

MICRA Paddlefish Coded Wire Tagging Project Protocol (Revised 08/98)

Paddlefish Data Sheets and Coding Instructions

Correct and complete recording of data is absolutely essential to the success of all MICRA efforts. Conversely, failure to comply with data recording procedures compromises the mission of the MICRA paddlefish tagging study and results in unrecoverable waste of sampling efforts. Procedures for recording data are driven by the need for correct information and documentation of quality assurance and chain-of-custody information. Because information critical to future paddlefish management decisions is the primary product of the MICRA paddlefish/sturgeon subcommittee, it is essential that all data are properly recorded. All MICRA participants who collect data are expected to understand and comply with data recording procedures. If you are uncertain about any of the data recording protocol, please contact the RTCs before you begin collecting data.

Data collected during fish sampling are recorded on three data sheets: the *Paddlefish Collection Sheet*, the *Paddlefish Sampling Effort Sheet*, and the *Paddlefish Measurement/Tagging Sheet*. A collection is defined as a sampling trip consisting of a unique combination of location, time, and sampling gear. One *Paddlefish Collection Sheet* is completed for each collection location. This sheet is used to document detailed spatial and temporal data, key physical and chemical measurements, qualitative observations on local habitat characteristics and comments. One or more *Sampling Effort and Measurement/Tagging Data Sheets* are used to document gear specific sampling effort and fish catch data from each collection. All three data sheets were designed to optimize the mix of flexibility, capture of essential data, simplicity, visual clarity, and quality assurance objectives.

Data collected from hatchery tagging/stockings are recorded on the *Paddlefish Stock Identification Form*. A new form should be used with each batch of paddlefish tagged. Maintaining separate data sheets for each batch is paramount to the success of tracking different batches over time. At a minimum, paddlefish should be grouped into unique batches for each different combination of state, year, hatchery, release site, and release date.

Data should be recorded in waterproof ink or Number 2 pencil. Please write legibly. Record all data accurately. The project number should be identical on all three data sheets for any particular collection. Do not erase anything on the data sheets. If a recording error is made, please put a line through the error, and write your initials and the correct data adjacent to the error.

Changes Made to the Data Sheets

Several changes have been made to the data sheets since the previous study protocol (Oven 1995). These changes were made with the input of the project participants during and following the *Symposium on the Harvest, Trade and Conservation of North American Paddlefish and Sturgeon* in Chattanooga, TN in May 1998. The revised datasheets in this protocol take precedence over all previous versions and should be used exclusively for recording paddlefish data by January 1, 1999.

Collection Sheet:

1) **Each sampling trip should be given a unique project number.** This is important so that sampling effort can be broken out to identify changes in CPUE and habitat over time.

2) Site name has been broken out into a more complete format that will allow us to query data by the different fields. The correct basin name should be circled. Enter the name of the river (or tributary) you are working on and when applicable, enter the name of the impoundment, reservoir, or pool. Always enter the nearest river mile (see #3 below). Site names should be names commonly used by biologists, the COE, river maps, etc.

3) In order to code SAS to determine the distance a fish has moved, an approximate river mile is needed for each site. This means that for isolated backwater sites we will need an approximate river mile where these bodies would connect to the river during a water event that would allow the fish to travel between the backwater and the river. We also need to know the approximate number of miles a collection site is up a tributary to calculate movement distances.

4) Stratum codes were discussed at length and tabled before all decisions were finalized. The following decisions were reached: 1) impoundment would be moved to the pool/reservoir field to allow identification of strata within impoundments, 2) offshore/shoreline is not needed as part of the backwater code, 3) wing dam and unstructured were eliminated from the main channel border codes because wing dams are listed later as an option under other structure, and 4) backwaters needed additional codes to distinguish between connected backwaters, isolated backwaters, and natural lakes. A given backwater lake should always be classified as either contiguous or isolated depending on the connectivity of the lake when the river is at "normal" flow conditions and not vary with the connectivity of the lake at the time of sampling. It was brought to our attention after the meeting that we need main channel and main channel border as two separate strata. We decided on the following strata: main channel, main channel border, side channel, tailwater zone, tributary mouth/confluence, contiguous backwater, isolated backwater, and natural lake.

