MICRA Paddlefish-Sturgeon Committee Meeting Minutes
River Heritage Museum
Paducah, Kentucky, January 29-30, 2013

MICRA Paddlefish-Sturgeon Committee Action Items and Decisions

1. Email voting is needed to elect the nominated officer. Kirk Hansen (Iowa) was nominated as the assistant chair, term beginning January 1, 2014.
2. Email voting is needed to approve the 2012 minutes.
3. Email voting is needed to approve a fall meeting in Yankton, South Dakota.
4. The tagging protocols document will be revised by an ad hoc committee of Gerald Mestl, Mark Boone, Jason Sorenson, and Jason Schooley.
5. Please send data to Alexei and Mark for the AFWA stock assessment in the next two months.
6. Jeff Quinn needs to contact Alexei and Mark to determine if a fall meeting is needed and if so if South Dakota would be an acceptable location. Email voting needs to be done to approve meeting time and location.
7. Remind Eric Ganus for screenshots of the database. He may decide to email the screenshots and tutorial.

Order of Business – Tuesday, January 29th, 2013

Welcome / Introductions / Opening Remarks – Jeff Quinn welcomed meeting attendees (see attached), passed out the agenda. A total of 11 state delegates attended (some late) and 15 is a quorum, thus voting to approve official business must be done by email due to the inability to obtain a quorum. This is the second year in a row that a quorum was not made. Assistant Chairperson, Jason Sorenson, had travel issues with the weather, so Jeff Quinn took the minutes, with assistance from Marie Maltese. Jeff Quinn thanked Paul Rister and Greg Conover for help setting up the meeting.

Report of Chairperson on Paddlefish-Sturgeon Committee actions - Chairperson Jeff Quinn provided a brief overview of the committee standard operating procedures for the new members in attendance. He also provided information on his activities the past year.

Alexei Sharov and Michael Wilberg – Stock Assessment update - Alexei Sharov and Michael Wilberg provided an update on the AFWA stock assessment project. Alexei thanked those who contributed data. Michael is an Assistant Professor at the University of Maryland Center for Environmental Studies in Solomons, Maryland. They spent a lot of time extracting information from reports, and learning what had been done previously. They need to stop adding data in 2-3 months in order to move forward in the development of matrix models and other analyses. Dr. Wilberg showed an example of another stock assessmentwhere they did a catch-at-age model for yellow perch in Lake Michigan. Paddlefish data are morelimited. One of the goals of the project is to provide recommendations for future paddlefish management and research. They will conduct elasticity analysis, surplus production models, stock reduction analysis, growth model estimates, and time series analysis, if sufficient data are available. They would like to calculate targets and limits for fishing mortality and biomass or proxies. Surplus production models can be generated with overall catch data and an index of abundance each year. Stock reduction analysis is a simpler model that requires time series of catch for the entire history of the fishery to estimate population size and mortality rates.

Timeline: May 30 – analysis completed; July – report to MICRA paddlefish committee for review; August – report revision; October-November – meet to discuss the final report.

Preliminary analyses were presented. Growth curves were developed from the tagging database and are much faster than the age-based methods. They asked asked for comments on this occurrence, which could be due to tagging recaptures reported from fast-growing paddlefish found in reservoirs. They requested time series data, if available. Les Frankland (IL) has a good time series on the Wabash River. Snagging time series are available from Nebraska. They requested the committee's feedback on the growth curves they developed, including recapture methods and possible bias. They presented preliminary yield/recruit analysis: to maximize the meat fishery and to maximize the caviar yield which would benefit from a higher minimum length limit. They also discussed SPR curves. There is limited data regarding age/length at maturity. Gerald Mestl said there was no data for the Missouri River and Jeff Quinn noted that there was some data for the Arkansas River, but not much for the Wabash River. Alexei and Michael wanted to know if there are indices of abundance, tagging time series and/or gill net surveys available. Standardization of data is difficult. There is evidence of change in growth rate over time: in September they would like to produce system-specific growth rates. They also asked if there were any estimates of patterns of gear-gill nets vs. hobbled gill nets, or availability of data regarding population vs. gear selectivity? This could contribute to yield/recruit analysis. There is a catch/release component here including bycatch and mortality of released fish and mortality as a function of soak time. Jeff Quinn noted that there was a Rotenone sampling on the Arkansas River in 2010 w/some data mostly catch smaller fish with the Rotenone sampling-down to 7 inches. There is some trend data from 1972, that is unpublished, using 5 and 6 inch hobbled gill nets.

STATE REPORTS/UPDATES

ARKANSAS REPORT – Jeff Quinn - Shovelnose sturgeon genetic samples are being processed by Krista Boysen and Rob Wood for the MICRA range-wide shovelnose sturgeon genetics and physical characters project. The project investigator, Lee Holt, is now with the USFWS, so Jeff Quinn will now be coordinating the project for AGFC. The Mississippi Natural History Museum has agreed to voucher the fish in their collection. Jeremy Risley is done with the Mississippi River paddlefish study and a report is available, and he plans to assess the White River population next. The Arkansas River stock assessment has been ongoing since 2002-2003, and this year Pool 13 is being sampled. The pallid sturgeon telemetry project with MSU (Dr. Schramm) is nearing completion, and this project has been ongoing for 5 years at a cost of ~$225,000. Reports should be available in June. Pallid sturgeon were detected in the lower Arkansas River with VR2 receivers for two consecutive years. Craig Jansen finished his master's thesis about shovelnose sturgeon in the Arkansas River at Arkansas Tech University. Pallid sturgeon funding is decreasing due to the funding of the Ozark hellbender.

OHIO REPORT- Anthony Sindt – No report available; Ohio has not done any paddlefish work since 2008. They want to become more active

WEST VIRGINIA REPORT - **Chris O'Bara** – West Virginia has data digitized and ready to be merged into the MICRA database. They had a low water year with high water temperatures that caused mortality when handling fish. No fish were produced in the hatchery for stocking. They want advice from other States for developing a snag fishery. Invasive Asian carp is of concern.

IOWA REPORT– Kirk Hansen and Van Sterner. Little sampling of paddlefish in 2012, they continued shovelnose sturgeon sampling. They have observed increases in size structure and recruitment in the upper pools of the Missouri River since harvest regulations went into effect. The 2011 year class was enormous – 30% of total catch, and it is still not fully recruited. This year trawling catches were almost double….really good shovelnose sturgeon numbers. Iowa is pursuing a paddlefish snagging season on the Missouri River. Iowa is currently the only state on the Missouri River without recreational harvest. They want to implement a harvest tag system, a March season, 1000 tags to be issued, same protected slot limit as on Gavins Point

(protects 38% of fish). Political issue was the -Governor did not want any new legislation from the Executive side.

NEBRASKA REPORT– Dane Pauley and Gerald Mestl

A written report was submitted to the committee Chair. Nebraska's stretch of the Missouri River was back to more normal flows in 2012, certainly when being compared to flows from the flood of 2011. Evidence from the 2011 flood included everything from sand dune deposits miles from the main-channel to pieces of personal docks misplaced and the presence of large year classes of several fish species. Water temperatures were very high in 2012, spawning broodstock and subsequent recruitment were 5 weeks early.

We were able to get back out and sample paddlefish again this year after not being able to last year due to high water conditions. Crews made 3 sampling trips in April, July, and September. We sampled 335 adult paddlefish in the tailwaters at Gavin's Point Dam, the farthest downstream dam on the Missouri River. Of the 335 paddlefish sampled, 28 were recaptured with coded wire tags, 4 with Nebraska jaw tags, and 3 with South Dakota jaw tags. The spillway gates were open most of the year making paddlefish archery fishing and snagging in the tailwaters challenging.

The Lewis and Clark Lake paddlefish trawl monitoring program, which was started in the 1960s, was conducted. This was the first year on record that no age-0 paddlefish were sampled could this be that they missed the fish due to high water temperatures? The trawls are run from the end of June to the beginning of August trying to capture naturally reproduced age-0 paddlefish. Each of the last 2 years over 100 age-0 paddlefish were sampled. Age-0 Freshwater drum are normally sampled in these trawls by the 1,000's but less than 1,000 were sampled in 2012. In the last 10 years this has only happened twice and in both of those years only 12 paddlefish were sampled each year. They also sampled juvenile fish in newly created lakes from the 2011 floodd, they are very small water bodies and mostly carp were captured.

