Joint Middle and Lower Basin Pallid Sturgeon Workgroups and MICRA Paddlefish-Sturgeon Committee Meeting

January 19-20, 2011

Powder Valley Conservation Nature Center

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MICRA Paddlefish -Sturgeon Committee Action Items and Decisions

1. The harvest states need to update the harvest database for paddlefish and sturgeon.

2. Scholten will put together a summary of what all states have with respect to buyer's license and reporting requirements.

3. Motion was made to grant Dr. Pracheil continued access to the database. The motion was passed without further discussion.

4. Quinn will provide the database on DVD to Conover. Conover will add the database to the committee's website.

5. The committee will put together some instructions for what people should do if they collect a tagged paddlefish and are willing to sacrifice it. (Frozen jaw bones can be sent to Jeff Quinn; coded-wire tags will be sent to sub-basin database coordinators.)

6. Tim Porter and Mark Boone will follow-up with Trish Yasger to find Missouri's coded-wire tags to be read and entered into the database.

7. The Ohio River Basin states will get together and provide Katie with data from the past several years so that it can be merged with the basin-wide database.

8. Jason Schooley will follow-up with Brent Bristow and Gary Lucas to get any data that needs entered into the sub-basin database.

9. Lee Holt will check with Bill Posey to see if Arkansas has any tags or data that need submitted to Jason.

10. Coordinators will update the sub-basin databases with all data collected through June 30th, 2010, and send to the Columbia office by April 30th. Columbia will attempt to merge the databases by the end of June.

11. In 2012 (and all future years), all data collected through June 30th of the previous year should be submitted to the sub-basin coordinators by June 30th each year. Coordinators will update the sub-basin databases by January 15th with all data received through June 30th. Sub-basin databases will be merged at the annual committee meeting.

12. All committee members were asked to look at the new MICRA web site (www.MICRArivers.org) and to send comments or suggestions for the committee web page to Greg Conover.

13. George Scholten will provide a recommendation to the Executive Board that the Paddlefish/Sturgeon Committee implement a 2-year rotation for the chair as is used for the MICRA Executive Board. The proposal will include a chair-elect and a rotation among the different sub-basins. If it is approved, Scholten will work with the committee members to establish a rotation to begin January 1, 2012.

14. Chris O'Bara, Mark Boone (tentative yes), Jason Sorenson, Kirk Hansen, Doug Henley, and George Scholten volunteered to meet for a day this spring to develop a draft stocking/tagging protocols document for the committee to review.

15. George Scholten will include in the committees budget request to the Executive Board funds to purchase tag reading equipment for the Upper Mississippi and Ohio River coordinators, and 10,000 coded-wire tags for West Virginia.

MICRA Paddlefish -Sturgeon Committee Meeting Notes

Welcome / Introductions / Opening Remarks

George Scholten welcomed meeting attendees (see attached).

Review 2010 Meeting Minutes and Action Items

Scholten led a review of the Action Items from the January 2010 meeting.

1. Scholten sent out an email request and everyone shared their harvest reports. The committee has been trying to develop standardized reports for many years. Although the states have not been able to develop a standardized report, they have made considerable progress in including standardized information on the different state reports.

   The action item stemmed from FWS needs for making non-detriment findings for export permits. The FWS did not encounter any major problems over the last year

   The ad-hoc committee worked on this several years ago and recommended some substantial changes after a meeting with considerable LE participation. A harvest database was created in 2007 to compile all state harvest reports and may need to be updated. The committee investigated a centralized database that could be queried by fisherman, but this ran into too many hurdles.

   Illinois implemented a buyer's license and reporting requirement. This provided an additional means of verification. If all states had similar requirements this would provide a way to track movement of eggs among the states. This applies to both residents and non-residents.

   - **Action Item:** Update the harvest database for paddlefish and sturgeon.

   - **Action Item:** Scholten will put together a summary of what all states have with respect to buyer's license and reporting requirements.

2. The Executive Board has requested a report from the Paddlefish/Sturgeon Committee on the Paddlefish Stock Assessment Project. The discussion last year will be very helpful in developing that report. It doesn't appear that the existing database will allow us to conduct a basin-wide stock assessment as originally intended. However, there is a lot of useful information in the database that are contingent upon the database being maintained.

The FWS CITES office is interested in catch-per-unit-effort (CPUE) data. Is this data being collected by the states? The idea is to use more scientific data when making non-detriment findings. CPUE data can vary considerably depending on sampling techniques. Since everyone is not using standardized techniques, sampling periods, and habitats data will not be comparable from one effort to another. CPUE data may also be biased in that originally the states went out targeting paddlefish to tag; now the states are focused on tag recovery and do less targeted paddlefish sampling. There are so many variables surrounding CPUE data that caution should be used when trying to interpret those data.

Dr. Brenda M. Pracheil has been using the database over the last 5 years to complete her PhD project and would be very familiar with the capabilities and limitations of the data. Mark Pegg presented a proposal submitted to MICRA by Dr. Pracheil (see attached). She is completing her post-doc at a university in Wisconsin and would like to continue working with the MICRA dataset. She has been able to get movement estimates and population dynamics on both a Missouri River and basin-wide scale. She is not requesting funding, just access to the database to continue her research.

! Motion was made to grant Dr. Pracheil continued access to the database. The motion was passed without further discussion.

Is it possible to request Dr. Pracheil to look at this question about CPUE? She has identified a list of research objectives that she wants to look at, but the committee is welcome to present other needs to her.

What is on-going with the age validation from hatchery recaps? Jeff Quinn has had the lead on that, but he is in the pallid sturgeon session. We will ask for an update from him later. In general, this is important information that the committee should continue to collect. Quinn has been building a database of images from known age paddlefish jawbones from throughout the basin. The database is expanded anytime images of known age fish are provided. This is a useful tool for someone learning to read paddlefish jawbones or wanting to validate their aging technique.

West Virginia has a 3-year project starting where they will be looking at their hatchery paddlefish that have been stocked over the last nine years. Some of these fish (as many as 300) could be made available if someone is interested in reading them. There are several people that would likely be able to read the jaw bones.

Is this something that can be made available on the MICRA website? Yes.

- **Action Item:** Quinn will provide the database on DVD to Conover. Conover will add the database to the committee's website.

- **Action Item:** The committee will put together some instructions for what people should do if they collect a tagged paddlefish and are willing to sacrifice it. (Frozen jaw bones can be sent to Jeff Quinn; coded-wire tags will be sent to sub-basin database coordinators.)

This information will be used by Scholten to write a letter to the Executive Board this week explaining what the committee intends to use the database for and how it will be used and why it will be important for states to continue to provide data and maintain the database.

3. Addressed in previous discussion.

4. Sub-basin contacts have all been established. Further discussion tabled until after the state reports.

5. No discussion.

6. There is a possibility of posting the MICRA paddlefish database on the new website but it is a ways off. The MICRA website, including the committee pages, need to be developed. The next major addition will be the development of an MRBP website. The paddlefish database will investigated more fully once the MRBP website is complete. It will likely be another year before any real progress is made on the paddlefish database.

7. No discussion.

8. No external funding sources have been identified for continued management of the basin-wide paddlefish database and paddlefish management in general. Any suggestions would be appreciated.

9. Scholten made some progress on this over the past year but has had a difficult time getting committee members to work on this. Time has been scheduled for later this morning for the committee members to work on this.

10. No discussion.

11. Discussion on this item was tabled until the joint session since most people with sturgeon interest were in the concurrent pallid sturgeon workgroup meeting.

12. (and 13.) An updated from Dave Herzog is needed, but he is in the pallid sturgeon workgroup meeting.