5) There was also considerable discussion as to how to identify impoundments which

restrict movement. Since this is a movement issue and not a description of habitat no changes were made to the data sheets in this respect. This will be addressed in the mapping of paddlefish movements. Each participant should supply maps of the rivers in his/her region and identify the location and types of significant blockages to paddlefish movements on the maps. This is important information we need to assess paddlefish movements so please make the time to get these maps prepared and sent in.

6) Location/map coordinate data fields have been updated so that we can plot reported coordinates as accurately as possible. Coordinate data should be provided for each sampling trip. If you are unable to provide coordinates, please include a detailed map with your data sheets so that your coordinates can be estimated. MICRA is considering purchasing GPS units for those participants that do not have one (contact Jerry Rasmussen). Mark the appropriate Method, Map Datum, and UTM Zone in the fields provided. Map datum and UTM Zone information is available in your GPS unit's programming menu and will not change unless you change it. Please check to see how your GPS unit records coordinates (L/L or UTM's) and which Map Datum and UTM Zone they are recorded in. The preferred method is UTM. The preferred map datum is NAD83/GRS80. Please contact the RTCs if you are unsure about these fields.

7) Structure has had a 5th option, 'unknown' added to predominate substrate. Please make sure that you always indicate a predominant substrate. There is a difference between an 'unknown' substrate and missing data from not selecting the appropriate choice.

8) Gaging Station has been added to Water Data. We need the gaging station name or number which was used to determine water elevation. This will allow us to determine what exactly the water elevation numbers mean.

Sampling Effort Data Sheet.

1) Changes were made to this sheet to make it more accommodating to sampling methods other than gill nets and trammel nets. Net number, net code, and net type have been changed to effort number, effort code, and effort type. Effort codes have been added for seine, dipnet, snagging, electrofishing, brood stock releases, and unknown (e.g. measurements taken from fish found dead).

2) Effort numbers should never be repeated within the same project number.

3) There may be a statistical advantage to identifying each time you run a net as an individual effort, but we know this is not always possible (nor agreed upon), therefore it is up to each individual biologist to determine 'units of effort' for their sampling. Be sure and break out each effort individually on the effort sheet. For example, the number of rods when snagging and the number of runs when electrofishing should each be assigned a unique effort number so that the catch made by each can be identified on the paddlefish measurement/tagging data sheet.

5) **Mesh size should never be entered as a range of mesh sizes.** Each mesh size should be recorded on a separate line, but as the same effort number. This is frequently being recorded wrong and we are losing data as a result.

6) **Multiple nets tied together should be given only one effort number.** If they are different dimensions they should be recorded on separate lines, but as the same effort number. Multiple nets tied together as a single net should be recorded as are single nets with multiple mesh sizes (see #5 above).

7) Water depth has been split into minimum and maximum water depth as the previous protocol lacked a definition for water depth measurement.

Paddlefish Measurement/Tagging Sheet

1) Species column has been removed to make room for Jawtag Recap and Jawtag Mark columns.

2) Each individual effort identified on the *Sampling Effort Data Sheet* should be accounted for on the *Paddlefish Measurement/Tagging Sheet*. If there were no paddlefish collected by a specific sampling effort then 'No Fish' should be recorded next to the effort number in the fish number column.

3) The bar mesh column on this sheet indicates which size mesh a paddlefish was captured in for a net with multiple mesh sizes.

4) Body length should be measured from the front of the eye to the fork of the tail and recorded to the nearest millimeter. Since measurements differ when collected with a tape or with a bump-board, all measurements should be taken with a tape to standardize lengths.