Nebraska's intensive pallid sturgeon broodstock collection continued this year marking its 5th year, with volunteers assisting from many agencies, academia, and the public. The fishing conditions in the spring of 2012 were tough with water temperatures rising so fast that it resulted in other species of fish to clean the bait off of trot line hooks before the sturgeon could get to them. Crews did collect 84 pallid sturgeon during this 2 week effort. Of the fish collected, 70 were from known hatcheries, 7 were unknown, and 7 were listed as wild fish. But of those 7 wild fish, only 2 were reproductive-age males. After attempting to spawn the 2 males, both were unsuccessful, and it was concluded that there was no pallid sturgeon progeny collected from fish caught by Nebraska in 2012. The effort has collected 893 pallid sturgeon in 5 years with 89 of those being reproductive-age fish.

In 2012, Nebraska's crew had an opportunity for to sample 4 lakes that were connected to the river during the flood of 2011, but are now disconnected from the main-channel. Lake Wubbena (RM 644.6) and Van Horns Lake (RM 575.0-576.0) were both former agricultural lands that were scoured to create the two new lakes. Nathan's Lake (RM 633.0) and Schilling Wildlife Management Area (RM 591.7-592.2) complex were both man-made lakes. While sampling these lakes, crews caught 31 paddlefish and were either sampled or observed in every lake. Of the fish sampled, 30 were juveniles and one fish was an adult. These fish did not appear to be thin but did not increase in size over the summer. Several paddlefish carcasses were observed along the banks.

As the Missouri River sub-basin database coordinator Dane Pauley attended the data merge in September in Marion, Nebraska (?). For this meeting, all 2011 data had been entered and all coded wire tags were read. We were able to merge Upper and Lower Mississippi, Missouri, and Gulf basins into the master database. We decided that we didn't need to all meet again to do the merge since everyone had a good understanding of the process. It was decided to send all the individual databases to Jason Schooley in Oklahoma once a year to merge them and send out a new copy. Once the database coordinators receive the new copy they will send it out to everyone in their respective basins. Last spring we conducted coded wire tag

reading training for Iowa Department of Natural Resources personnel. We covered the techniques and provided a copy of the instructions and database. As for 2012 data, all of Nebraska's coded wire tags have been read and all data have been entered into the database. We have received data and coded wire tags from South Dakota and Missouri, but they are not processed at this time.

Brenda M. Pracheil, Mark A. Pegg, Larkin A. Powell & Gerald E. Mestl. 2012. Fisheries. Volume 37, Issue 10, 2012 Swimways: Protecting Paddlefish through Movement-centered Management.

ABSTRACT - Attempts to mitigate lack of formal interjurisdictional paddlefish management have been made in the United States through the Mississippi River Interstate Cooperative Resource Association (MICRA). We used 1988–2009 data from the MICRA paddlefish (*Polyodon spathula*) stock assessment database—a database containing mark-recapture and biometric information on more than 30,000 individually marked wild paddlefish and more than 2 million hatchery origin paddlefish—to estimate survival and movement across large and potentially biologically relevant spatial scales. Paddlefish frequently moved between political jurisdictions with differing conservation strategies and harvest regulations and showed differences in survival parameter estimates throughout their range. We argue that the degree of interjursidictional movements, spatially variant survival rates, and conservation concerns associated with paddlefish necessitate more cohesive interjurisdictional management. Based on criteria used to establish flyways for migratory bird management, we offer swimways as a potential spatial configuration for biologically relevant management units.

MISSOURI REPORT- Mark Boone

Paddlefish - Stocking – MDC raised and stocked paddlefish in 2012. Broodstock were collected from Lake of the Ozarks and Table Rock Lake; paddlefish were spawned and raised at Blind Pony Hatchery. A total of 3,976 paddlefish fingerlings (12-16 in) were stocked in Lake of the Ozarks in mid-October. MDC plans to raise and stock paddlefish in 2013.

Influence of harvest sector on paddlefish population characteristics –We conducted a creel survey of commercial and recreational fishers on the middle Mississippi River to gather population characteristics information to make comparisons between commercial and recreational harvest sectors. We found that the commercial harvest sector harvested larger and older individuals than that of the recreational sector. Because these sectors are harvesting different portions of the population, the relative influence on the dynamic rate functions (i.e., recruitment, growth, and mortality) must be taken into account for fishery management decisions.

Shovelnose Sturgeon - Regulations – MDC is proposing changes to the *Wildlife Code of Missouri* for shovelnose sturgeon that would mimic the USFWS Similarity of Appearance ruling.

A Comparison of Habitat Use Among Life Stages of Shovelnose Sturgeon – Using seven years of Big Rivers and Wetland Field Station data from the unimpounded middle Mississippi River, we investigated the habitat use of shovelnose sturgeon in four size classes: Age-0 (9-150 mm), juveniles (151-350 mm), sub adults (351-550 mm), and adults (551 mm and larger). Shovelnose sturgeon were captured using standardized gillnets, trotlines, and trawls. Our objective was to determine if juvenile shovelnose sturgeon utilize different habitat types than adult shovelnose sturgeon. The findings from this study may provide useful information that will aid managers making channel maintenance and habitat restoration decisions on the Mississippi River.

A comparison of methods to estimate shovelnose sturgeon mortality in the Mississippi River adjacent to Missouri and Illinois – We examined three methods to evaluate shovelnose sturgeon mortality: Heincke's method, a linearized weighted catch curve, and an open system mark-recapture mortality approach. Data from the middle and upper Mississippi River in 2009/2010 were pooled due to potential emigration or immigration throughout both study reaches. Heincke's method estimated annual mortality at 16.9%. A linearized weighted catch curve generated an annual mortality estimate of 29.0%. Four mark-recapture models were considered using the program MARK. The model with the greatest support was the model that

provided estimates of annual mortality for each year and a single recapture probability. The annual mortality estimates from this model varied from 2.7 to 70.7% after correcting for tag loss. The best fit model with a single estimate of annual mortality was the one that estimated annual recapture probabilities for each year, and had a mortality estimate of 34.6% (after correcting for tag loss, but not for immigration, emigration, or sampling effort). The three methods provide varying results, and our data indicate a single method to estimate mortality may not be appropriate.

Shovelnose Sturgeon Management in Missouri's Upper Mississippi River Pools – This study was conducted in 2009/2010 on the upper Mississippi River in Missouri to describe and model shovelnose sturgeon population characteristics under an existing 610-813 mm harvest slot length limit. Piecewise nonlinear regression was the best model examined that explained population mortality rate, and indicated that younger fish (age 9-13) had an annual mortality rate of 6% while older fish (age 14-23) had an annual mortality rate of 39%. Shift in mortality rates occurred at age 13.7. An annual mortality cap was estimated at 45% to maintain an average harvested length of 635 mm by commercial fishers given the existing 610 mm minimum harvestable size limit. Modeling of spawning potential ratio (SPR) indicated that with the existing 610 mm minimum harvestable size limit and 39% annual mortality, the SPR precautionary reference point of 40% was exceeded with modeled conditional natural mortality (cm) rates of 0.06 and 0.105, but not when cm = 0.15.

Lake Sturgeon - USGS Contaminant Project – We partnered with the USGS lab in Columbia, MO to spawn adult lake sturgeon. The eggs and fry were used to determine the effects of various contaminants on egg and fry production. The biggest fish used was an 86-pound female. A report will be released in 2013.

Genetics Analysis – Genetic samples have been taken from all lake sturgeon not marked with a coded wire tag (CWT). CWTs denote fish stocked by MDC. Analysis of those samples is expected to be completed in late spring and will be used in future propagation efforts.

Fingerling Stockings – Through cooperative efforts with the USFWS's Genoa National Fish Hatchery and Wisconsin DNR, MDC staff stocked 10,070 fingerlings into three pools of the upper Mississippi River. Another 12,672 fish raised at MDC's Lost Valley Hatchery were stocked at three sites on the Missouri River, after being CWT-tagged and uniquely marked.

Sexing and Staging Blood Test – MDC has been working with the USGS lab in Columbia, MO and an independent lab to develop a lake sturgeon-specific blood test to determine the sex and reproductive stage. That test was completed in 2012.

Updated Best Management Practices – In an effort to eliminate or limit the impacts of construction and mining efforts in critical lake sturgeon habitat, we updated the BMPs sent to contractors and added spawning restrictions in lake sturgeon critical habitat.

Lake Sturgeon in the Media – Two lake sturgeon articles ran in the *Missouri Conservationist*, MDC's monthly magazine which is distributed to over 400,000 subscribers. The first was in July and covered our cooperative lake sturgeon spawning efforts with the USGS Columbia, MO office. The second ran in November and highlighted our fingerling tagging efforts. Lake sturgeon were also the highlight of newspaper articles that ran throughout the state and on a Discover Nature segment that ran on TV stations in central Missouri.

