of income to AGFC. An additional $850 in Commercial Fishing Permits was also sold in conjunction with the roe harvest in 2002-03.

The total reported harvest of paddlefish and sturgeon eggs was 14,856 pounds (7.43 tons) from November 2002 - April 2003. Paddlefish eggs contributed the largest portion of the harvest, contributing 99.7 % (14,813.03 lbs) while sturgeon contributed 0.009 % (1.29 lbs) and bowfin harvest was reported at 42.49 pounds (0.3 %). Approximately 4,459 fish were necessary for this quantity of roe.

The Arkansas River contributed to the most harvest of roe in the 2002 harvest season, with a total reported harvest of 5525.95 lbs, a contribution of 37.2% of the total harvest. The White River was the second most harvested river (4,024.7 lbs). Harvest from the Mississippi River contributed the third most harvest (3,629.5 lbs). Other rivers contributing to the harvest include Ouachita, St. Francis and Black, each contributing 772.5, 453.9 and 282.7 lbs, respectively. Roe buyers also reported limited harvest from an oxbow of the White River and two small man-made reservoirs when combined contributed only 0.9% of the total harvest of roe.

Reported harvest during March contributed the most harvest of the six-month harvest season, contributing 31.7 % (4,715.1 lbs) of the total harvest (Figure 3). December had the second highest harvest, contributing 24.8% (3,680.1 lbs) of the total harvest.

Conclusion

Paddlefish harvest was again intensive during the 2002-03 roe-fishing season and was reported as greater than the 2001-02 harvest. However, the total harvest for the 2002-03 season is likely less than the harvest total from 2001-02 since the reporting requirement for harvest did not begin until three months had lapsed in the 2001-02 harvest season

A Summary of the Pool 13 Special Paddlefish Harvest Season, Arkansas River

Bill Posey

Malacologist/Commercial Fisheries Biologist

November 2003

Executive Summary

In February 2003, the Arkansas Game and Fish Commission (AGFC) conducted a special harvest season for paddlefish (spoonbill) on Pool 13 of the Arkansas River. Fishermen were allowed to harvest fish from the Arkansas portion of Pool 13 for 10 days beginning on February 12 and ending on February 21, 2003.

The Arkansas River from Dardanelle Lock and Dam to the Oklahoma State Line was closed to commercial harvest of paddlefish in December 2001 by a special order of the Arkansas Game and Fish Commission. In an effort to determine various population characteristics of paddlefish in the Arkansas River, a special harvest season was conducted to allow spoonbill fishermen an opportunity to fish an Arkansas River pool that remained closed. The goals of the special harvest season for Pool 13 were to determine size and age at sexual maturity, sex ratio, gravid female to non-gravid female ratio and commercial exploitation.

All fishermen were required to check in and check out daily with AGFC Biologists that were stationed at the Lee Creek Access Point. Each fisherman was logged in and out each day to determine the amount of time spent harvesting fish each day. Harvest was allowed from 6:00 a.m. until 4:00 p.m. Eighteen Fisheries Biologists worked the check station during the 10-day season. Each harvested fish was measured for length, weight, sexed and checked for visible anomolies and coded wire tags. Fish sexes were determined for most fish by visually inspecting the testes.

Thirteen fishermen participated in the special harvest season and spent a combined total of 401 hours on the water (average = 30.8 hours). The greatest fishing pressure occurred the first two days and the number of fishermen began declining throught the rest of the season.

A total of 1,558 fish were harvested during this special season. Of these, 579 (37.2%) were egg-bearing females, 646 (41.4%) were non-egg bearing females, 317 (20.3%) were males and 16 (<1.0%) were unknown.

Conclusions
The number of fishermen that participated in the Special Harvest Season was lower than expected, considering there were 34 licensed roe takers in Arkansas that month while only 13 participated. The 1,000-yard limit for nets was favorable to this season since some fishermen arrived at the check station at or near the checkout time of 4:00 p.m.