14. The Ohio River states have begun collecting jawbones for age and growth analysis.

15. Scholten intends to complete this action item this week following the meeting.

16. Scholten tried to follow-up with David Argent but did not receive a response. O'Bara reported that the WV DNR provided fry to the USFWS Northeast Center. These were Ohio River fish. They attempted to raise the fish in hatchery ponds, but as far as he knows that did not have any fish survive. WV has been working with the Northeast Center and PA for the last 8-9 months to develop a paddlefish restoration plan for the upper Ohio River.

17. To some degree, this request stemmed from Missouri's letter inquiring about the MICRA paddlefish project and the need to continue coded-wire tagging all hatchery released paddlefish. This is being addressed by the ad-hoc committee that was revising the stocking and tagging protocols. The stocking and tagging protocols will be worked on later during this meeting. The committee needs to justify the recommendation for states to tag all hatchery released paddlefish.

Regional Paddlefish Reports/Updates

ORFMT

Doug Henley reported that for the 2009/2010 season Kentucky had 21 buyers (62% resident) and 84 fishers (82 residents). Statewide there were 9,774 paddlefish harvested. That equates to 227,281 pounds of flesh and 19,157 pounds of roe. In the Ohio River, which accounts for most of Kentucky's harvest, there were 9,049 paddlefish harvested (208,613 pounds of flesh and 17,696 pounds of roe). Length of harvested paddlefish ranged from 32-50 inches, mean length harvested was 36 inches. Last year's season was from November 1 to April 30.

This time last year, Kentucky fishermen had harvested 4,300 pounds of paddlefish roe and 185 pounds of shovelnose sturgeon roe during November and December 2009. During November and December 2010, Kentucky fishermen have harvested 9,113 pounds of paddlefish roe and 3.1 pounds of shovelnose sturgeon roe. 2,740 paddlefish have been harvested so far this season, 93% from the Ohio River. Other areas where paddlefish are harvested in Kentucky includes Kentucky and Barkley Lakes, the Mississippi River, and a couple of smaller places in Kentucky. This year there are 88 licensed fishers and 18 buyers.

Were river conditions more conducive to fishing this year? The river hasn't been overly conducive but egg prices were likely more conducive this year. The rumor is that eggs are selling for $90/pound. These are just Kentucky numbers. Illinois and Indiana also allow harvest on the Ohio River.

Rob Maher provided some harvest numbers from Illinois' season last year (October 1, 2009 – May 31, 2010). The Ohio River in Illinois does not have a lot of paddlefish or sturgeon harvested. A total of 672 pounds of paddlefish roe were harvested. The average selling price for roe was $57/pound. Only 9 pounds of shovelnose sturgeon roe were reported harvested from the Ohio River. There was concern that the SOA would shift fishermen to the Ohio River and increase pressure on shovelnose sturgeon. There is no indication yet that this has happened. Shovelnose sturgeon have always seemed to be an incidental harvest on the Ohio River in Illinois and a negligible part of the fishery. Illinois has set a quota on the number of licenses sold; only 10 roe harvester permits were sold for the Ohio River last year.

West Virginia does not allow commercial fishing, but continues with a paddlefish restoration program for the upper Ohio River. The state stocks 9,000 – 10,000 paddlefish each year. An assessment of the paddlefish population is planned to begin in 2011. The state is considering a recreational fishery for paddlefish in the next 5-10 years. West Virginia has also been providing hatchery-reared paddlefish to Pennsylvania and New York.

Kentucky has stocked several thousand alligator gar in Clark's River (Tennessee River drainage) over the last several years. The fish are tagged with sonic transmitters before they are released and Murray State University is tracking the fish. Most have stayed in Clark's River, but a couple have moved into the Ohio River. Kentucky has some stationary receivers in the Ohio River and to let them know if the fish move towards the Mississippi River, but the fish have not been detected by these receivers yet. Kentucky is using the VEMCO receivers and tags so that the fish can be detected by other receivers that have been deployed in Illinois and Missouri. Missouri is interested to learn if there are pallid sturgeon moving up the Ohio River. Sturgeon tag numbers have been provided to researchers at Murray State University. There have been no sturgeon detections in the Ohio River.

In the 2007-2008 and 2009-2010 commercial fishing season, Kentucky followed commercial fishermen and worked in fish markets to collect data on harvested paddlefish. Biologists collected egg samples and estimated fecundity. Jaw bones were collected from several hundred paddlefish. This was Kentucky's first attempt to age paddlefish. The two readers got within 2 years of each other for more than 80% of the fish. Some samples were sent to Dennis Scarnecchia and Jeff Quinn, but the results from those two readers were not consistent with each other or the Kentucky biologists. More than 500 paddlefish were aged.

Statewide harvest has been decreasing since 1999. The overall harvest in 2007 was much larger than in 2009. Roe harvest has been pretty high the last couple of years; this is probably price driven.

Kentucky has a roe harvesters permit for residents and non-residents, paddlefish season in November 1 – April 30, the number of commercial licenses has been capped, and 32" minimum length limits on the Ohio and Mississippi Rivers, 4" net restriction on the Ohio River and 3" net restriction on the Mississippi River.

2007-2008 data were prior to the implementation of the 32-inch minimum length size limit. A 32-inch length limit would have cropped off 44% of the fish harvest. The number of licensed commercial fishermen has stayed stable around 80 each year. The oldest fish were 11-12 years, most were 7-8 years old.

Age structure data have been critical to paddlefish management in Oklahoma.

LMRCC

Mississippi is in its 3rd year of a regulated paddlefish roe fishery. The first two years there was only one buyer and a couple of harvesters. This year there were 8 harvesters, 6 were also buyers. Last year 179 paddlefish were harvested, 927 paddlefish (~4,100 pounds of roe) have already been harvested this year.

Arkansas is entering the 3rd year of a study on the Mississippi River. Two of the commercial fishermen the state was working with have moved to Mississippi, so the state is looking at alternatives for getting fish for the study. An Arkansas River rotenone sample during the summer of 2010 yielded a large biomass of paddlefish. This was good news since this fishery was heavily fished from at least 2001-2007. Three years of high water appear to have helped the population somewhat recover. Gill netting performed during December 2010 and 2011 has determined that the fishery is in good shape.

Arkansas Game and Fish Commission is one of the funding agencies for a Mississippi River pallid sturgeon study. Arkansas has provided approximately $200,000 for this study over the last four years. Arkansas is beginning a shovelnose sturgeon study; the project will be discussed more tomorrow. Arkansas released seven large alligator gar in DeSoto Lake in June 2010. The fish were tagged with both radio and acoustic tags prior to release. The fish stayed in DeSoto Lake for 2-3 weeks after release. All of the fish moved to the Mississippi River in mid-July and have yet to be relocated.

Oklahoma

Oklahoma operates a research and processing center at Grand Lakes during March and April. In 2010 3,948 fish were processed and roe collected from females. The 2010 harvest decreased 40% from the 2009 harvest of 7,400 fish. A couple of regulation changes were made to hopefully reduce harvest in 2010. Brent Gordon talked about these changes at the Paddlefish/Sturgeon Committee meeting last January. Oklahoma instituted Monday and Fridays

as catch and release days. One river was completely closed to snagging. The decreased harvest in 2010 may have been due to environmental conditions as well as regulation changes. There was a poor spawning run and poor weather likely reduced fishing effort during the 2010 season. The state is hoping that harvest doesn't spike again in 2011.

This winter biologist netted for 6 weeks on Grand Lake and tagged approximately 1,000 paddlefish with jaw tags. They collected 50 or less recaptures from previous sampling efforts. Sampling is essentially finished for the year, but still need to collect and tag 30 gravid females for a telemetry project. Periodicity for spawning runs 2K juvenile. Paddlefish were stocked in Grand Lake this past August. No coded-wire tags were encountered during sampling. Only 1 coded-wire tagged paddlefish has ever been recaptured, that was in 2009.

Schooley is the Lower Missouri River sub-basin database coordinator. He attended the training in Columbia. He has not entered data or read any tags yet. He has received data from Tishomingo Hatchery.