Age-0 lake sturgeon prey selectivity – Controlled laboratory experiments were conducted to determine age-0 lake sturgeon (0-50 mm, 51-100 mm, and 101-150 mm) prey selectivity. Each age-0 lake sturgeon was offered ten similarly sized (not to exceed gape) of each of three orders of invertebrates (i.e., Ephemeroptera, Trichoptera, and Diptera). Foraging activity was monitored for a 24-h period to determine invertebrate consumption. Across size classes, Diptera were preferentially consumed while Trichoptera were generally avoided.

Sturgeon Microchemistry – Microchemistry (trace element analyses) results of shovelnose sturgeon (N~100) from the upper Mississippi River are underway. Shovelnose sturgeon captured in the upper Mississippi River come from the upper and middle sections of the Mississippi River and the lower Missouri River. Pallid sturgeon (N=30) captured in the middle Mississippi River suggest similar results to shovelnose sturgeon but

are more mobile. Lake sturgeon (N=84) exhibit some intrabasin movement; however, the majority behave as couch potatoes!

Scaphirhynchid Sturgeon Early-Life History – To understand sturgeon early-life history we determined river of origin, habitat use, and early-life dynamics in the Mississippi River. Trace element analyses suggest that age-0 sturgeon captured in the middle Mississippi River have drifted from as far upstream as the Gavins Point Dam on the Missouri River (> 1200 Km), while other individuals originated locally in the middle Mississippi River. Post-drift, age-0 *Scaphirhynchus* sturgeon catch rates were highest around artificial structures (i.e., wing dikes) and island areas while main channel habitat comprised the lowest catch rates. Within these habitats, young sturgeon frequently occupied low velocities (i.e., ~0.1 m/s), moderate depths (i.e., 2-5 m), and sand substrate. Mean sturgeon growth rates ranged from 1.42-1.50 mm/d over the four years; however, growth rates did not differ among years. Individuals hatched over a 25 to 50-d period, and peak hatch dates were from 10-20 May, in all years. Moreover, hatch timing coincided with optimum spawning temperatures of 17-20^{o} C and an increase in river stage. Abundance appeared to be regulated by river stage; longer durations of high water related to higher relative abundance. Mortality increased with the number of days where water temperature exceeded 28^{o} C.

Movement/Telemetry -Movement Patterns of Several Species in the Upper Mississippi River – We investigated broad scale movement patterns of pallid, lake, and shovelnose sturgeon and paddlefish in the upper Mississippi River using telemetry. Over the course of our five-year evaluation, we have observed species-specific movement patterns and how these trends are affected by factors such as water level, season, proximity to necessary habitats, and lock and dam management.

The Development of a Collaborative Telemetry Technique for Augmented Tracking of Migratory Fishes in Large Navigable Water Ways – During summer 2012, MDC's Big Rivers and Wetlands Field Station began a collaborative effort with American Electric Power (AEP) River Operations to investigate the use of towboats for telemetry monitoring of fish. Several different AEP motor vessels traveled the United States inland river system with stationary telemetry receivers attached. GPS was used to track motor vessel locations and was later synchronized with date and time of detection with the stationary receiver. AEP motor vessels detected several different transmitters in the inland river system while traveling across jurisdictional boundaries.

Commercial Fishing Program- During Septembers 2012, MDC held five meeting across Missouri to meet with our commercial fishers. The goal of the meetings was to discuss Missouri's commercial fisheries and enhance the dialogue between commercial fishers and MDC. Presentations by MDC included: requirements of the current commercial fishing program, including the importance of timely and accurate reporting; Catfish; Asian carp; regulations, including the USFWS Similarity of Appearance ruling for shovelnose sturgeon and the use of hoop net leads. We concluded each meeting with an open discussion. Most folks also took advantage of the opportunity to talk with MDC staff or write their opinions on comment cards that were provided.

Trends in commercial roe harvest in the Missouri and Mississippi Rivers from 1945-2010 – We evaluated trends in commercial fishing data from 1945-2010 for two roe-bearing species, paddlefish and shovelnose sturgeon, from the Mississippi and Missouri Rivers adjacent to Missouri. Commercial shovelnose sturgeon and paddlefish catch has varied from ~300 to 29,000 kg over the course of the 55-year duration. Peak catches of both species occurred in 1980, 1990, and 2001. These high catch rates corresponded to utilization of North American roe-bearing species in worldwide caviar markets, onset of extensive regulations on the Missouri and Mississippi Rivers, and the Caspian Sea fishery collapse; respectively. Furthermore, our results suggest that the harvest of paddlefish and sturgeon have increased substantially since 1945, despite a decrease in the number of commercial fishers. For additional information, please contact: Mark Boone, Big River Specialist, Missouri Department of Conservation, Shaw Nature Reserve Office, 108 Ray Garlick Lane, Villa Ridge, MO 63089, 636/451-3512, ext. 6030, Mark.Boone@mdc.mo.gov

TENNESSEE REPORT – Eric Ganus – Tennessee is still facing multiple lawsuits initiated by commercial fishers. There is a decline in paddlefish harvest on KY Lake. They did not perform many samples during 2010 due to high water. 2011 was too warm with water temperatures of 70 degrees by March 31st which resulted in high mortality rates. Wholesalers purchased roe early in the season (March). TWRA is seeing increased production on Chickamauga Lake in east Tennessee due to a big year class in 2003. This coincides with a large black bass year class. TWRA plans to collect age data in the tailwater of Watts Bar. They finished development of the paddlefish plan for the new waters proposed by commercial fishers. TWRA has not sampled the newly proposed waters because the price tag for sampling was > $500,000 , and the funds were not available. Jason Henegar is working on the Tennessee Lake Sturgeon recovery plan. TWRA has completed a dam passage project on the Cumberland River.

MISSISSIPPI REPORT - Garry Lucas

Paddlefish Commercial Harvest

Key Components of Mississippi's regulated commercial paddlefish fishery:

- Persons must have special permits to take paddlefish and permits for initial handling and processing of paddlefish. The state has a limit on the number of harvesters allowed to take paddlefish for roe : the quota is 16 this season.
- All harvested paddlefish must be at least 37" EFL statewide (except 34" or 35" in border waters with Arkansas, per Arkansas regulations) and paddlefish must be tagged upon possession.
- Eggs must remain within fish until they reach a permitted processor and cannot be removed while on the water.
- Sale/exchange of paddlefish must be reported to MDWFP within 24 hours, with tag numbers and individual harvested fish lengths submitted as well.
- Seasons are open a maximum of 60 days. Exceptions are the MS River Zone to allow residents to have the same season as Arkansas fishers.
- Only portions of the available water associated with a river system, targeted as a zone, are open to harvest. This is expected to give a refuge to non-spawning paddlefish within that system.
- Violations of paddlefish regulations are a serious Class 1 misdemeanor violation. The MDWFP Law Enforcement Bureau has set up a Task Force to concentrate on enforcement of paddlefish regulations.

2011-2012 Commercial Paddlefish Fishery

- PADDLEFISH HARVEST IN MISSISSIPPI 2008-2012

	2008 - 2009	2009-2010	2010-2011	**2011-2012**
Paddlefish Harvested	26	175	2,405	**1,574**
Wt. egg sacs	73	n/a	17,136	**6,041**
Wt. screened eggs (lbs.)	64	602	11,186	**4,532**
No. released	29	988	9,405	**8,304**
No. released w/ eggs	4	70	1,087	**1,328**

- Five zones were open to harvest including the following participants – 15 Harvester Permits, 13 Helper Permits, 9 Processor Permits, and 2 Buyer Permits
- PADDLEFISH HARVEST IN MISSISSIPPI FOR 2011-2012 SEASON BY HARVEST ZONES

	MS River	Delta	Sunflower R.	Bear Cr	Yazoo River
Paddlefish Harvested	679	135	660	38	62
Wt. egg sacs	2,310	728	2,569	204	225
Wt. screened eggs (lbs.)	1,827	492	1,886	150	173
No. released	1809	687	5,275	190	343
No. released w/ eggs	134	76	998	50	70

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2012-2013 Paddlefish Commercial Fishery update

- Four zones are open to harvest with the following participants –15 Harvester Permits, 10 Helper Permits, 1 Buyer Permit.