5) Conversations following the meeting brought to the RTCs' attention that there is some confusion to the P/C codes. In particular, the latest version added a code (#6) to distinguish between rostrum damage and rostrum missing. Only a portion of the 1997 data included data sheets with this new code. These two codes have been recombined to the original single code (#4). **Code #5 has been added to indicate fish injured during sampling.** (Fish collected by snagging should receive this P/C code.) Code #6 is now "other". Describe "other" when selecting this P/C code.

6) Lamprey codes have been eliminated in favor of more quantitative data on the intensity of lamprey predation on paddlefish. Two new columns have been added: *Lamprey Attack Scars* and *Lamprey Attack Wounds*. All scars and wounds caused by lampreys should be enumerated and entered into the respective columns.

7) Jawtag recap and Jawtag mark have been added because of past and ongoing

jawtagging efforts. Every effort is being made to include all available paddlefish tagging data in the database. If you capture a paddlefish with a jawtag, record the appropriate two-letter state abbreviation (use FW for Fish and Wildlife Service) and the jawtag number in the jawtag recap field. Do not remove the jawtag. Tag the paddlefish with a CWT before release. If a captured paddlefish does not have a jawtag, enter 'N'. If you tag a paddlefish with a jawtag, record the appropriate two-letter state abbreviation followed by the jawtag number in the Jawtag mark column. Tag the paddlefish with a CWT before release. If you do not mark the paddlefish with a jawtag enter 'N'.

Stock Identification Form

1) The most obvious change made to this form was a change in layout. Many fields were moved into table format to make the forms easier to fill while recording data and to read while entering data.

2) Brood source site and release site have been standardized with the collection site fields on the *Collection Data Sheet*. These fields now include river, impoundment/pool/reservoir, river mile, and site name.

3) At a minimum each combination of state, year, hatchery, release site, and release date should be reported on an individual *Stock Identification Form*. A new form should be used for each batch of paddlefish tagged. This will assure the highest quality of data and prevent the unnecessary loss of valuable information.

4) **Sequentially coded wire tags will now be used to tag all hatchery released fish. All hatchery stocked paddlefish should continue to be tagged with 1.5 length coded-wire tags.** Hatcheries will have the ability to create as many unique batch codes as needed by providing a reference tag before and after each batch of fish is tagged. This will eliminate the problem of lost data from the repeated use of standard batch codes. This would also provide hatchery managers the ability to identify any level of detail desired regarding released fish. For example, different tanks, feeding regimes, rearing temperatures, parental stocks, etc. can be uniquely coded by using sequential "batch" codes instead of standard batch codes.

5) **Two one-inch pieces of sequentially coded wire**, one piece removed before starting and one piece removed after finishing tagging, **should be included with each *Stock Identification Form***. These reference tags are required to obtain the range of sequential codes that will identify recaptured paddlefish from each batch of fish.

6) **No hatchery-reared paddlefish should ever be released unless it has been coded-wire tagged.** The release of untagged hatchery paddlefish will bias future results.

7) The practice spools of batch-coded wire that each state received at the beginning of the study should be returned to the USFWS's Marion office ASAP.

Recapture Tags and Envelopes

All rostrums collected from commercial or sportfish harvested paddlefish should be accompanied by a recapture tag. All rostrum notches should be enclosed in a sealed envelope. Tags and envelopes from harvested fish should include the number of rostrums that were checked for tags. It is crucial to know the total number harvested and the percentage of those that held tags for later determination of exploitation estimates.

**MICRA PADDLEFISH RESEARCH
COLLECTION SHEET**

STATE _____ PROJECT NUMBER _____
SITE NAME _____

BASIN: Mississippi R. Missouri R. Ohio R. Gulf

1. HEADER

River	Impoundment/ Pool/Reservoir	River Mile	Stratum ¹	Start Date mm/dd/yy	Finish Date mm/dd/yy	Start Time __ : __	Finish Time __ : __

¹Stratum Codes: MC = main channel MB = main channel border SC = side channel
TZ = tailwater zone TM = tributary mouth/confluence
BI = backwater, isolated BC = backwater, contiguous NL = natural lake