Keith Green reported on harvest information collected at the research and processing center. Oklahoma does not allow commercial fishing for paddlefish. All fish processed at the center are from the sport fishery. Biologists collect data, pull jawbones, and spend time with each fisherman. 2008 was the first year for the center and around 4,000 paddlefish were processed. In 2009 the center processed around 7,400 fish. Based on age data from the jaw bones, they estimate that 82% of the fish (~16,000) that have been processed at the center are from the 1999 year class.

The state saw about a 20% increase in non-resident permits this year and approximately 76% of the paddlefish were harvested by non-residents. The previous regulation was 3 fish limit and people were likely high grading. The regulation was changed to 1 fish per day. It is a year-round fishery, but the research and processing center is only open in March and April.

The processing center produced about 10,000 pounds of roe in 2008 (averaged 5 pounds/female), 16,000 pounds in 2009 (averaged 5.5 pounds/female), and 10,250 pound of roe in 2010 (averaged 7 pounds/female). Almost all caviar was exported out of the U.S. The average selling prices for a pound of eggs was $180 in 2008, $119 in 2009, and $145 in 2010. The proceeds have been used to fund the purchase of new law enforcement equipment, hire new biologists, and for projects to clean up the Miami River, and improve boat ramps.

UMRCC

Mike Steuck reported that Iowa did not sample this spring because water levels went up when ice broke up. No commercial fishing. Sport fishing – 33% limit. Illinois got regulations through, no egg fish.

The Upper Mississippi River sub-basin paddlefish report incomplete at this time.

Rob Maher provided a report for Illinois. Illinois' regulations split the Mississippi River into Northern and Southern zones at Lock and Dam 26. A total of 307 pounds of roe were reported harvested from the northern zone and 756 pounds from the southern zone. River conditions were not favorable for fishing and the price of roe was down. The reported price last year was around $53/pound whereas the previous year price was $85/pound.

Caviar from the Wabash River consistently sells for a lower price than Mississippi River eggs which are reportedly of higher quality. Capped MSR permits >50 all IL. Right at quota for all permits – have a drawing for permits.

MRNRC

Jason Sorensen provide a report for South Dakota. Working on SE sport harvest on Francis Case Reservoir. Stocked since 1970's, but for the most part have not been successful. Began stocking larger fingerlings in the 1990's. Seeing better survivability/stock annually, but no recruitment.

South Dakota was not able to sample as much as usual last year due to high water. Approximately 7 hours of sampling effort below Gavins Point dam yielded 622 paddlefish. Thirty-three had coded-wire tags, thirty-one had jaw tags, and 500+ fish were tagged with jaw tags.

Dr. Pracheil was working on the section of river between Ft. Randell and Gavins Point dams. South Dakota has been trying to continue that work. Approximately 14 hours of effort between the two dams yielded 21 fish. Five fish had coded-wire tags, four had jaw tags, and 17 were tagged with jaw tags.

Sixty-seven paddlefish were collected with dip nets and tagged.

Mark Boone, Big Rivers Specialist taking over for Trish Yasger, provided a report for Missouri. Missouri stocked 37,000 paddlefish, 500 tagged for Black R. Raise paddlefish again in 2011. Trish Yasger working on paddlefish white paper due to SOA concerns. She worked with National Geographic on paddlefish filming.

Moon Lake, Mississippi – Gary Lucas

Moon Lake is a 2,200 acre lake in northwest Mississippi. The lake is now cut off from the Mississippi River by a mainline levee. The last known connection to the Mississippi River was in 1863. The Coldwater River can flood Moon Lake.

The lake has been closed to commercial fishing since the 1940's. It has occasionally been opened for infrequent periods and tightly regulated. The last time the lake was opened to commercial fishing was in 1984. Biologists have found game fish stocks to be less than desired and high stocks of non-game gross fish. Biologists wanted to reduce non-game gross fish through commercial fishing to see if sport fish stocks would improve. There was also a petition from local commercial fishermen to allow commercial harvest of non-game gross fish.

The lake was opened for a controlled paddlefish fishery. Paddlefish fishermen were required to run at least 200 yards of 4-inch mesh net to harvest rough fish. The lake was opened for 1 week in December 2010 and will be opened for another 1-week period in February 2011. Fishermen all used a single boat ramp and biologist saw all fish that were harvested. Biologists went out and worked with the fishermen as they were running their nets and tagged paddlefish that were released. The public appreciated the fishery.

A 94# female paddlefish was harvested with an average egg sac weight of 17 pounds and 7 pounds of caviar per egg sac. Many of the fish were very fat. One fish had so much fat in the eggs that they could not be processed. Eight harvesters in six boats harvested 468 paddlefish; approximately 28,000 pounds of flesh and 2,363 pounds of roe. The rough fish harvest was only 2,844 pounds. Only 3 Asian carps were harvested.

Length frequency data were compared to Mississippi River paddlefish data from Arkansas (both commercial harvest and biologist ride-along data). The largest paddlefish collected was 42-inches. Mississippi opened a paddlefish fishery in the Sunflower River last year; the largest fish harvested was 40-inches. The paddlefish in Moon Lake had a mode of 43-inches (eye-fork length) and the largest fish was 49-inches. Few small paddlefish were caught and released; this is likely a result of infrequent flooding from the Coldwater River.

Moon Lake provides an idea of the potential for paddlefish in an unfished lake population. The Moon Lake length-frequency data will be used by Mississippi when setting paddlefish regulations.

Tagging database update

Missouri River - Tim Porter

This year went really well. 100 tags were received; 95 from the Gavins Point Dam tailwater and 5 from the Fort Randall Dam tailwater. Out of the 95 tags from Gavins Point Dam 2 were unreadable, 52 were of hatchery origin, and 41 were wild tagged. 43 of the hatchery origin fish were from South Dakota; 31 from Lake Francis Case two dams up, and the other 12 were stocked just above Gavins Point Dam. Six hatchery fish were from Kansas; 3 each from the 1994 and 1995 year classes. Three hatchery fish were from Missouri; two stocked in Lake of the Ozarks in 2001 and one stocked in Truman Lake in 2001. Of the 41 recaptured wild tagged fish,

22 were tagged by Nebraska, 18 by South Dakota, and 1 by Iowa that was tagged in the mouth of the Big Sioux River.

Four of the five tags recovered in the Fort Randall Dam tailwater were originally released in Lake Francis Case just above the dam. The fifth tag was unreadable.

Data was received from Nebraska and South Dakota, but unsure if all 2010 data has been submitted. Most of the recaptures were recovered through recreational fisheries. South Dakota had a creel clerk working the area that wanded harvested fish and recovered coded-wire tags.

Missouri has a few recaptures to submit. Trish may have sent tags to Tim but they were not received.

! **Action Item:** Tim Porter and Mark Boone will follow-up with Trish Yasger to find Missouri's coded-wire tags to be read and entered into the database.

Iowa has not submitted any tags. Only tagging was with jawtags.

Reading the tags went well. A couple folks worked on processing the tags and data and it went fast. Data has all been entered in the access database and Tim ran the recapture report.

Ohio River – Chris O'Bara
Ohio River folks just had their meeting. Kentucky has some tags (< 12) that still need to be sent to the sub-basin coordinator. Katie was unable to attend the training and has been doing some in-house training reading tags. No recapture tags have been read yet. Can Katie have the Ohio River tags and data complete and ready to merge by the end of March?

Are we still wanting to include jaw tags in the recapture data? Yes jaw tag tagging and recapture data should also be submitted to the sub-basin database coordinators.

Has the Ohio River jaw tag database been submitted annually for inclusion in the MICRA database? No data have been submitted in the last couple of years. Will the Ohio River data base mesh with the MICRA database? We will make it mesh.

! **Action Item:** The Ohio River Basin states will get together and provide Katie with data from the past several years so that it can be merged with the basin-wide database.