Paddlefish Harvest for 2012-2013 Season, as of January 22, 2013, in Comparison with Harvest during the 2011-2012 Season as of January 22, 2012

	2011-2012	2012-2013
Paddlefish Harvested	929	323
Wt. egg sacs	3,354	1,899
Wt. screened eggs (lbs.)	2,510	1,311

Paddlefish Summer Harvest

MS has a summer fishery where up to 5 paddlefish per day can be harvested, but all fish have to be tagged at the time of possession. Two persons chose to participate in the summer 2012 fishery. For two days of harvest they harvested 10 paddlefish, released 15 alive, and 47 dead paddlefish. The estimated 2011 mortality rate of paddlefish from incidental commercial catch, as calculated from the annual survey of the harvest of commercial fishers, is 2,577 paddlefish.

Paddlefish Sampling

Commercial paddlefish harvesters were accompanied by a MDWFP biologist and the paddlefish they could not keep, or preferred not to keep, were given to the biologist to measure and tag with a jaw tag prior to release. During the 2011-2012 roe harvest season, biologists collected data on 224 paddlefish collected by paddlefish harvesters. This number does not include the fish that were harvested on sampling days. Harvesters recorded

lengths for each harvested fish ; this data was reported to MDWFP and incorporated into stock length assessments. No CWT's were detected in any scanned fish. Two hundred and five (205) of the 224 fishthat were captured were tagged with jaw tags. Nineteen fish (19) were found dead. Eighteen (18) tagged fish were re-captured ; eight (8) of those recovered were dead. A total of forty eight (48) paddlefish were noted as by-catch mortality during sampling by the biologist. The overall by-catch mortality rate was 21% (48/224). Mortality was higher for lentic versus lotic habitats, for fish captured multiple times, and for periods when the water temperature was above 50^{o} F. Fish measuring 35-36 inches EFL accounted for forty eight percent (48%) of the mortality observed for undersize paddlefish. .

Pascagoula River Paddlefish Restoration (SWG grant)

The objective of this State Wildlife Grant is to increase paddlefish populations via a stocking program using brood stock collected from the Pascagoula River watershed: fish are spawned at the National Fish Hatchery at Tupelo and grown-out at the North MS Fish Hatchery.

During Spring 2012:

- Collected 7 females from the Bowie River, and 1 immature from a Pascagoula River oxbow, but no males were collected.
- The low number of paddlefish encountered raised concerns that stocking may adversely alter the genetic composition of the Pascagoula River drainage paddlefish stocks. As such, the project was modified to include a genetic evaluation of the paddlefish of the Pascagoula River drainage to guide MDWFP in future augmentation efforts for the paddlefish stock.

Garry Lucas with a paddlefish captured on the Bowie River, Spring 2012

Alligator Gar -MDWFP has established a quota of 200 alligator gar for the commercial fishery. All gar must be tagged to be retained. For 2012, 8 persons requested tags, with 90 tags being issued.

STURGEON WORK in MISSISSIPPI –

MDWFP began sturgeon sampling in 2010, as part of the Lower Mississippi River Basin *Scaphirhynchus* ID study, in coordination with the USFWS. The goal is to collect 20 each of pallid sturgeon, shovelnose sturgeon, and intermediates for morphometric and genetic analysis from three sections of the Mississippi River, near Vicksburg, Benoit, and Moon Bend. MDWFP currently has two teams working those sections. In 2011, MDWFP began implanting shovelnose and pallids > 700 mm EFL with ultrasonic transmitters, in coordination with Mississippi State University students working on a telemetry/habitat use project. For all sturgeon: length measures (mm?) and weight (g) are collected, floy tag and PIT tag inserted, and pectoral spine (left) removed for aging. For implanted sturgeon: we are also taking a genetic sample, sexing, and taking morphometric measurements. Sampling is conducted October through May.

MDWFP Sturgeon Report - Jerry Brown

- Fisheries Biologist,MDWFP; jerryb@mdwfp.state.ms.us

- Trotline sampling for sturgeon was conducted from October 2011 - April 2012
- * Samples were taken near Vicksburg, MS (RM 429 - 443)
- * A total of 89 trotlines were set catching a total of 303 shovelnose, 16 pallids, & 12 intermediates
- * Lengths of sturgeon caught ranged from a 360 mm shovelnose to a 967 mm pallid; mean length was 692 mm for pallids, 601 mm for shovelnose, and 631 mm for intermediates
- * * Sturgeon measuring > 700 mm were implanted with sonic transmitters and included 6 pallids, 20 shovelnose, and 2 intermediates
- * A total of 40 sturgeon were retained for the *Scaphirhynchus* ID study and included 10 pallids, 20 shovelnose, and 10 intermediates
- Sampling for the 2012 - 2013 season began in November 2012
- * Samples are again being conducted near Vicksburg, MS
- * A total of 47 trotlines have been set, catching 13 pallids, 78 shovelnose, & 9 intermediates
- * A total of 13 sturgeon (8 pallids and 5 shovelnose) have been implanted with sonic transmitters this season, to date

MDWFP Sturgeon Report – Nathan Aycock

- nathana@mdwfp.state.ms.us

	2010-2011	2011-2012	2012-2013 (through Dec. 2012)
# trotlines fished	100	131	39
# pallids caught	20	23	12
# pallids implanted	3	19	10
# pallid recaptures	1	0	0
# shovelnose caught	756	619	240
# shovelnose implanted	0	20	13
# shovelnose recaptures	4	9	2

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KENTUCKY REPORT – Jay Herrala

Paddlefish—Due to limited state funds paddlefish sampling effort was not as high as in past years. Paul Rister along with a commercial fisherman captured and jaw-tagged 13 (27-38 in EFL) paddlefish on the lower Tennessee River. With the help of Illinois, 180 (21-43 in EFL) paddlefish were captured and jaw-tagged on the Ohio River from the McAlpine and Uniontown pools and tailwaters. No paddlefish sampling is currently planned for 2013, but is planned for January – March 2014, in the Greenup and Newburg tailwaters.

Lake Sturgeon

Telemetry—On 10 April 2012, 30 lake sturgeon were surgically implanted with ultrasonic transmitters at the Pfeiffer Fish Hatchery. These 3.0 to 6.5 lb sturgeon were held at the hatchery for two weeks to allow surgical wounds to heal and the sturgeon to recover. Twelve stationary receivers (Vemco VR2W) were deployed at sites upstream and downstream of the two stocking sites (mouth of Laurel River and Turkey Run Ramp) in the Big South Fork and Cumberland Rivers to determine movement out of the stocking areas. On April 24, 2012, 15 of the implanted lake sturgeon were stocked at the mouth of the Laurel River, and 15 were stocked at the Turkey Run Ramp on the Big South Fork River. All fish have been accounted for throughout the study and all stationary receivers have detected fish. Some of the lake sturgeon have been detected moving over 35 miles, while others appear to be staying in the areas where they were stocked. Fish that displayed movement, moved downstream into Lake Cumberland during the summer and early fall. Current tracking data and stationary receiver logs indicate that the majority of fish are still in Lake Cumberland below the KY Route 90 Bridge. Two months of manual tracking has yielded zero detections; this corroborates data collected by the VR2 array: that most lake sturgeon are still in Lake Cumberland. Manual tracking will continue through November 2013, and VR2s will be downloaded monthly until the conclusion of the study in 2015. Trotlining efforts will likely begin in spring 2014, to gather CPUE, survival, and age/growth data, and assess the success of the Department's stocking efforts.

Culture—Eggs were received from Wild Rose Hatchery on May 4, 2012. There werean estimated 10,000 eggs from cultured from Yellow River broodstock. The fry were cultured similar to previous years utilizing live brine shrimp and blood worms, and Otihime and Rangen feeds. The eggs and fry were first cultured in a temperature controlled system. Temperature was increased gradually and they remained in that system until more space and water flow was required. During that time almost all mortalities were limited to deformed fry.

The first inventory of fry was 9,919 fish on June 1st. On June 14, there were 9,875 fish with an average length of 2.3" (558 fish/lb) that were split between two 500 gallon raceways with 25 gpm inflow of raw water at 78 degrees. On June 16′ there was a period of poor water quality after a tank inlet clogged and water supply sediments entered the tanks. No mortalities were observed during the following 48 hours. Howeverm fish in one tank started dying the morning of June 18, and all were dead by the morning of June 20. At that time, the culture water was ~ 82^{o}F

The mortalities were discussed with a fish pathologist at the Warm Spring Fish Health Lab. He stated that a pathogen could not have caused such rapid and complete mortality. In addition to the poor water quality events, these were the smallest lake sturgeon that we have ever had at a temperature of 82^{o}F.