2. LOCATION / MAP COORDINATES

N/S Coordinates	E/W Coordinates	Method ²	Map Datum ³ (GPS)	UTM Zone

² 1 = UTM (map) 2 = UTM (GPS) 3 1 = NAD 83 or GRS 80
3 = L/L (GPS) 4 = L/L (map) 2 = NAD 27 or CLARK 1866

3. STRUCTURE

Predominant Substrate (circle one number) 1 - silt 2 - silt/clay/little sand 3 - sand/some gravel 4 - gravel/rock 5 - unknown				
Other Structure (circle <u>all</u> that apply) wing dam/dyke low-head dam/closing structure/weir revetment woody debris/snags flooded terrestrial inlet/outlet channel other _____				

4. WATER DATA

Gaging Station	Water Elevation (m)	Secchi (cm)	Temperature (__ . __ C)	Conductivity (µS/cm)

COMMENTS: _____

Paddlefish Collection Sheet

Field Name	Description and Instructions
State	Two letter postal state abbreviation
Project Number	Assigned number used for each unique combination of location, time, and sampling gear. Project number should correspond with the <i>Paddlefish Sampling Effort Sheet</i> and <i>Paddlefish Measurement/Tagging Sheet</i> used in any given sampling event. The project number is the only way to relate the habitat and sampling effort data with the individual fish.
Site Name	Name of site sampled. Name should be one commonly used by biologists/COE/river maps/etc.
Basin	Circle one of the following options: Mississippi River Missouri River Ohio River Gulf Although the Ohio and Missouri Rivers are in the Mississippi River Basin, please identify the basin as Ohio or Missouri when working in these rivers.
1. Header	
River	Name of river in which sampling occurred.
Impoundment/Pool/Reservoir	Name of impoundment/pool/reservoir in which sampling occurred. i.e. Lewis & Clark Lake or Pool 24.
River Mile	Record river mile to nearest tenth, i.e. 102.3. If you use river kilometer please indicate by crossing out mile and writing in kilometer.
Stratum	Select 1 two-letter alphabetic habitat class description. MC = main channel MC = main channel border SC = side channel TZ = tailwater zone TM = tributary mouth/confluence BI = backwater, isolated BC = backwater, contiguous NL = natural lake
Start Date	Date on which collection started (e.g. date on which first net was set). Record in mmddy format. (e.g. July 10, 1998 is recorded as 071098).
Finish Date	Date on which collection was completed (e.g. date on which last net was pulled). Record in mmddy format. (e.g. July 10, 1998 is recorded as 071098).

Start Time	Record 2400-h (military) Central Standard Time at which a sample begins (e.g. the time that the first net is set) to the nearest minute. Examples: 1:45 pm is recorded as 13:45 and midnight is 00:00 of the new day.
Finish Time	Record 2400-h (military) Central Standard Time at which a sample is completed (e.g. the time that the last net is pulled) to the nearest minute. Examples: 1:45 pm is recorded as 13:45 and midnight is 00:00 of the new day.
2. Location/Map Coordinates	
N/S Coordinates	Record latitudinal (north/south) coordinates of the collection location. Units are specific to the location method; UTM Northing or degrees-minutes-seconds north latitude. For fixed sampling sites, this value should be measured using a GPS unit at least once when each site is marked and recorded.
E/W Coordinates	Record longitudinal (east/west) coordinates of the collection location. Units are specific to the location method; UTM Easting or degrees-minutes-seconds west longitude. For fixed sampling sites, this value should be measured using a GPS unit at least once when each site is marked and recorded.
Method	Specify the method used to acquire location data. Please circle one: <ul style="list-style-type: none"> 1 = UTM's reached from cross-reference between base map and site features. 2 = UTM's recorded from GPS device 3 = Latitude and longitude recorded from GPS 4 = Latitude and longitude recorded from cross-reference between base map and site features. <p>Option #2 is the preferred method. Please program your GPS unit to record in UTM's if possible.</p>
Map Datum	The map datum is the cartographic approximation of the sphericity of the globe. You should be able to locate the map datum your GPS unit is using in its setup menu. Enter one of the map datum options provided: <ul style="list-style-type: none"> 1 = NAD 83 or GRS 80 2 = NAD 27 or CLARK 1866 <p>Option #1 is the preferred map datum. Please program your GPS unit to use this map datum if possible.</p>
UTM Zone	Record the two-digit Global Positioning System (GPS) zone of the coordinate location. You should be able to locate your UTM Zone on your GPS unit. In the Mississippi River Basin, the zone will be a whole number between 13 and 17. For example, most of MN, IA, MO, AR, and LA fall within Zone 15 (Figure A1).