Upper Mississippi River – Mike Steuck
Iowa is the only state that has been collecting data since 2004. There are no data to enter from last year because there was no sampling. He has about 12 tags to read and will be able to have that data ready by late-March.

Merging in late-March could be a problem for the Columbia office, they would prefer to shoot for late-February. After late-February the Columbia office will not be able to work on the data merge until June due to other commitments.

How urgent is the merged database needed, will the difference between March and June be a problem for anyone? Gary Lucas has several years of data back logged and cannot get it entered and submitted by the end of March. The end of February is not possible for the Ohio River basin. This year all data should be submitted by the end of March, with the understanding that it will be June before Columbia can merge the databases. Next year we will plan to merge the databases at the January meeting.

Lower Mississippi River – Jason Schooley and Brent Gordon
No data were received until late-December. Jason was in the field generating data at the same time, so he has not been able to enter any data or read any tags. He has batch tags from a Tishomingo stocking and approximately 1,000 jaw tags.

No other data has been received. Jason is wondering if Brent Bristow is generating jaw tag data. Gary Lucas has data that needs entered, but no coded-wire tags that need read. Tupelo National Fish Hatchery may be coded-wire tagging paddlefish.

! **Action Item:** Jason Schooley will follow-up with Brent Bristow and Gary Lucas to get any data that needs entered into the sub-basin database.

Jason will have a hard time finding the time to read tags and enter the data, especially when some states may have several years' worth of data to submit. Oklahoma may have their secretary do some of the data entry.

Are each of the states entering data or going through coordinator? In the Missouri River the other states have sent the data sheets and the coordinator has entered the data. In the past, the states were entering their own data and submitting a data file to the Columbia office to reduce the amount of time Columbia staff spent on the project. At the last meeting we decided that the data and tags would now be sent to the sub-basin database coordinator to be read and entered into a sub-basin database, that way we are only merging 4 or 5 databases rather than one from each state. The sub-basins can determine whether data files or raw data should be submitted to the sub-basin coordinator.

Arkansas does not have any recaptures from Mississippi River fish. Jeff or Frank would need to answer for the Arkansas River. Bill Posey likely has any tags and data for Arkansas.

- **Action Item:** Lee Holt will check with Bill Posey to see if Arkansas has any tags or data that need submitted to Jason.

Is the March 31st deadline possible for the LMR? Mid to late-May will likely be the Columbia office's first opportunity to work on merging the database.

Columbia office will not have long-term capability to provide a technical expert to merge the databases each year. Columbia will do as much as they can for as long as they can, but their technical experts are moving on. The committee needs to identify someone that can serve in this capacity in future years. The decision reached by the committee in 2009 was to pay Columbia for a small amount of technical assistance in 2010 and 2011 so that the sub-basins would be self-sufficient by the end of 2011. The sub-basin coordinators need to work with Columbia to understand how to merge the databases. The sub-basin coordinators also need to be training others before they leave so that the sub-basin remains functional and self-sufficient. It will be very important for each of the states and sub-basin coordinators to maintain the integrity of the standardized database, otherwise the annual merge will become a problem. It is also important that everyone meet the agreed deadlines.

We expected some lag time this year as the different sub-basin coordinators were trained and set up their shops to recover and read coded-wire tags. It will be important to establish and hit deadlines in the future.

- **Annual Deadlines:**

  2011: Coordinators will update the sub-basin databases with all data collected through June 30th, 2010, and send to the Columbia office by April 30th. Columbia will attempt to merge the databases by the end of June.

  2012 (and future years): All data collected through June 30th of the previous year should be submitted to the sub-basin coordinators by June 30th each year. Coordinators will update the sub-basin databases by January 15th with all data received through June 30th. Sub-basin databases will be merged at the annual committee meeting.

Suggestions for Web Sites

MICRA has developed a new website (www.MICRArivers.org). The Paddlefish/Sturgeon Committee webpage was copied over from the old web site. Greg would like to develop a new web page for the committee.

! **Action Item:** Please take a look at the new MICRA web site and provide comments/suggestions for the committee web page to Greg

Paddlefish/Sturgeon Committee Chair

George Scholten will step down from committee chair at the end of 2011.

The committee has only had three chairmen since it was formed. He recommended that the committee establish a rotating committee chair position (2-4 year term). This would help anyone person or agency from holding the duties for too long, and it would benefit the committee to have the chair position rotated among the sub-basins. It would be a good idea to recommend this to the Executive Board, which is on a 2-year rotation. It would be good to have a chair and chair-elect, similar to the Executive Board, so that the chair-elect has a couple of years to prepare for assuming the responsibilities of the chairman. It would be good to rotate the chair among the sub-basins similar to MICRA Chairman.

Will the states representatives be able to serve as chairmen when their turn on the rotation comes around? It will depend on the administration that is in place. There may be times when a state cannot fill the role and we would just move on to the next state. Sometimes it helps biologists to get travel approval if they are the chairperson.

! **Action Item:** George Scholten will provide a recommendation to the Executive Board that the Paddlefish/Sturgeon Committee implement a 2-year rotation for the chair as is used for the MICRA Executive Board. The proposal will include a chair-elect and a rotation among the different sub-basins. If it is approved, Scholten will work with the committee members to establish a rotation to begin January 1, 2012.

Stocking/Tagging Protocols

The committee did not have time to work in breakout groups to develop drafts of these documents. George has tried to move this along via conference calls and emails but has not had much success getting people to participate. A small group could meet for a day and develop draft documents for the rest of the committee to review. There are 3 main topics: genetics/propagation, disease/parasite testing, tagging/marking. Brian Elkington and Trish Yasger were working on the tagging and marking portion, but are no longer available to develop this section. What states are raising paddlefish? West Virginia, South Dakota, Missouri, and Mississippi. It would be good to get Ed Heist to work on the genetics section. Missouri (Jeff Koppelman?) was involved with the first paddlefish genetics document and may want to participate in developing the updated protocols. Kentucky may want to participate to make sure reservoir ranching concerns are addressed.

! **Action Item:** Chris O'Bara, Mark Boone (tentative yes), Jason Sorenson, Kirk Hansen, Doug Henley, and George Scholten volunteered to meet for a day this spring to develop a draft stocking/tagging protocols document for the committee to review.

It may be necessary to hold a second committee meeting this year. A lot happens when the committee meets, but not much happens between meetings.

Budget Needs

Does MICRA still purchase tags for the states? Yes, if a state gets in a bind. West Virginia will need tags this year, approximately 10,000 tags.

Upper Mississippi River and Ohio River coordinators need coded-wire tag reading equipment. Bobby Reed has a set and will send it to the Lower Mississippi River coordinator. Jigs are approximately $250 and reading pencils are at least $70. Multiple pencils will be needed because the magnetic tip easily breaks off. 'V' tag detectors are recommended over the hand-held wand. They are more durable and much less expensive.

! **Action Item:** George Scholten will include in the committees budget request to the Executive Board funds to purchase tag reading equipment for the Upper Mississippi and Ohio River coordinators, and 10,000 coded-wire tags for West Virginia.