Preliminary data suggests that harvests at these levels could be unsustainable to the paddlefish populations in Pool 13. The fact that harvest declined so rapidly following the third day of fishing shows the potential for overharvest in a short period of time in this pool.

Ozark Pool Paddlefish Population Evaluation

2002-2003 Project Progress Report

Project Funded by the State Wildlife Grant #T1
Report STP2003-08

Photo courtesy of Fred McClure

Jeffrey W. Quinn
Stream Fisheries Biologist

Bob Limbird
District Fisheries Biologist

Frank Leone
Assistant District Fisheries Biologist

Paul Gaulin
Fisheries Technician

1 December 2003

Executive Summary

We studied population characteristics of paddlefish (*Polydon spathula*) in the 4,071-ha Ozark Pool of the Arkansas River during a commercial fishing moratorium. We used large-mesh gill nets (5-, 6-, and 8-inch bar mesh) to sample paddlefish from November 2002 to March 2003. A total of 405 net sets and 8,543 net hours of effort were expended capturing 1,066 unique paddlefish and recapturing 75. Fish were measured for eye-to-fork length, and marked with individually numbered jaw tags. Fish were sampled during three time periods, November-December, January-February, and March-April. A high flow event occurred on March 18th that prompted us to end the study for the year. Using the Schnabel multiple-census estimator, a preliminary estimate of the recruited population is 5,025 fish with 95% confidence interval of 4,505-5,681. Mean catch per unit effort of paddlefish was 2.3 fish/108 m^2 of webbing/24 hours. Catch per unit effort was greatest near the full moon of each month. About 50% of the paddlefish captured were greater than the 36-inch minimum length limit, and length frequency distributions were very similar for 5- and 6-inch bar mesh. Paddlefish were found at a variety of depths, and no relationship exists between the size of paddlefish and depth captured. Recaptures indicated that paddlefish move throughout the navigation pool, and tag loss of the jaw tags appears to be minimal.

Biogeography and Population Genetic Structure in the North American endemic fish genus *Cycleptus*

By Mike Bessert

The blue sucker, *Cycleptus elongatus*, is a widespread catostomid that occurs in large rivers throughout the Mississippi and Rio Grande basins - as well as several disjunct coastal drainages - in central North America. Although it accounts for the most biomass of any fish taxon in parts of its range, it has been poorly studied. Indeed, the genus had been considered monotypic for over 175 years until recent efforts (Burr and Mayden 1999, Buth and Mayden 2001) provided morphological and molecular evidence for polytypy. This project will assess rangewide mtDNA diversity to resolve evolutionary relationships within the genus and test larger hypotheses of biogeography in central North America. On a more recent scale, extant intradrainage population dynamics (ex. gene flow; effective population size) will be assessed with hypervariable microsatellite markers. This study will provide valuable phylogenetic and natural historical information that is currently unknown.

ORFMT Technical Committee 2002-2003 Paddlefish Interim Progress Report

Introduction: The Ohio River paddlefish population is a shared fishery resource at risk of overexploitation due to recent changes in global markets that have increased the incentive for harvest. Our goal is to restore, enhance and protect the paddlefish population in the Ohio River Sub-basin to ensure sustainable use and increase public awareness of paddlefish issues. The Ohio River Fisheries Management Team (ORFMT) Technical Committee developed an overview of paddlefish status in the Ohio River Sub-basin in 2001.This annual review of data collected and observed during the current fishing year (2002) is to assure managers and administrators that exploitation of paddlefish in the Ohio River does not exceed sustainable limits.

MICRA Participation: ORFMT Technical Committee members participated in the fall 2002 MICRA Paddlefish/sturgeon Subcommittee meeting in St. Louis, Missouri. This meeting was very important as the committee continues to develop a strategic plan to direct it over the next few years.