SPRING HARVEST

1. Anglers (2,350) checked 3,931 harvested paddlefish at the Paddlefish Research Center
    a. 50:50 sex ratio (same as 2011)
    b. Avg. weight of both sexes is increasing (3-year trend for males, 5-year trend for females)
2. Caviar: 22,763.9 lbs raw, 17,682.8 lbs processed/packed
    a. 11.79 lbs avg per female, 24.5% of body weight (4-year increasing trend)
3. Avg. harvest per angler has declined: 1.67 (2012), 1.70 (2011), 1.74 (2010)
    a. The number of anglers harvesting only 1 fish is on the rise, 2 fish is on the decline, and ≥3 fish is unchanged
4. Overall consensus, this was a satisfying fishery for anglers. Fish are bigger and still *relatively easy* to catch.

JUVENILE SEARCH

1. Larvae netting from two bridges (Neosho and Spring Rivers). Captured 84 paddlefish of varying stages.
2. Trawling performed in Neosho and Spring Rivers and Grand Lake (plus tailwaters) with assistance from Missouri Department of Conservation and Oklahoma State University.
    a. Many fish captured (~5,000 of 28 spp.); no paddlefish were captured.
3. Mitigation funds provided for short-term juvenile telemetry project in Spring River.
    a. Stocked 900 YOY paddlefish, 20 with ultrasonic transmitters
    b. Real-time tracking of dispersal, movements, and habitat usage.
    c. "Judas Method" failed to result in wild captures
4. Paupier netting with assistance of FWS and OK State University.

WINTER NETTING

1. OK has adopted statewide winter gill netting protocols
    a. Lakes are netted 2 years in a row with randomly fixed net sites.
2. Ft. Gibson, Hudson, and Grand Lakes were netted in the winter of 2012.
3. 1,846 fish captured, 4 CWT recaps (need to be decoded)
    a. Began using "locking" bands to dissuade removal from released fish (National Band and Tag 1242FL7B)
    b. Implemented band recovery/reporting online database www.PaddlefishBands.com
4. Catch rates varied Ft. Gibson (166!!), Hudson (70), and Grand (54)
5. Assisted FWS in using same methods on Eufaula Lake (repatriated population)

RESEARCH PROJECTS

1. Adult female ultrasonic telemetry (ongoing). Goals: spawning frequency and movements (including depth).
2. Juvenile telemetry project.
3. Genetic diversity within year-class and parental contribution. Cooperative with OK State University.
4. Pilot project for effects of catch-and-release on spawning movements using ultrasonic telemetry.

REGULATION CHANGES (FOR 2014)

1. Re-defined snagging as one rod/pole/ angler
    a. Prevents trolling snag anglers from using up to 7 rods
2. Set daily bag limit of one for species of special concern (including shovelnose sturgeon) and encouraged reporting of harvest

PLANS FOR 2013 (AND BEYOND)

1. Shifting department focus from harvest/caviar to research/conservation mind-set
    a. Evaluating methods for harvest regulation
    b. Annual Harvest Limit?
2. Statewide Paddlefish Management Plan is in final stages of preparation. Completion expected in summer of 2013.

Sturgeon Sampling in the Arkansas River of Oklahoma

A project is being proposed to assess the current distribution of shovelnose sturgeon in Oklahoma. The project will include a habitat use and spatial movement study. As of now, we are attempting to gather preliminary data. Specialized trotlines baited with worms are being used as our primary sampling gear. Other states have had success with this type of gear. A random assortment of three (3) different sizes of hooks is being used to determine which size is most efficient in capturing sturgeon, while limiting by-catch. All sturgeon captured are weighed and measured, PIT tagged, and injected with liquid OTC. The OTC is being used in an effort to determine the accuracy (or lack thereof) of pectoral spine aging.

So far, five (5) sturgeon have been PIT tagged and injected with OTC. Four of the five were captured by hand, and the other was caught by a local angler. The trotlines have been unsuccessful to date, but limited effort has been made. Only 360 hooks have been set, in very low water temperatures. Sampling began around December 1. We hope to start gathering some useful data as the water temperature rises. The by-catch data has been quite insignificant, and without any sturgeon caught, an optimal hook size cannot yet be determined.

Oklahoma Department of Wildlife Conservation, Paddlefish Harvest Summary

All Fish	Count	EFL (mm) Mean	St Dev	Min	Max	Weight (kg) Mean	St Dev	Min	Max
2008	4222	959.94	68.11	669	1335	13.88	3.77	4.20	34.80
2009	7408	964.72	63.34	520	1323	14.61	3.73	4.70	36.80
2010	3948	966.56	68.72	640	1220	14.11	4.04	4.58	31.25
2011	4609	988.01	71.27	473	1220	17.06	4.49	1.59	30.71
2012	3931	997.78	71.95	604	1270	18.09	4.83	3.26	36.56
Total	24118	974.03		473	1335	12.49		1.59	36.80

Males	Count	EFL (mm) Mean	St Dev	Min	Max	Weight (kg) Mean	St Dev	Min	Max
2008	2475	921.79	44.68	669	1161	11.41	1.83	4.20	24.50
2009	4434	929.72	48.50	520	1244	12.16	2.11	4.70	32.70
2010	2436	928.38	47.88	640	1215	11.52	1.84	4.58	28.71
2011	2312	937.37	53.07	473	1128	13.38	2.27	1.59	23.72
2012	1927	946.21	54.42	604	1270	14.21	2.58	3.26	31.21
Total	13584	931.68		473	1270	10.39		1.59	32.70

Females	Count	EFL (mm) Mean	St Dev	Min	Max	Weight (kg) Mean	St Dev	Min	Max
2008	1743	1014.13	58.24	809	1335	17.38	2.95	7.90	34.80
2009	2974	1016.86	44.06	832	1323	18.25	2.40	6.90	36.80
2010	1512	1028.07	50.05	796	1220	18.28	2.98	7.48	31.25
2011	2297	1038.98	46.67	500	1220	20.76	2.82	1.59	30.71
2012	2004	1047.38	47.86	635	1224	21.8	3.33	3.63	36.56
Total	10530	1028.65		500	1335	15.18		1.59	36.80

Roe	Roe Count	Mean Raw (kg)	St Dev Raw	Mean Screened (kg)	Mean Salted (kg)	Packed Count	Roe/fish wt
2008	1484	3.25	1.26	-	-	1470	0.187
2009	3051	3.30	0.76	2.63	2.73	2970	0.181
2010	1470	4.05	1.03	3.34	3.46	1465	0.222
2011	2235	4.86	0.96	4.07	4.21	2235	0.234
2012	1947	5.35	1.16	4.31	4.46	1947	0.245
Total	10187	4.13				10087	

SOUTH DAKOTA REPORT – Jason Sorensen

Paddlefish—Paddlefish brood-stock collection and spawning occurred in May of 2012 near Chamberlain, SD. A cooperative effort by the USFWS and South Dakota Game, Fish and Parks (SDGFP), this endeavor aims to produce 25,000 advanced paddlefish fingerlings to be stocked into Lake Francis Case, a Missouri River mainstem reservoir. Ten females and fourteen males were captured for spawning during 2012. Efforts during 2012 yielded 1,896 paddlefish stocked on September 20, 2012 with fish averaging 3.75 fish per pound and approximately 14 inches in length. All fish were tagged with coded wire tags with 92.2 % a retention rate approximately 6 weeks after tagging.

SDGFP crews tagged paddlefish below Gavins Point Dam during 2012. A total of 132 paddlefish were tagged with monel jaw tags. Average length and weight of tagged fish was 923 mm and 9.4 kg respectively. Tagged paddlefish ranged in length from 631 to 1,253 mm. Time constraints prohibited additional fish from being tagged.

Snaggers fished an estimated 14,346 hours during October 2012 during the snag fishery below Gavins Point Dam. Anglers harvested an estimated 562 and released an additional 7,205 paddlefish during that same time period. Average length of harvested paddlefish was 977 mm, similar to the 1,066 mm average during 2011 and higher than the 840 mm average for the previous five years.

SDGFP initiated the first paddlefish snagging season in nearly 30 years on Lake Francis Case during the May 2012. SDGFP issued 350 resident-only paddlefish snagging permits with the Crow Creek and Lower Brule Sioux Tribes issuing an additional 25 permits each for a total of 400 permits. Results discussed here pertain to the 350 resident-only permits issued by SDGFP. Anglers spent and estimated 3,296 hours snagging for paddlefish during May 2012 and harvested an estimated 145 paddlefish. Harvested paddlefish averaged 1,041 mm in length and 19.7 kg in weight. Anglers released an additional 566 paddlefish and experienced a overall catch rate of 0.22 paddlefish per hour.