Meeting Participants

Name	Agency	E-mail
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Joint Middle and Lower Basin Pallid Sturgeon Workgroups and
MICRA Paddlefish-Sturgeon Committee Meeting
January 19-20, 2011
Powder Valley Conservation Nature Center
11715 Cragwold Rd., Kirkwood, MO, 63122; Phone: (314) 301-1500

AGENDA

Wednesday, January 19th Morning Session (8:00 -11:30) - Concurrent Meetings

MICRA Paddlefish -Sturgeon Committee Meeting (Room AorB)

8:00 AM Welcome / Introductions / Opening Remarks
Review 2010 Meeting Minutes and Action Items
Discuss reports requested by Executive Board

8:30 AM Regional Paddlefish Reports/Updates
- ORFMT – Doug Henley
- LMRCC – Paul Rister
- UMRCC – Mike Steuck
- MRNRC – Gerald Mestl
-Other State Reports/Updates

9:20 AM Moon Lake Paddlefish Fishery. Garry Lucas

9:40 AM Review of 2010 Activities for MICRA Paddlefish Tagging Project Coordinators:
- Gerald Mestl (Functionally Tim Porter): Missouri River Basin Drainage
- Kati Zipfel: Ohio River Basin Drainage
- Mike Steuck: Upper Mississippi River Basin Drainage
- Brent Gordon (Functionally Jason Schooley): Lower Mississippi River Basin Drainage

10:00 AM ***Break***

10:30 AM MICRA Paddlefish Stocking Protocols - Break out into three groups, identify issues that should be addressed by these protocols, and draft outline for each section.
1) Genetics/Propagation;
2) Disease/Parasite Testing
3) Tagging/Marking

11:30 AM ***Everyone Lunch*** (on your own)

Request for Access to MICRA Paddlefish Stock Assessment Database 2011-2012

Dr. Brenda M. Pracheil

Center for Limnology, University of Wisconsin-Madison

Background

I have been using the MICRA paddlefish stock assessment database for the last 5 years to examine several aspects of paddlefish population dynamics at both the local scale (South Dakota and Nebraska) and nearly range-wide scale (spatial extent of the MICRA database). This depth of experience has made me uniquely familiar with the strengths and limitations of this database. Thus far, I have been accessing the MICRA database under permission given to my PhD supervisor, Dr. Mark Pegg. I completed my PhD in December, 2010 and am now a postdoctoral research associate at the University of Wisconsin-Madison Center for Limnology. **The purpose of this letter is to formally request your permission for continued access to the MICRA database independent of Dr. Pegg.**

The MICRA paddlefish stock assessment database is a critical tool in increasing our understanding of these fishes. This database holds the answers to many existing paddlefish conservation and management questions including those on population dynamics and other vital rates at a nearly range-wide scale. The spatial and temporal extent of this database is unprecedented among large river freshwater fish in North America, and as such, information contained in this database may also be useful in answering general questions of survival and movement for other migratory fishes—many of whom are imperiled. Moreover, the Order Acipenseriformes was named the most endangered taxon on the planet by the International Union of the Conservation of Nature in 2010. This designation underscores the need for a greater understanding of this group of fishes in light of their imperiled status.

Potential Future Research Objectives

- Determine size, survival, recapture probabilities, and population trajectories of populations throughout the species range
- Determine how stocking influences population dynamics
- Quantify movement of paddlefish through dams
- Determine stage-specific paddlefish habitat use
- Determine rates of injuries (i.e., missing rostrums, lamprey wounds) and the associated consequences (i.e., impacts on relative weight)

Current and Anticipated Work Products Incorporating the Paddlefish Stock Assessment Database

Pracheil, B.M. 2010. Multi-scale Perspectives on Paddlefish Populations: Implications for Species Conservation and Management. Ph.D. Dissertation. University of Nebraska-Lincoln. 174 pp.

Pracheil, B.M., M.A. Pegg, and G.E. Mestl. Submitted. Movements and habitat use of wild and hatchery-origin paddlefish: implications for species restoration.

Pracheil, B.M., L.A. Powell, M.A. Pegg, and G.E. Mestl. Submitted. Movement and survival of wild and stocked paddlefish across their species range and potential application for management of migratory fishes.

Pracheil, B.M., M.A. Pegg, and G.E. Mestl. In Prep. Population characteristics of the paddlefish population between Ft. Randall and Gavins Point dams.

Pracheil, B.M. M.A. Pegg, and G.E. Mestl. In Prep. Implcations of fish stocking: small-scale input with large scale influences.

Joint Middle and Lower Basin Pallid Sturgeon Workgroup Meeting
January 19-20, 2011
Powder Valley Conservation Nature Center, St. Louis, MO
Notes by Nebraska Game and Parks

Wednesday, January 19, 2011

Attending (see attachments A&B)- Dave Herzog MDC, Gerald Mestl NGPC, George Jordan USFWS, Greg Moyer USFWS, Hal Schramm MS COOP Unit, Jeff Finley USFWS, Nate Caswell USFWS, Matt Mangan USFWS, Jennifer Hogue USFWS, Bernie3 Kuhajda U of Alabama, Bill Beacom, Paul Hartfeld USFWS, Ed Heist SIUC, Jeff Quinn AGFC, Thomas Parker USACE, Quinton Phelps MDC, Sara Tripp SIUC, Dan Burleson USFWS, Rob Klumb USFWS, Hilary Meyer SDSU, Emily Pherigo USGS, James Crandrl USGS, Craig Gemming MDC, Kyle Winders MDC, Bruce Drecktrah MDC, Jake Colehour MDC, Darby Niswonger MDC, Roderick May USFWS, Todd Slack USACE, Ryan Ruskamp NGPC, Sabrina Davenport USGS, Chad Vishy USGS, Aaron DeLonay USGS, Kim Chojhacki USGS, Karen Rouse MoDNR, Jason Herrala MSU, Nathan Kuntz MSU, Rob Devries MSU, Mark Czuplewsh Central Platte NRD, Jeff Powell USFWS, Marc Jackson USFWS, Josh Wilhelm NGPC, Dave Adams NGPC, Marty Hamel UNL, Kirk Steffensen NGPC, Craig Fleming USACE, Jack Killgore ERDC, Jan Hoover ERDC, Leonard Pitcher USACE, Mike Thorn USACE, Paul DuBowy USACE, Justin Haas NGPC, Bill Garvey NGPC, Rob Wood SLU, Krista Boysen SLU, John Shadle NPPD

Workgroup business meeting

Welcome by Dave Herzog and Gerald Mestl.

Introductions
George Jordan -recovery team up date
-A look at the guiding documents for the pallid sturgeon recovery program and how said documents came to be and their review process.
-Recovery Outline- protect and restore, conduct research, develop captive propagation program, coordinate among partners,
Goals -short term-prevent extirpation, long term- protect and restore habitat
-2007 - 5 year review
-2011/2012 revised recovery plan.
-47 references used in original recovery plan 9 specifically for sturgeon, over 200 in revised plan
What we know about sturgeon today is exponentially more than when the original plan was written.
-SOA 30 second update
Effective October 1 2010. Law suit filled September 30 2010,
-Range wide stocking plan completed in 2006.
Suitable local brood for spawning available below Gavins Point Dam
2008 -three year moratorium on upper basin fish stocked below Gavins Point
Next revision in 2011 because of the end of the moratorium
-What is the pallid sturgeon recovery program
Collaboration of agencies who work toward the betterment of pallid sturgeon.

Lower Basin Taxonomic/ Genetic Study

Paul Hartfeld- lower basin having extreme difficulty distinguishing pallid sturgeon from shovelnose sturgeon and/or hybrids using existing methods (ci, morphometrics, and or combination). This is the lower basin workgroup's #1 priority right now. 100 specimens from 5 different regions all in the Lower Mississippi. 20 specimens from each region. 100 pallid sturgeon 100 shovelnose sturgeon and 100 hybrids. Funding was there to do the analysis but no money to collect the fish. Using existing crews in these areas, to capture, and put in a cooler of ice instead of releasing. Currently working on the collection stage of this project. To date 8 pallid, 9 hybrid, 29 shovelnose collected and preserved.

Gerald Mestl - What is the time frame?

Paul Hartfeld - 2 – 3 years

George Jordan- 5 years worth of funding

Paul DuBowy- supports the taxonomist study, but not the taking of fish. Recovery program talks about overutilization of fish for scientific reasons. This is what this study is doing. Wants a power analysis done to know if 100 specimens are enough. Don't kill fish unless the data can be used. Not another "nothing significant was found" study.

Ed Heist- says 50 specimens per type is enough to distinguish a difference between the species

Bernie Kuhajda- 20 specimens is the base line for taxonomic studies

Dave Herzog -concerns of phenotypic plasticity difference between the MO and the MS. This study would help address that issue.