- March 18-20, 2002: Spring Meeting
    - Stock assessment database distributed and reviewed
    - Norm Stuckey identified renewed sturgeon concerns
    - Updates on MICRA status, CITES, and law enforcement
    - Development of a 2003-2008 strategic plan
    - Discussion of standardized reporting of harvest and trade
- ORFMT Participation in Stock Assessment
    - ORFMT members continued to sample paddlefish for the MICRA study
- Other 2002 Activities

- Completed update of stock assessment database (in ACCESS 97 and 2002)
- Received comments on strategic plan draft
- Planned January 2003 meeting

- Upcoming 2003 Activities

    - Complete 2003-2008 strategic plan
    - Complete Standard Operating Procedures for sub-committee
    - Develop standardized reporting for harvest and trade
    - Update sub-committee directory
    - Distribute updated paddlefish bibliography
    - Expedite updates of website
    - Plan paddlefish symposium for AFS 2004
    - Begin work on sub-basin reports for Upper Mississippi, Lower Mississippi, and Missouri river
    - Investigate funding for sub-committee activities
    - Continue stock assessment
        - Fall meeting

Commercial Fisheries: Commercial fishing for paddlefish has a strong tradition among the lower Ohio River fishers and is presently permitted in Kentucky, Indiana, and Illinois. Commercial fishers licensed by these states have been required to report harvest of paddlefish eggs and flesh on a monthly basis since 1999 through a mandatory catch reporting system. This information is for the 2001 fishing year (January-December 2001).

- Commercial Fishery Summary

    - Commercial fishers licensed in Kentucky (resident and non-resident) accounted for 95% of the flesh harvest and 83% of the egg harvest
    - Flesh harvest increased 71% (224,118 kg (494,096 lb)) an additional 65,009 kg (143,320 lb) harvested
    - Egg harvest declined 8% (9,265 kg (20,426 lb) representing a decrease of 806 kg (1,777 lb)
    - Egg harvest continues to peaked during November-December (3,452 kg (7,610 lb) and March-April (3,897 kg (8,591 lb), with similar harvest weights during both periods
    - The estimated wholesale value was US$244,009 for flesh and between US$924,300 and US$1,848,600
    - The estimated retail value for caviar reported harvested from the Ohio River in 2001 was US$4.7 million

Paddlefish Stocking: Paddlefish were stocked by New York, Pennsylvania, and West Virginia during 2002. All fish (n=10,836) were produced from Ohio River broodstock. Fish stocked by the New York Department of Environmental Conservation were acquired from Kentucky State University and were progeny of individuals collected from the McAlpine Tailwater. West Virginia acquired fish from the R. C. Byrd Tailwater. These fish were stocked in the Allegheny, Monongahela, Little Kanawha, Kanawha, and Ohio rivers from July-November. All fish were implanted with coded wire tags for future identification.

- Paddlefish Stocking Summary

    - New York
        - Allegheny River, Kinzua Reservoir, 762 stocked, mean length 195mm
    - Pennsylvania
        - Allegheny River, Pools 2 and 4, 3,550 stocked, mean length 145 mm
    - West Virginia
        - Kanawha River, Marmet Pool and Kanawha Falls, 2,000 stocked, length range 169-279 mm
        - Little Kanawha River, Newark and Elizabeth, 400 stocked, length range 207-232 mm
        - Monongahela River, Opieska Pool, 206 stocked, mean length 279 mm
        - Ohio River, Willow Island, Hannibal, Belleville pools, 1,771 stocked, length range 215-278 mm

Creel Surveys: Several creel surveys were conducted on the Ohio River in conjunction with the Ohio River Mainstem Study during fall 2001 and spring/summer 2002. Paddlefish sport snagging is legal in the Kentucky and Indiana portions of the Ohio River from February 1 through May 10. Anglers seeking paddlefish were interviewed during this period to document sport fishing effort and catch. Paddlefish sport fisheries exist at several spots along the Kentucky and Indiana border. Three of these sites were surveyed during 2002.