MICRA Sturgeon and Paddlefish Committee- 2012 Annual Report for Wisconsin

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Overview

Wisconsin has three species of sturgeon and paddlefish, the lake sturgeon *Acipenser fulvescens,* which is found throughout the state in large lakes and rivers including the Mississippi River and many of its larger tributaries; the shovelnose sturgeon *Scaphirhynchus platorynchus,* which is found in the Mississippi River and the lower reaches of its three largest tributaries, the Wisconsin, Chippewa (including the lower Red Cedar, a large tributary), and St. Croix Rivers; and the paddlefish *Polyodon spathula*, which has a distribution similar to the shovelnose sturgeon. The shovelnose sturgeon is the most numerous of the three, and supports a commercial and sport fishery in the Mississippi River and a sport fishery in the Wisconsin River. The lake sturgeon is much less abundant and is a special-concern species in the state with no commercial fishery, but it is locally common enough to support a highly regulated (1 fish per entire 1-month season; must be tagged and registered with Wisconsin DNR) hook-and-line sport fishery in parts of several Mississippi River tributaries (and also some waters in the Great Lakes basin). The paddlefish is the least common and is designated a state-threatened species; no commercial or sport harvest is permitted.

A variety of management, research, and restoration projects dealing with lake sturgeon, shovelnose sturgeon, and paddlefish are underway in Wisconsin, and those taking place in the Mississippi River basin are briefly summarized in this report.

Lake Sturgeon

Several lake sturgeon restoration projects are planned or in progress for the Mississippi River basin of Wisconsin. In the Wisconsin River, stocking of hatchery-raised juveniles is being used by Wisconsin DNR biologists (Steve Fajfer, Dan Fuller, Justine Hasz, Tom Meronek, Nate Nye, Mike Rennicke, Dave Rowe) in an attempt to re-establish a self-sustaining population in the middle reaches of the river between the Wausau and Wisconsin Dells dams (172 river miles; Figure 1). These reaches historically had lake sturgeon, but by the early 1900s the species had been eliminated by a combination of dams, pollution, and overharvest. Currently, gametes are collected in the spring from lake sturgeon spawning below the Wisconsin Dells Dam, where lake sturgeon remain established, and then they are artificially fertilized, raised in a hatchery until the fall fingerling or spring yearling stage, and finally stocked at various locations in the middle reaches. Stocking has been going on in some form since 1996. Although it is still too early for stocked fish to have reached sexual maturity and to have begun spawning, these fish are staying within the general part of the river where they were stocked and are surviving and growing well.

Further downstream in the Wisconsin River at the Prairie du Sac Dam, the lowermost dam on the river located at River Mile 92, efforts are underway to reconnect lake sturgeon populations above and below the dam and to allow the downstream population access to better spawning habitat upstream in the Wisconsin River itself and in the Baraboo River, a tributary (Figure 1). An ongoing monitoring and tagging program by Wisconsin DNR biologists (Dan Fuller, Nate Nye,

Mike Rennicke, Dave Rowe) indicates that the lake sturgeon population below the dam (92 river miles) is much smaller than the population above the dam (67 river miles) and that the downstream population may persist only because of spill-over from the upstream population and migration from the Mississippi River. Efforts to document successful spawning below the dam have been unsuccessful, and few small fish are present. High-quality spawning habitat below the dam appears to be limited.

A fish passage facility is proposed for the Prairie du Sac Dam (closed in 1914), which, at 11 m high, is currently a complete barrier to upstream fish movement. This passage facility was prescribed by the U.S. Fish and Wildlife Service (USFWS) as a condition of the Federal Energy Regulatory Commission operating license for hydroelectric power generation at the dam. Target species for the design and operation of the facility are lake sturgeon, shovelnose sturgeon, paddlefish, and blue sucker *Cycleptus elongatus*, although it is expected that nearly all species in the river will use the facility. Because there is almost no experience passing the target species over a dam this high, a team of representatives from the dam owner (Alliant Energy), USFWS (Pam Thiel, Nick Utrup, Scott Yess), and Wisconsin DNR (Cheryl Laatsch, John Lyons, Andy Morton, Dave Rowe) has worked for over 8 years to design the passage facility. Although not all details have been finalized and the start of construction remains uncertain, the plan is for the upstream portion of the facility to consist of a fish lift (elevator) and the downstream portion a tube through the dam. Experimental work by USFWS biologist Nick Utrup on the Menominee River, a Lake Michigan tributary where upstream fish passage is also proposed, demonstrates that lake sturgeon can be readily attracted to and will enter a structure similar in construction and dimensions to the fish lift. Because of concerns that invasive species, particularly Asian carp, could use the passage facility to expand their range upstream in the Wisconsin River, all fish entering the fish lift will be required to be identified and sorted before being allowed to pass through the dam.

A smaller-scale upstream fish passage facility focused on lake sturgeon was recently installed at the Winter Hydro Project, a low-head (2 m) hydroelectric dam on the East Fork of the Chippewa River in northwestern Wisconsin (Figure 1). This facility was a cooperative effort among the U.S. Forest Service (Dale Higgins) Wisconsin DNR (Jeff Scheirer), the Lac Court Oreilles band of the Ojibwe (Chippewa) tribe, and the dam owner (North American Hydro, now World Renewal Energies). Again, the goal was to reconnect lake sturgeon populations upstream and downstream of the dam, which was completed in 1953. A nature-like bypass channel was constructed in 2011 to allow fish to move past the dam, and it began functioning in 2012 with four weeks of operation during the spring spawning migration and two weeks during the fall movement to overwintering areas. A lake sturgeon originally tagged below the dam was later collected above the dam after the spring operating period.

Further downstream on the mainstem of the Chippewa River, the Wisconsin DNR (Heath Benike) has ongoing tagging studies of spawning lake sturgeon below three (Jim Falls, Wissota, Dells) of the six hydroelectric dams (from upstream to downstream: Holcombe, Cornell, Jim Falls, Wissota, Chippewa Falls, Dells) in the 51-mile reach from the junction with the Flambeau River downstream to the Dells Dam in the city of Eau Claire (Figure 1). The Dells Dam is the

lowermost dam on the river and is located 61 river miles upstream from the Mississippi River. Each dam is a complete barrier to upstream movement, but lake sturgeon have been recaptured after having moved downstream through one or more of them, in some cases all the way to the Mississippi River. In 2012, recaptures at the Dells Dam included a lake sturgeon tagged in 2010, below the Prairie du Sac Dam on the Wisconsin River (minimum travel distance ~290 river miles) and another tagged in 2006, in the St. Croix River near the city of Hudson, Wisconsin (~125 miles).

Several of the dams on the Chippewa River (Dells, Chippewa Falls, Jim Falls) are at historical waterfalls or steep rapids that may have been natural barriers to upstream movement. Wisconsin DNR biologists (Heath Benike, Jeff Scheirer) are collaborating with biologists at the Wisconsin Cooperative Fisheries Research Unit at the University of Wisconsin-Stevens Point (Brian Sloss and students) to look for genetic differences between lake sturgeon populations in different parts of the Chippewa River drainage. This study is part of a larger effort by the Co-op Unit, supported by the Wisconsin DNR, to characterize the genetic structure of lake sturgeon populations throughout Wisconsin.

Finally, in the upper portion of the St. Croix River and a large tributary, the Namekagon River, Wisconsin DNR biologists (Jeff Kampa, Martin Jennings) have been characterizing the lake sturgeon population, which is poorly known, documenting abundance, size structure, habitat use, and movement patterns (Figure 1). These river reaches are relatively small and high gradient, with long pools separated by shallow riffles. During drought years, when water levels are dropping, many of the lake sturgeon appear to leave the Namekagon and upper St. Croix Rivers and move downstream to bigger water. Those that remain may be essentially trapped in the pool they occupy until water levels rise.

Shovelnose Sturgeon

Much of the current work on shovelnose sturgeon is focused on the Wisconsin River. The shovelnose sturgeon is one of the four target species for the Prairie du Sac Dam fish passage project (see lake sturgeon section). Historically, the shovelnose sturgeon was likely found at least as far upstream as Wisconsin Dells (RM 159), but the species disappeared above Prairie du Sac (RM 92) after the dam closed in 1914. A goal of the fish passage project is to re-establish the shovelnose sturgeon above the dam. Towards that end, since 2008, Wisconsin DNR biologists (Justin Haglund, Paul Kanehl, John Lyons, Eric Struck, Dan Walchak) have been collecting data on shovelnose sturgeon spawning in the Wisconsin River below the dam and PIT tagging individuals to assess movement and estimate population parameters. This work complements recent shovelnose sturgeon tagging by Wisconsin DNR biologists in Pools 4, 9, and 10 (where the Wisconsin River enters) of the Mississippi River (Marty Engel, Pat Short; 2006-2011) and in the Chippewa River near the junction with the Red Cedar River (Heath Benike, Marty Engel; 2002-2009) (Figure 1).