Bill Beacom- hypothetically this study could show that the dams caused a paradigm shift from the lower Missouri being a rearing ground historically; the dams changed it into a drifting zone and turned the Mississippi into the rearing zone.

Paul Hartfeld -we take measurements and try linking morphometrics to genetics. So when genetics comes back different than the morphometrics, we look at the data and some can be attributed to data errors, shows a need for a good baseline data set for pallid, shovelnose, and hybrid sturgeon.

Aaron DeLonay-Likes the study, thinks a power analysis is warranted. 100 fish is enough and killing more than that will not make it a better study. Resolving this issue is important. It is an identification study. Hard voucher specimens tied to genetics base line.

Greg Moyer-Doesn't believe that a power analysis can be preformed until after the study, because there are no good previous studies done.

Paul DuBowy-Put in the scope of work that this is experimental at first, using adaptive management, adjust numbers on an ongoing basis. Take an ongoing approach to this, evaluate this on a year by year basis, as fish come in do we need more?

Hal Schram-How to determine the number of specimens needed, go incrementally, 10 fish this year, and if needed and going in the right direction take the next 10. Can the numbers be looked at on a yearly basis as fish come in?

Bernie Kuhajda -Yes run in house specimens at the end of year and discuss.

Paul Hartfeld -wants to continue as proposed 20 of each species in 5 areas. Is willing to change the scope of work in order to make Paul DuBowy comfortable with the taking of fish and look at results on a year by year basis.

Paul Hartfeld- could this be done from Gavins Point Dam down using wild fish?
Gerald Mestl -no
Kirk Steffensen -yes
Aaron DeLonay - yes using a wild fish that have already contributed 5000-10000 progeny.
Rob Klumb- Are these fish in our freezer already?
SD has 4-5
NE no wild, only hatchery origin mortalities
Break
Jack Killgore –Can we use CWT fish in the taxonomic study or would they be a separate group?
Paul Hartfeld- We should take these fish not just for this study and age validation, but to use as length and growth curves, how they are disseminating.
Dave Herzog- CWT fish is a different study than the taxonomic study.
Ed Heist – Cannot identify all CWT fish due to not all parental genetics are known.
George Jordan -what can you gain from killing the fish? Can you remove the CWT?
CWT removal is lethal
Dave Herzog- Pilot study on the Atchafalaya, since they are entrained, put a telemetry tag in a CWT fish and determine how it is behaving. Then if deemed needed, continue study on the Mississippi River.
Aaron DeLonay – How do you know these CWT fish don't belong?
Gerald Mestl – These fish should be used for age, fecundity, growth studies
George Jordan -this is a fish handling protocol. Put together a proposal so protocols can be adjusted and taken to the workgroup and to the recovery team for a protocol change.

Middle basin
Hatchery updates
Jeff Powell – Gavins Point National Fish Hatchery
7 wild fish on station
300 fish stocked out
2200 fish overwintered to be stocked this spring
Rod May – Neosho National Fish Hatchery
10 fish on station
2 hatchery (2002 yc)
1 recap from 2008 stocking
Fish putting on good weight 2 to 6 lbs
4270 fish being over wintered
Gerald Mestl – If the hatchery origin fish meet telemetry requirements, can we put these fish to use?
Aaron DeLonay - Yes

Jake Colhour – Blind Pony State Fish Hatchery
8 males cryoed
Stocked 3000
Shipped 4700 fish to Neosho for overwinter
19% survival from egg to stock
One fish had a lot of eggs that never materialized, eggs looked different, they looked bad from the beginning.
Dave Herzog due to low survival, is there anything we can quantify to learn from what happened?
Bruce Drecktrah -no
James Crandrl - A lot of data could be collected but due to time and being able to quantify the data, its difficult and is a work in progress, with blood chemistry and micro array project.
Gerald Mestl - how can we quantify egg quality? And do we track egg quality? And can we target it?
James Crandrl - yes and it is ongoing
Gerald Mestl -could it be due to these are young fish early in their spawning career.
Kirk Steffensen- are smaller fish 800-900mm better spawners?
Jake Colhour- we will take a look at it
Jeff Powel - Looking at captive broodstock, watching fish for 14 years in the same tank, same water, but each fish has its own time line as to when they are ready to spawn.
Kirk Steffensen –Is Gavins Point able to spawn this year?
Jeff Powell- No
Rod May - Neosho is adding heaters to the captive building so will soon have the ability to manipulate water temps during the spawning cycle.
Gerald Mestl - For current and past years we need to get daily logs and diaries entered in to a database to try to tease out what happened in a given year may have caused or led to low survival %. Task the committee.
2011 Broodstock
Any fish that is shipped to a hatchery has a genetic sample taken in the field by the field crew even if it has a scar from a previous fin clip.
Aaron Delonay - communication was exemplary in 2010.
Wyatt Doyle - how do we get a master database with genetic info in it from Lamar and SIUC?
George Jordan - linking genetics to the FWS website is in development.
Wyatt Doyle - proposes that the stocking subcommittee tackle this in a statement of needs and/or priorities and send our concerns to the genetic labs (SIUC, Lamar, Warm Springs).
Bruce Drecktrah -April 15th is cut off for hauling potential broodfish to Blind Pony
Paul Hartfeld and Bernie Kuhajda - want 30 hatchery reared fish for a study on the influence of water temp and chemistry on growth. Preserved in 10% formalin, and raised in similar conditions.
Bernie Kuhajda-will get back to the group with the size of fish needed.
Gerald Mestl - Aaron DeLonay is new middle basin chair person, looking for a new STOPGAB committee chair person.
Dave Herzog- report pallid captures to Ryan Wilson.
Adjourn

Joint Middle and Lower Basin Pallid Sturgeon and MICRA paddlefish and sturgeon workgroups
January 19-20, 2011
Powder Valley Conservation Nature Center, St. Louis, MO
Notes by Mark Boone

Similarity of Appearance Rule, Tracy Hill

- Pallid sturgeon became federally endangered in 1990; recovery plan developed in 1993
- Mid 1990s most states closed the commercial harvest of shovelnose sturgeon, except IL, MO, KY, and TN
- MICRA P/S Committee recommended closure of commercial sturgeon fishing in 1997
- TN tried unsuccessfully to close sturgeon commercial fishing in 2007
- Discussed a TN study and illegal take of pallids
- Rationale for SOA ruling—difficult to distinguish between pallid and shovelnose sturgeon
- September 22, 2009—published a proposed rule in the Federal Register to list shovelnose sturgeon as a federally threatened due to its similarity of appearance with pallid sturgeon
- Extended public comment period to February 4, 2010
- Rule enacted in October 2010
- Next step is to evaluate SOA; more than one agency should be involved

Pallid sturgeon in the Upper Mississippi River and other areas not covered by SOA, Dave Herzog

- Statewide mortality of shovelnose sturgeon in Missouri was estimated to be 28%
- T-bar tags are used from Louisiana to Gavins Point to mark sturgeon
- Eight pallid sturgeon were identified by VR2 receivers in the upper Mississippi River (UMR)pools
- Two pallid sturgeon were sampled in the UMR pools
- Mentioned the need to use the best method to estimate mortality; several in audience suggested using catch curves
- Dave asked the audience several questions
    - What metrics do we need to evaluate and manage sturgeon?
    - Is there a benefit to look outside the normal range (e.g., Ohio River, UMR pools) for pallid sturgeon? Aaron DeLonay noted that pallids will move up tributaries—is that part of their range or just 'wayward' fish? This is an important concept for UMR pools.
    - Do we need specific management action for pallids in UMR pools/outside SOA?
    - Is mortality a good tool/best method to evaluate sturgeon populations? Is catch curve analysis the best method to estimate mortality or is there a better method?
    - How confident are we with our aging technique?
    - Jeff Quinn asked why not use spawning potential, which will better define critical mortality rate.