- 2001–2002 Paddlefish Angler Survey Summary

    - Markland had the highest paddlefish catch (829 fish; 0.23 fish/h) and effort (1614 hours), with all fish harvested (no released documented)
    - Fifteen anglers at JT Meyer caught 541 fish at a rate of 1.44 fish/h (106 hours pressure)
    - A large amount of snagging occurs at night at J. T. Myers and our angler survey underestimates catch and effort
    - McAlpine documented no effort for paddlefish and the harvest of 50 fish is likely incidental
    - JT Meyer (n=104) and McAlpine (n=10) each had out-of-season harvest documented
      Lengths of paddlefish harvest at these three tailwaters ranged from 324 mm to 950 mm

Standardized Paddlefish Surveys: ORFMT biologists surveyed paddlefish in the spring of 2002 using standardized sampling procedures and gill nets. A tailwater area was delineated to each state for long-term monitoring. The tailwaters sampled this year in the Ohio River included R. C. Byrd (WV), Greenup (OH), McAlpine (KY), and J. T. Myers (IL).

- Standardized Paddlefish Survey Summary

    - Netting surveys conducted from January through mid-April
    - Biologists fished 93 120 minute gillnet sets and caught 397 paddlefish with a CPUE averaging 0.079±0.066
    - Length frequency distribution for the Ohio River ranged between 350 and 1050 mm
    - Fourteen age classes were present ranging from 2-15 years
    - Most paddlefish (70%) were between 10 and 14 years of age, with the frequency of paddlefish older than 10 years declining rapidly

- Total annual mortality as estimated from catch curves increased from 47% observed in 2001 to 54% this year

Paddlefish Tagging: ORFMT biologists continue to tag paddlefish with CWT, as defined by MICRA protocol, and numbered aluminum jaw tags.

- During 2002-2003, 1,580 wild paddlefish were examined by ORFMT biologist from survey nets and commercial fishing returns
- Of these returns, CWT's were present in 88 (5.5%) of the individuals
- Fifteen (9%) of 166 known location paddlefish were recovered outside the Ohio River.
    - Eight were recovered from the Tennessee River
    - 5 from the Mississippi River
    - 1 each from the Missouri and Illinois rivers.
- Paddlefish recovered from the Ohio River displayed an affinity for the pool initially tagged
    - Sixty-nine (46%) recovered from initial tagging pool
    - Fifty-two (34%) recovered from a pool upstream of the tag-pool
    - Thirty (20%) recovered from a pool downstream of the tag-pool
    - All stocked paddlefish were recovered from the initial stocked pool

HANDOUTS

There were two handouts passed around near adjournment of the meeting. They will be attached as separate file documents and are as follows:

1) Ann Runstrom – shovelnose sturgeon commercial landings in the UMRCC
2) Trish Yasger - Short and Long-term Coded Wire Tag Retention in Paddlefish

APPENDIX B (ATTENDANCE)

Micra Paddlefish/sturgeon Committee Meeting
January 13 – 14, 2004 Sheraton Westport Hotel, St. Louis

Attendance List

Name	Affiliation	Phone
Jo Grady	USFWS- Columbia, MO	573-234-2132 x 101
Greg Conover	USFWS- Carterville, IL	618-997-6869
Chris O' Bara	WV DNR	304-420-4550
Phil Bettoli	TN TECH	931-372-3086
Jan Dean	USFWS-Natchitoches NFH	318-352-5324
Bobby Reed	LDWF	337-491-2577
Robb Todd	TWRA	615-781-6575
Aaron DeLonay	USGS-Cerc Columbia, MO	573-876-1878
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Matthew Schall	SIUC	mattschall@hotmail.com
Rick Mayden	STL Uni.	314-977-3494
Ed Heist	SIUC	618-453-7131
Aaron Schrey	SIUC	618-453-3815
Mike Bessert	Uni. Nebraska	402-472-3999
Ann Runstrom	USFWS – LaCrosse, WI	608-783-8433
Trish Yasger	MODOC	660530-5500