To provide additional information on shovelnose sturgeon movements and habitat use that may be useful in operating and evaluating the fish passage facility at the Prairie du Sac Dam, Wisconsin DNR (John Lyons) and University of Wisconsin-Madison (Peter McIntyre, Brenda

Pracheil) biologists are collaborating on an analysis of shovelnose sturgeon otolith microchemistry in the lower Wisconsin River and Pools 9 and 10 of the Mississippi River (Figure 1). Otolith microchemistry has the potential to yield information on movement patterns of individuals over their entire life. Of particular interest are habitat use by juveniles and annual migrations by adults. Juvenile habitat use estimates from otoliths are being validated with bottom trawling studies throughout the study area, whereas adult migration estimates are being validated with recaptures of PIT-tagged individuals. Preliminary results suggest extensive long-range movements between the Wisconsin and Mississippi Rivers throughout the sturgeons' life. The Wisconsin River appears to be a major spawning and summer feeding area for adults whereas the Mississippi River is a prime nursery area and over-winter habitat for Wisconsin River fish.

Wisconsin DNR biologist Michelle Marron closely monitors the shovelnose sturgeon commercial fishery on the Mississippi River. As a condition of their license, commercial fishers are required to report their catch to the Wisconsin DNR, distinguishing between flesh and roe. Spot checks and follow-up interviews indicate that reports are generally accurate. Fishers must be Wisconsin residents and are licensed to fish only in the Wisconsin portion of the Mississippi River, so catches do not necessarily reflect total harvest from each pool. However, Minnesota does not allow commercial shovelnose sturgeon harvest, and in the Wisconsin portion of Wisconsin-Minnesota border waters (Pool 3 to upper part of Pool 9), only setlines (total of 400 hooks per day) may be used (Figure 1). In this part of the river there is no closed season and a minimum total length limit of 25" is required for harvest. Iowa does allow commercial harvest of shovelnose sturgeon, and in the Wisconsin portion of Wisconsin-Iowa border waters (Pool 9 to upper part of Pool 12) both nets (hoop, fyke, buffalo, gill, drifting trammel) and setlines (600 hooks per day) may be used. There is no closed season, but only shovelnose sturgeon between 27" and 34" fork length may be kept.

Only a few commercial fishers target shovelnose sturgeon in the Wisconsin waters of the Mississippi River, and their harvest varies substantially from year to year (Table 1). Most harvest takes place in Iowa-Wisconsin border waters. Since 2001, annual flesh harvest has fluctuated from 540 to 7,125 lbs, and roe from 34 to 745 lbs. In 2012, there were 11 permits for shovelnose sturgeon harvest issued and 7 fishers actually harvested sturgeon, up from 7 and 4 in 2011. Based on preliminary totals, 2012 harvest was very high, with the flesh harvest of 7,125 lbs the third highest since flesh records began being kept in 1953 (record 7,663 lbs in 1975), and the roe harvest of 745 lbs by far the highest since roe records began being kept in 2001. Initially in 2012, roe prices were high ($100/lb) but they dropped substantially later in the year ($45/lb) because of high catches in states to the south. Nonetheless, the total value of the roe was substantially greater than in any previous year.

Table 1. Commercial flesh and roe harvest and roe value of shovelnose sturgeon from Wisconsin waters of the Mississippi River, 2001-2012.

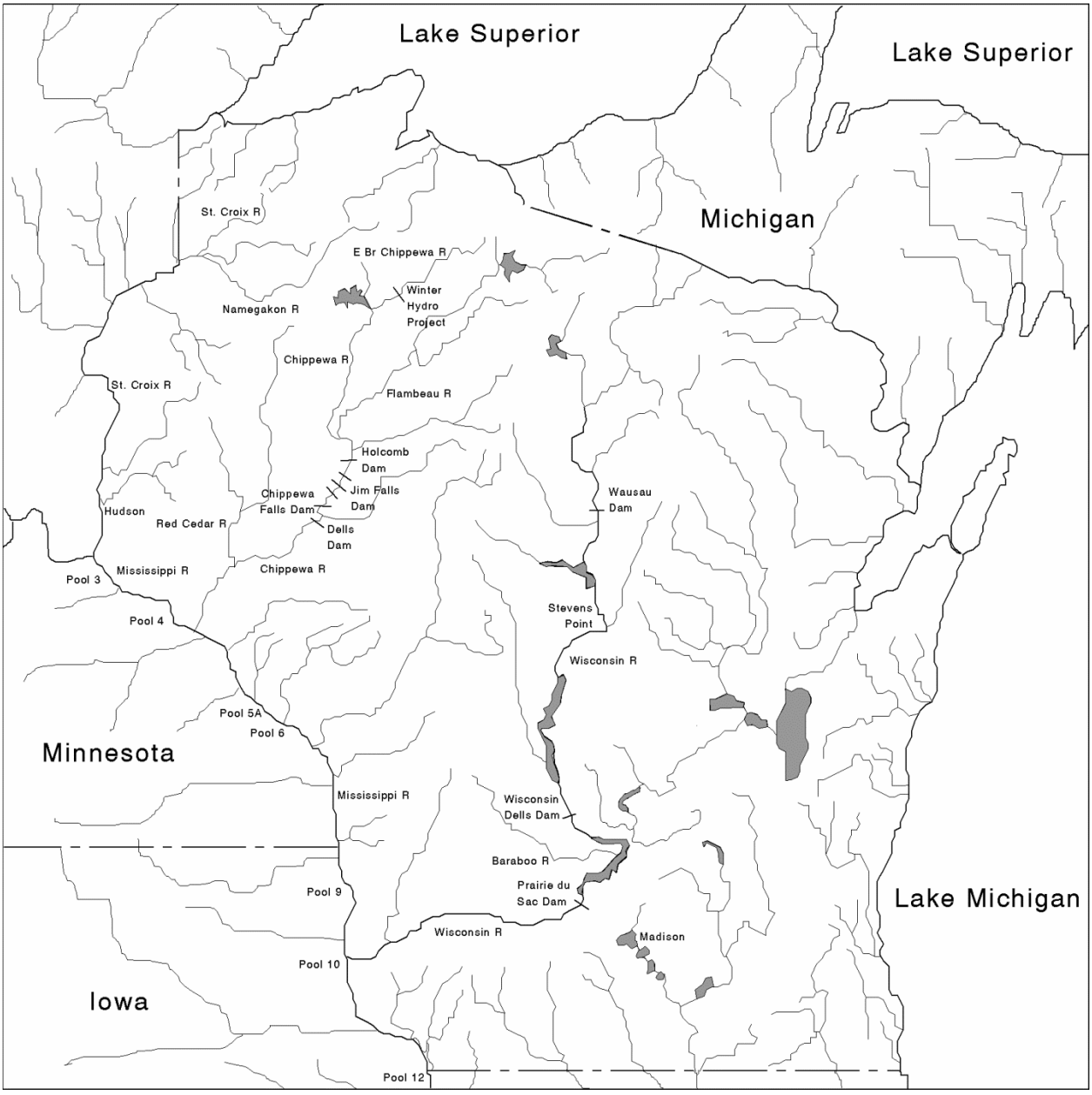
YEAR	Flesh Harvest (lbs)	Roe Harvest (lbs)	Roe Price ($/lb)	Roe Total Value ($)
2001	6,327	51	25	1,275
2002	4,195	271	30	8,130
2003	5,824	137	35	4,795
2004	2,167	198	40	7,920
2005	2,890	74	45	3,330
2006	3,988	79	55	4,345
2007	3,575	246	60	14,760
2008	1,627	103	100	10,339
2009	1,157	63	65	4,095
2010	540	34	75	2,556
2011	2,349	202	105	21,245
2012	7,125	745	100-45	66,148

Paddlefish

Paddlefish are currently receiving less study and management attention in Wisconsin than either of the sturgeon species. However, the paddlefish is one of the target species for the Prairie du Sac Dam fish passage project, and increased monitoring of the species in the Wisconsin River is anticipated in the coming years. Like the shovelnose sturgeon, the paddlefish once occurred at least as far upstream as Wisconsin Dells, but now is found only downstream of the dam, and one of the goals of the passage project is to re-establish the species above the dam (Figure 1). Probably the largest population of paddlefish in the state occurs immediately below the dam, and this population has been the subject of several previous studies by Wisconsin DNR (John Lyons), USFWS (Ann Runstrom, Mark Steingraeber), U.S. Geological Survey (Mike Dewey, Brent Knights, Steve Zigler), and University of Minnesota (Bruce Vondracek) biologists.