Local movement and habitat use of pallid sturgeon in the Atchafalaya River, Jason Herrala (Hal Schramm's student)

- Project to identify habitat use by pallid sturgeon, especially preferred and essential habitats
- Proportion of time spent at specific macrohabitats
- The Atchafalaya River system is unnatural with heavily reveted banks of articulated concrete mattress. Deposition occurs on outside bends and erosion occurs on inside bends.
- Fish move little between migrations

Macrohabitat use of pallid sturgeon…, another of Hal Schramm's students

- Study area was a 37 km reach, consisting of four bends of the lower Mississippi River
- Actively tracked pallids from March 2009 through November 2010
- Habitats: main channel, channel border (inside sand bar or outside bend), wing dikes, 2° channels (upper, middle, lower sections), and island tips
- Period 1: Spring-late summer; preferred inside bends and 2° channels
- Period 2: Late summer-winter; preferred wing dikes, then main channel and inside bends
- Period 3: Spring-early summer; preferred island tips, wing dikes, and inside bends
- Period 4: Time period?; preferred inside bends, main channel, and outside natural bends
- Period 5: Late summer-early fall; main channel and three others
- In general, preferred 2° channels and island tips during high water and wing dikes, outside bends, and the main channel during low water

Research approach to the lower Mississippi River, Tom Parker

- Hired ERDC to determine sturgeon movement into five diversions from the Mississippi River (Atchafalaya River too?) to the Gulf of Mexico
- Used telemetry to monitor fish movement
- Documented entrainment and estimated incidental take

Tissue sampling and techniques for population estimation, Jan Hoover

- Conducted contaminant analysis on sturgeon in 2010
- Veterinarians used biopsy to test liver and other organs
- Tested for 50 contaminants, including pesticides and metals
- Came out pretty clean
- Jan also discussed a 1974 paper by Graham Bell to determine population numbers with marked fish, but no recaptures. He handed out copies of the one-page paper.

Guidelines for propagation and translocation for freshwater fish conservation, Bernie Kuhajda

- Guiding principal—do no harm
- Eight rules/considerations:
    - Habitat is suitable
    - Are numbers low or has sampling not accurately documented numbers
    - Choose broodstock source wisely
    - Propagate naturally and carefully
    - Prepare for release
    - Evaluate and adapt
    - Record and share it

Latitudinal Variation in pallid sturgeon physiology, Hilary Meyer

- Will conduct a study to determine genetic and growth differences throughout its range (e.g., upper and middle sub-basins of the Missouri River)
- How do genetic differences manifest themselves?
- Determine if standard metabolic rates differ between age-0 fish from each sub-basin
- Measure O_2 consumption over a temperature range of 10-30°C at 4° increments
- Can calculate mean daily metabolic rate

Missouri River/Lewis and Clark Lake paddlefish research, Mark Pegg

- Investigate paddlefish populations locally (SD and NE)

- Paddlefish stocking ceased in Lewis and Clark Lake in 1992
- Conducted a mark-recapture study in 2007-2009; trawled for YOY paddlefish
- Entrainment through upstream dam currently drives population dynamics; 50% of fish were of hatchery origin
- Model determined that if entrainment from upstream reservoir ended, the population would decline dramatically, indicating poor natural reproduction
- Investigated paddlefish nationwide using the MICRA paddlefish stock assessment database
- Evaluate by sub-basins (e.g., Missouri, Mississippi, Ohio, Arkansas rivers)
- Mark-recapture data from 1995-2009; 30,000 encounters
- Used MARK program to determine vital rates, population size, and recapture probabilities
- Wild paddlefish survival rates: MSR=70%, MOR=85%, OHR=80%
- Movement between Missouri, middle Mississippi, and Ohio rivers is common

Morphological and genetic differences of shovelnose sturgeon from sympatric and allopatric waters of the pallid sturgeon within the Mississippi River basin, Lee Holt

- AGFC was considering implementing a MLL for shovelnose sturgeon in the Arkansas River
- Noticed these sturgeon looked different from shovelnose from other locations
- Dr. Rob Wood, St. Louis University, conducted a genetic analysis and found that these fish were different (93%) from other shovelnose sturgeon.
- Plan to evaluate shovelnose sturgeon from other locations (e.g., lower, middle, and upper Mississippi; Arkansas; Red, Wabash; and Cedar rivers); partners include IADNR, WIDNR, and Dr. Hal Schramm.

Update on sturgeon and paddlefish genetics research at SIUC, Ed Heist

- Range-wide genetic structure in paddlefish inferred from DNA microsatellites
- Looking for 8 good loci; has identified 6 so far
- Looking for genetically pure pallid sturgeon related to broodstock selection; want to avoid inbreeding with hatchery fish
- Three genetic groups of pallid sturgeon: one group above Gavins Point dam, these and a second group in the Interior Highlands Mgt. Unit, and another more common group in the lower Mississippi River.
- Larval survival may be 'weak link' in pallid sturgeon recruitment
- Understanding larval habitat needs is critical for recovery
- Single Nucleotide Polymorphisms will help determine genetics of larval sturgeon

Contaminant effects and early life stage research of Scaphirhynchus species by CERC, James Candrl

- No growth effects related to Atrazize exposure
- Assessing effects of contaminants on Scaphirhynchus sturgeon reproduction
- Comparing fish from the Cape Girardeau reach (contaminated) with those from the Saverton reach (clean)
- In Blind Pony Hatchery, will determine if hatch rate, survival, etc. are different
- Pallids and shovelnose were similarly sensitive to PCBs

Using mark-recapture to estimate the population size of pallid, Kirk Steffensen

- Since 1994, 100,000 pallid sturgeon have been stocked in the Missouri River from Gavins Point dam to its confluence with the Missouri River

- Using mark-recapture to estimate the population size of pallid sturgeon in the upper unchannelized Missouri River
- 23 pallids/km (adults)?
- Survival for pallids stocked as YOY=5%; survival for pallids stocked at age-1=95%