3. Structure	
Predominant Substrate	<p>Circle the one value that best describes the predominant substrate based on a qualitative visual and tactile observation of the sediments:</p> <p>1 = Silt (very fine and very soft sediments that may contain highly hydrated, very soft clay; sand lacking)</p> <p>2 = Silt/Clay/Little Sand (fine and soft sediments dominated by silt but usually containing little fine sand, with perhaps dehydrated (firm) clay pellets or moderately hydrated clay with little fine sand)</p> <p>3 = Sand/Some Gravel (firm to very firm, fine to coarse sediments with sand dominant, or entirely sand)</p> <p>4 = Gravel/Rock (hard substrate consisting of gravel, rock, bedrock, or concrete)</p> <p>5 = unknown substrate</p>
Other Structure	<p>Record presence of other habitat structures within a 100-m radius. Circle all that apply:</p> <ul style="list-style-type: none"> wind dam/dyke low-head dam/closing structure/weir revetment woody debris/snags flooded terrestrial inlet/outlet channel other (specify) <p>Note: Describe important features that aren't listed on the data sheet in the "comments" field.</p>
4. Water Data	
Gaging Station	Station where water elevation data is acquired. Indicate either gage name (e.g. USGS gage @ Boonville, MO) or location, (e.g. face of Lock & Dam #24).
Water Elevation (m)	Record water level or elevation to the nearest 0.1 meters at the time of sample. Please indicate if elevation is in feet.
Secchi (cm)	Record water transparency to the nearest centimeter using a Secchi disk. Please indicate if reading is in inches.
Temp	Record surface water temperature measurement to the nearest 0.1 C. Please indicate if temperature is in degrees Fahrenheit.
Conductivity (µS/cm)	Four digit numeric field to record conductivity to the nearest 1 µS/cm.

MICRA PADDLEFISH RESEARCH
COLLECTION SHEET - EXAMPLE

STATE MO PROJECT NUMBER 1253
SITE NAME Hermann

BASIN: Mississippi R. (Missouri R.) Ohio R. Gulf

1. HEADER

River	Impoundment/ Pool/Reservoir	River Mile	Stratum ¹	Start Date mm/dd/yy	Finish Date mm/dd/yy	Start Time __ : __	Finish Time __ : __
Missouri		97.9	MCB	07/14/98	07/14/98	09:30	16:00

¹Stratum Codes: MC = main channel MB = main channel border SC = side channel
TZ = tailwater zone TM = tributary mouth/confluence
BI = backwater, isolated BC = backwater, contiguous NL = natural lake

2. LOCATION / MAP COORDINATES

N/S Coordinates	E/W Coordinates	Method ²	Map Datum ³ (GPS)	UTM Zone
4310300n	0510922e	2	1	15

² 1 = UTM (map) 2 = UTM (GPS) 3 1 = NAD 83 or GRS 80
3 = L/L (GPS) 4 = L/L (map) 2 = NAD 27 or CLARK 1866

3. STRUCTURE

Predominant Substrate (circle one number) (1)- silt 2 - silt/clay/little sand 3 - sand/some gravel 4 - gravel/rock 5 - unknown
Other Structure (circle all that apply) (wing dam/dyke) low-head dam/closing structure/weir revetment woody debris/snags flooded terrestrial inlet/outlet channel other _____