An ongoing study of paddlefish in Pools 5A and 6 of the Mississippi River recently began under the direction of St Mary's University, Winona, Minnesota, biologists (Josh Lallaman and students) in cooperation with the USFWS (Ann Runstrom, Mark Steingraeber) (Figure 1). Goals of this netting and radio tagging study, which also encounters lake sturgeon, are to characterize paddlefish (and lake sturgeon) population parameters and to document paddlefish movements and habitat use, particularly migration to spawning areas and identification of critical summer and winter habitats, in response to large-scale habitat restoration (island construction in Pollander Lake in Pool 5A).

Figure 1. Map of Wisconsin showing major rivers and lakes and localities mentioned in the text.



U.S. FISH AND WILDLIFE SERVICE – COLUMBIA REPORT- Tracy Hill

They have been working on the pallid sturgeon recovery plan update, and the upper lower Missouri pallid sturgeon assessment. Broodstock collection was low, similar to Gerald's in Nebraska, believed to be due to early water temperature rises and late mobilization for broodstock collection. USFWS hatcheries had issues with production in 2012. They are looking at endocrine disruptors from water treatment facilities with warm water discharge and their effects on shovelnose sturgeon and transgender fish. USGS has a long term study underway to study exposure of fish to high chemical levels from waste water treatment plants; no results are

available at this time. The paupier net was developed to catch Asian carp in Chicago to reduce the pressure on electrical barrier. There are already 117 non-native species in the Great Lakes, and now the issue is preventing introduction of Asian carp. Large Asian carp go into the net but turn around and go right back out. They catch small paddlefish with the net. In a side channel of the Missouri River during May-June, they caught paddlefish 200 to 790 mm EFL. They don't know if catching young paddlefish is an artifact of the hyper-abundant year class after the flood in 2011.

Chris O'Bara, reporting for the Ohio River, noted that there was no report from Indiana.

AD HOC COMMITTEE ON TAGGING PROTOCOLS – Gerald Mestl - They plan to write up their recommendations during the next year.

AD HOC COMMITTEE ON ONLINE COMMERCIAL REPORTING – Dave Herzog – Missouri's request to develop an online electronic system did not rank out high in the agency's priorities. Only 5% wanted a different form of reporting so the project was not further developed. Eric Ganus with Tennessee will be talking about TWRA's new system later in the meeting.

AD HOC COMMITTEE ON LAKE STURGEON – Dave Herzog – The lake sturgeon plan will be modeled on the pallid sturgeon plan. We need to make sure we are using the right strain of fish for stocking. Tagging protocols in place for pallid sturgeon will need slight modifications to adapt the protocols to lake sturgeon. We can buy into a larger, existing NSF grant to look at existing genetics for lake sturgeon. Amy Welsh is a researcher working on a proposal for investigating lake sturgeon meta-population genetics. Amy is currently an assistant professor at West Virginia University in the Wildlife and Fishery Resources Program. Examining meta-population genetics in lake sturgeon would further inform managers of proper selection of broodstock in propagation programs. The source of broodstock in the past for most states has been the Wolf River, Wisconsin.

SUB-BASIN TAG COORDINATORS REPORTS -

Sub-basin Tag Coordinators reports

Jason – The tag coordinators had a September merge meeting with Royce, Jason, Dane, and Greg participating. They merged all the sub-basin databases. Jason did not get any submissions from the lower basin states. The data base is a 50 MB file so itcannot be emailed. Jason trimmed it to a 2 MB version that is blank and data can be entered into it to merge to the master database.

Dane – 2011 data and 2012 data are being entered now. CWT reading will take time. Jason sent 200 rostrums that were all obtained from stocked fish. Trish sent 15 rostrums collected during the past two years.

Royce – No new data were entered into the database. Dane trained Royce to read CWT tags. They bought the jig and read 20 tags. Binary or laser etched tags….Missouri River tags were binary, which were easy to read.

Chris – He has their data from the past 10 years. During the last 3 years no data was collected. No Indiana data has been provided recently. Most new data is from the Wabash River, collected and submitted by Les Frankland of Illinois.

Report to the MICRA Paddlefish and Sturgeon Sub-committee
January 29-30, 2013
U.S. Fish & Wildlife Service, Division of Scientific Authority, Marie Maltese

Paddlefish

- For the period January 1, 2012 through December 31, 2012, 136 permits were issued by the Division of Management Authority (DMA); all for processed caviar (see note below regarding total exports).
- The total weight of paddlefish caviar permitted by DMA in 2012, was 16,229 kg (35,780 lbs.).

Note: The number of permits issued does not necessarily equal the total number of exports, as applicants may find that they don't need a specific permit because a shipment has been cancelled, or other reasons prevail. Total exports are found in the CITES Annual Report which is compiled each fall, with a one year lag-time; therefore, total exports for 2012 will be available in late fall 2013

Shovelnose sturgeon

- For the period January 1, 2012 through December 31, 2012, 22 permits were issued by DMA; all for processed caviar (see note above regarding total exports).
- The total weight of shovelnose sturgeon caviar permitted by DMA in 2012, was 1,661 kg (3,662 lbs.).

Would the State biologists provide their harvest data in kg and lbs for the 2011-2012 season? Also, please let us know if there have been any regulatory changes.

DSA's Chief, Dr. Rosemarie Gnam, and I would like to encourage each State to work closely and share data and current literature for paddlefish with our partner, Dr. Alexei Sharov. Alexei's

report on the status of paddlefish throughout its range will be an important report for all of us to use in making future management decisions for the conservation of the species. He can be reached at: ASHAROV@dnr.state.md.us.

I regret missing the meeting this year, however, if you have questions, literature, reports or any other matters to share with me, or if I can be of any assistance, please contact me at Marie_Maltese@fws.gov, or by telephone at: 703-358-2486.

NEXT MEETING TIME AND LOCATION – There was discussion that if Alexi wants to have a fall meeting it would be nice to have it near the Gavins Point fishery so everyone could view this fishery. Jeff Quinn mentioned that if the fall time did not work out he would like to have the meeting in the spring in Oklahoma to view the roe processing station on Grand Lake. The spring timeframe for this meeting may limit attendance by some members.

Action Item: MOTION – Have a fall meeting in Yankton, South Dakota by Chris O'Bara, Second by Eric Ganus. Marie requested Rosmarie Gnam be contacted about the time and location due to possible federal travel limitations. Discussion centered on our need to talk with Alexi and AFWA to make sure the fall meeting time and venue meet with their plans. Ponca State Park would be a nice place for the group to stay. Chairperson Jeff Quinn discussed new business; we need to have the technology to support webinars to allow those who cannot attend to participate, so that we can have a quorum. **Motion: - Gerald made a motion to set the quorum number at 7.**

OFFICER NOMINATIONS: The Ohio River basin is suggested in the SOP to provide the next assistant chairperson for the committee. Anthony Sindt indicated that hewould not mind doing it but he may not be a good fit since he is new.

MOTION: Gerald nominated Kirk Hansen from Iowa. Eric Ganus seconded the nomination. Kirk indicated he was willing to serve. **ACTION ITEM: email voting needed to confirm Kirk Hansen as the Assistant Chairperson.**

PRESENTATIONS:

Eric Ganus provided a report on Tennessee's commercial harvest database system. They are using an SQL platform. It is online, with delinquency reporting to enforcement. Everyone can track harvest real time, but there is still a data entry lag. They have lots of menus. The commercial fisherman's version has not been completed, and unfortunately it is not on the top priority list for TWRA to finish. Eric needs to do beta testing. Emailing can be done within the system. Eventually it will have some important enforcement features, and –captures log-in times on every screen that is viewed. The database can indicate if a fisher did not log in to report harvest. Other states can buy the SQL platform and can take pieces and run the system. They plan to make it available to individual states. Queries to repair errors are built in.

- **Action item; Remind Eric for screenshots. He can email the screenshots and tutorial**

Dennis Scarnecchia – provided an overview of the Montana/North Dakota paddlefish VPA. Catch was analyzed to calculate the population available to produce that amount of catch (Derzhavin 1922 – stellate sturgeon; Fry 1949 lake trout).

FIELD DEMONSTRATION - Wyatt Doyle and Tracy Hill provided a field demonstration of the paupier net for catching paddlefish. We captured about a dozen below Smithland Dam on the Ohio River. These were all small fish which are generally difficult to capture with gill nets.