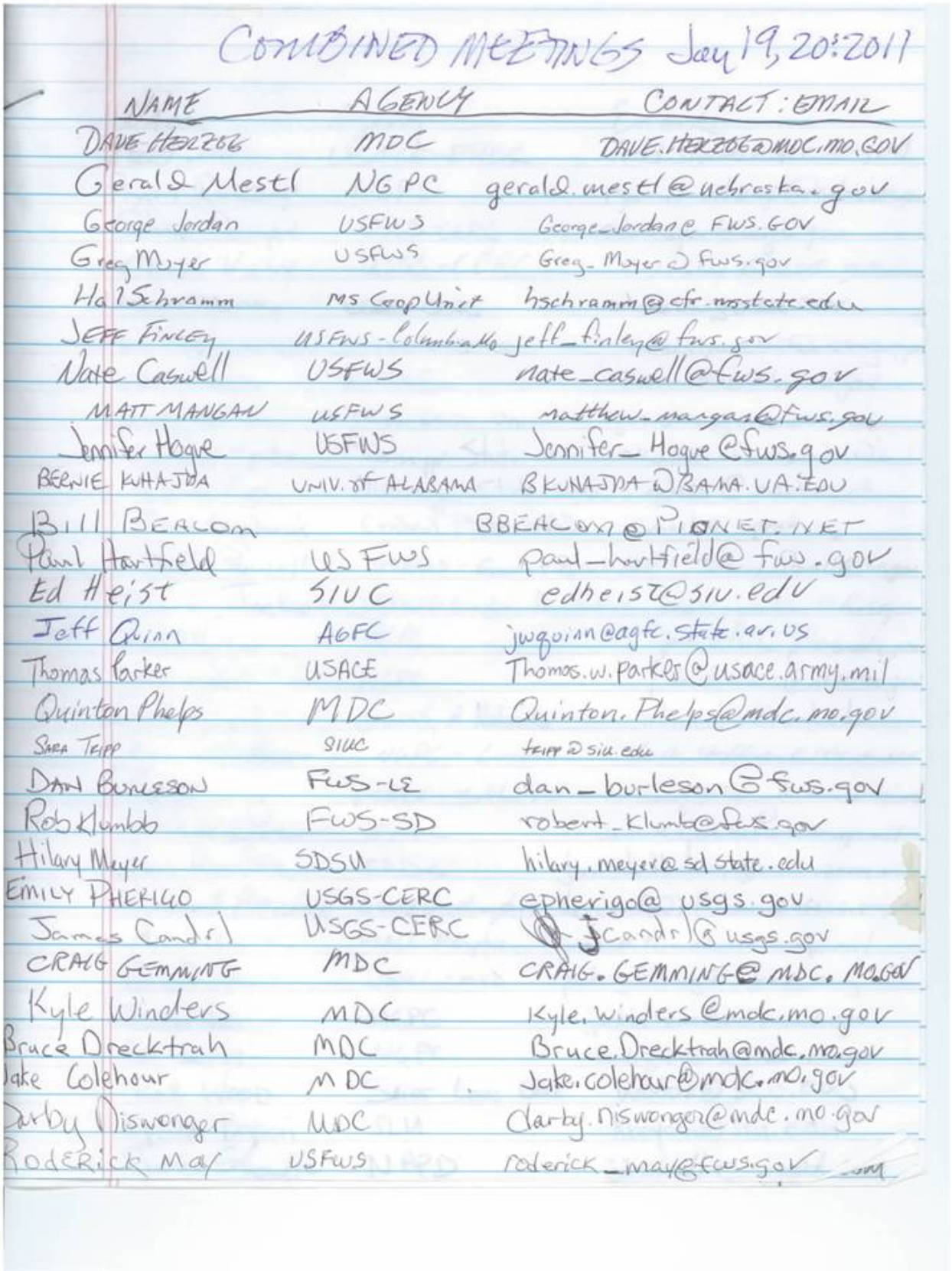
Pallid sturgeon reproduction and recruitment in the lower Missouri River: 2010 update, Aaron DeLonay

- The 200 river-mile reach above the Platte River to Gavins Point dam has a highly modified hydrology
- Hydrology of the 150-mile reach near Columbia, MO is similar to natural conditions
- Telemetry study—some intensive tracking during the spawn and less intensive the rest of the year
- Natural and stocked pallid sturgeon are growing and trying to spawn
- Pallids are a fish of gradient/edge (e.g. fast water near slow water; deep water near shallow water)
- Near Columbia, pallids move upstream at a constant rate in March and April, then stop moving in late April or early May (16-18^{o}C)
- In the upper reach, fish exhibit disruptive patterns; when temperature increases, fish move, but when temperature decreases, movement stops
- Pallids move up river in characteristic patterns (inside bend to crossover to inside bend, to crossover) until they reach their spawning site
- Large L-head dikes can alter or stop their movement, probably because of multiple flow patterns
- They move to deep, outside bends along reveted banks to spawn
- Once they have spawned, some females move to the middle of the channel
- Pallids exhibit high site fidelity, often returning downstream to the same site prior to their upstream movement
- Spawn over a long period, April-June

Deployment of DIDSON in lower Missouri River to examine sturgeon behavior—Aaron DeLonay

- Dual frequency identification sonar with two lenzs—48 beams spaced 0.6^{o} apart or 96 beams spaced 0.3^{o} apart
- Used to detect sturgeon aggregations
- Played several 'movie' images
- Showed a concentration of sturgeon in an eddy area of a un-notched dike and an aggregation of sturgeon at the mouth of the Osage River
- Bed form is very important, not just depth and substrate. Sturgeon 'glide' over the bottom
- Sturgeon spawn at the base of revetments multiple times for short periods each event

Attachment A (attendee list page 1)



COMBINED MEETINGS Jan 19, 20: 2011

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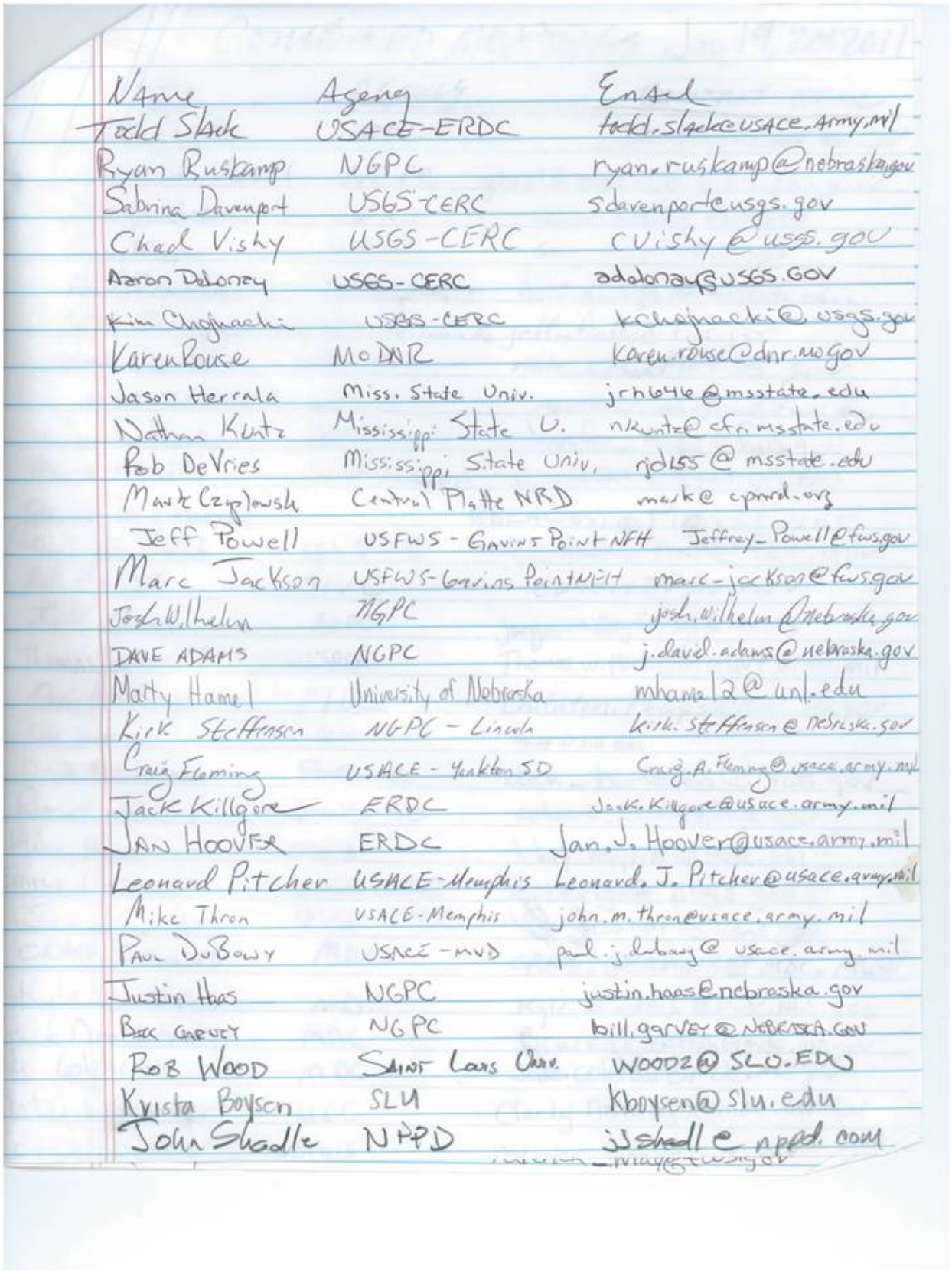
Attachment B (attendee list page 2)



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