4. WATER DATA

Gaging Station	Water Elevation (m)	Secchi (cm)	Temperature (__ . __ C)	Conductivity (µS/cm)
USGS-Boonville, MO	18.5 ft	10	30.6	356.0

COMMENTS: _____

Sampling Effort Data sheet

Field Name	Description and Instructions
State	Two letter postal state abbreviation
Project Number	Record the assigned project number from the corresponding <i>Paddlefish Collection Sheet</i> . The project number is the only way to relate the habitat and sampling effort data with the individual fish.
Page_ of _	Page number of total number of sampling effort data sheets.
Effort Number	Pertains to the nets/gears as they are set and checked in order. All sampling gears in a given project should be sequentially numbered. For example, a crew which fished 3 gillnets and ran 3 electrofishing runs had effort numbers 1 through 6.
Effort Code	<p>Three-letter code (XYZ) that describes gear type, mesh type (if applicable), and set type.</p> <p>Effort type (X) Mesh Type (Y) Set Type (Z)</p> <p>G = gillnet M = monofilament D=drift H = hobbled gillnet I = multifilament F = floating (surface) T = trammel net O = not applicable S = sinking (bottom) P = dipnet U = unknown B = both (surface to N = seine bottom) S = snagging M = mid-depth only E = electrofishing O = not applicable O = brood stock release U = unknown U = unknown</p> <p>For example, snagging would be coded as SOO and electrofishing would be coded as EOO.</p>
Mesh Size (bar)	Record the bar mesh size of all nets used for each project number. Nets with multiple mesh sizes should have an entry for each mesh size. For trammel nets give the size of the large mesh (the mesh the fish pass through).
Panel Length	Record the total length (ft.) of each mesh size whether the length is for individual panels (experimental nets) or the entire net.
Panel Height	Record exact height (ft.) of each panel or net used in feet. For hobble nets please give the height of the hobble. As a general rule we are looking for the shortest verticle distance between the bottom and top of the net while its fishing.
Set Time	Record 2400-h (military) Central Standard Time at which a net is set to the nearest minute. Examples: 1:45 pm is recorded as 13:45 and midnight is 00:00 of the new day.
Pull Time	Record 2400-h (military) Central Standard Time at which a net is pulled to the nearest minute. Examples: 1:45 pm is recorded as 13:45 and midnight is 00:00 of the new day.

Soak time (minutes)	Record the exact time in minutes that each gear was fished.
Minimum Water Depth	Record minimum water depth of the gear sampled to the nearest 0.1 m. Please indicate if measurement is in feet.
Maximum Water Depth	Record maximum water depth of the gear sampled to the nearest 0.1 m. Please indicate if measurement is in feet.
Velocity (m/sec)	Record water velocity to the nearest 0.1 m/s. Velocity should be measured at the mid-depth of the sampling gear and the corresponding water depth (m) should be indicated in the margin.
Comments:	Insert any additional comments regarding collection efforts.

SAMPLING EFFORT DATA - EXAMPLE PAGE 1 OF 1

Effort Number	Effort Code*	Mesh Size (bar) _ . _ in	Panel Length _ . _ ft	Panel Height _ . _ ft	Set Time _ : _	Pull Time _ : _	Soak Time (minutes)	Min. Water Depth _ . _ m	Max. Water Depth _ . _ m	Velocity m/sec _ . _
1	GMF	3.0	50.0	10.0	09:30	12:00	150	4.8	9.4	0.30
		4.0	50.0	10.0	09:30	12:00	150	4.8	9.4	0.30
2	GMF	4.0	100.0	10.0	09:40	12:35	175	3.0	6.2	0.21
3	EEO	(707 V, 6.5 amps, 4 millisecond pulse, 60 pps)*					10.0	0.1	1.8	0.15
4	EEO						15.0	0.1	1.9	0.12
5	EEO						10.0	0.1	2.2	0.10
6	SOO	(used 8/0 hooks)*			13:34	15:50	136	0.0	9.4	
7	SOO				13:32	15:51	135	0.0	9.4	
8	SOO				13:48	15:50	122	0.0	9.4	
*optional information which some states provide, not required for current database										

*EFFORT CODE (X Y Z)		
<u>Effort Type: X</u> G-gillnet H-hobbled gillnet T-trammel net P-dipnet N-seine S-snagging (SOO) E-electrofishing (EEO) O-brood stock release (OOO) U-unknown	<u>Mesh Type: Y</u> M - monofilament I - multifilament O - not applicable U - unknown	<u>Set Type: Z</u> D - drift F - floating (surface) S - sinking (bottom) B - both (surface to bottom) M - mid-depth only O - not applicable U - unknown

Paddlefish Measurement/Tagging Sheet

Field Name	Description and Instructions																																												
State	Two letter postal state abbreviation																																												
Project Number	Record the assigned project number from the corresponding <i>Paddlefish Collection Sheet</i> . The project number is the only way to relate the habitat and sampling effort data with the individual fish.																																												
Page_of_	Page number of total number of paddlefish measurement/tagging data sheets.																																												
Sequential Tag Data:																																													
Agency Code	Check CWT spool for Agency code. This is located on the spool label after the A. The Agency code will always be 25 for MICRA paddlefish.																																												
Data-1 Code	<p>Check CWT spool for the Data 1 code. This is located on the spool label after the D and before the /. The Data 1 codes for cooperating states are as follows:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Iowa</td> <td style="width: 33%;">1</td> <td style="width: 33%;">Minnesota</td> <td style="width: 33%;">34</td> </tr> <tr> <td>Indiana</td> <td>4</td> <td>Nebraska</td> <td>37</td> </tr> <tr> <td>Louisiana</td> <td>7</td> <td>South Dakota</td> <td>40</td> </tr> <tr> <td>Kentucky</td> <td>10</td> <td>West Virginia</td> <td>43</td> </tr> <tr> <td>Missouri</td> <td>13</td> <td>Wisconsin</td> <td>46</td> </tr> <tr> <td>Ohio</td> <td>16</td> <td>Pennsylvania</td> <td>49</td> </tr> <tr> <td>Mississippi</td> <td>19</td> <td>Alabama</td> <td>52</td> </tr> <tr> <td>Tennessee</td> <td>22</td> <td>Montana</td> <td>54</td> </tr> <tr> <td>Arkansas</td> <td>25</td> <td>Oklahoma</td> <td>56</td> </tr> <tr> <td>Illinois</td> <td>28</td> <td>North Dakota</td> <td>60</td> </tr> <tr> <td>Kansas</td> <td>31</td> <td>Texas</td> <td>62</td> </tr> </table>	Iowa	1	Minnesota	34	Indiana	4	Nebraska	37	Louisiana	7	South Dakota	40	Kentucky	10	West Virginia	43	Missouri	13	Wisconsin	46	Ohio	16	Pennsylvania	49	Mississippi	19	Alabama	52	Tennessee	22	Montana	54	Arkansas	25	Oklahoma	56	Illinois	28	North Dakota	60	Kansas	31	Texas	62
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Indiana	4	Nebraska	37																																										
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Kentucky	10	West Virginia	43																																										
Missouri	13	Wisconsin	46																																										
Ohio	16	Pennsylvania	49																																										
Mississippi	19	Alabama	52																																										
Tennessee	22	Montana	54																																										
Arkansas	25	Oklahoma	56																																										
Illinois	28	North Dakota	60																																										
Kansas	31	Texas	62																																										
Data-2 Code	Check CWT spool for the Data 2 code. This is located on the spool label after the D(data 1 code)/.																																												
Fish Number	All fish within a given project are sequentially numbered starting with #1.																																												
Effort Number	Effort number in which paddlefish was collected. Effort number should relate to sampling effort data sheet. If paddlefish were not collected in a specific sampling effort, please record the effort number followed by “no fish”. All effort numbers from sampling effort Data sheet should be accounted for on paddlefish measurement/tagging Data sheet.																																												
Bar Mesh (in)	Record the bar mesh size the paddlefish was collected in (e.g. 5.0" bar mesh). For trammel nets give the size of the large mesh (the mesh the fish pass through). All panels recorded on sampling effort data sheet should be accounted for on this sheet. If no paddlefish were collected in a specific mesh, please record the mesh followed by “no fish”.																																												

Eye-Fork Length	Body length is measured from the beginning of the eye to the fork in the tail. Record length to the nearest millimeter. All paddlefish should be measured with a measuring tape.
Weight	Weight is measured to the nearest 0.1 kilograms. Please indicated if weight is in pounds/ounces.
Sex	If fish sex is known, use M (male) or F (female) to designate sex. If unknown leave field blank.
P/C Codes	Enter all that apply: 0 = no visible abnormalities 1 = skeletal abnormalities 2 = tumors 3 = injury 4 = rostrum damaged/missing 5 = sampling gear injury 6 = other - please note what other is. Note: fish that are collected by snagging and bear snagging wounds would be classified as #5 if the fish was uninjured prior to sampling. A fish with a PC code of 0 should have no other PC codes listed.
Lamprey Attack Scar	Carefully check each paddlefish for the presence of lamprey attack scars (abrasion scars and healed wounds). Record the number of individual scars caused by lamprey attacks.
Lamprey Attack Wound	Carefully check each paddlefish for the presence of lamprey attack wounds (not completely healed). Record the number of individual wounds caused by lamprey attacks.
TAG	Field should be covered with strip of silicone. Sample tag should be inserted in silicone prior to tagging individual fish.
TAG	Field should be covered with strip of silicone. Sample tag should be inserted in silicone after tagging individual fish.
CWT Recapture	Answer is Y(yes) or N(no). Carefully check each paddlefish for presence of a coded wire tag. Tissue containing tag should be removed and carefully place in small tag envelope. Do not try to remove the tag from the flesh. It is very important that the tag envelope is filled out completely.
CWT Marked	Answer is Y(yes) or N(no). If the fish is not tagged you must mark the fish prior to release. If the fish is a recapture you must mark the fish with an individually coded sequential tag prior to release.
Jawtag Recapture	Carefully check each paddlefish for presence of a jawtag. If fish is carrying a jawtag put 2-letter state agency code followed by the tag number in this box. (Use FW for agency code if tag is a Fish & Wildlife Service tag). If fish is not jawtagged leave this cell blank.

Jawtag Marked	If fish is marked with a jawtag put 2-letter state agency code followed by the tag number in this box. (Use FW for agency code if tag is a Fish & Wildlife Service tag). If fish is not jawtagged leave this cell blank.
Released	Answer is Y(yes) or N(no). Marked fish should be released with individually coded sequential tag.

PADDLEFISH MEASUREMENT/TAGGING SHEET PAGE 1 OF 1

Sequential Tag Data: Agency Code 25

Data-1 Code 13

Data-2 Code _____

Fish Number	Effort Number	Bar Mesh (in)	Eye-Fork Length (mm)*	Weight (kg)	Sex M/F	P/C Codes **	Lamprey Abrasion Scars (#)	Lamprey Puncture Scars (#)	T A G	T A G	CWT Recapture Y/N	CWT Marked Y/N	Jawtag Recapture (tag #)	Jawtag Marked (tag #)	Released Y/N
1	1	3.0	871	7.7	F	0					Y	Y	N	N	Y
2	1	4.0	685	5.4	F	0					N	Y	N	N	Y
no fish	2	4.0													
3	3		718	5.9	M	1					N	Y	FW 1234	N	Y
4	4		736	6.3	M	0					N	Y	N	N	Y
5	4		718	5.2	M	0					N	Y	N	N	Y
no fish	5														
no fish	6														
6	7		682	4.6		5, 3					N	Y	N	N	Y
7	7		770	6.7	F	5					N	Y	N	N	Y

* Body length is measured in mm from the beginning of the eye to the fork of the tail.

**P/C CODES: (enter all that apply) no visible abnormalities =0 injury =3 other _____ =6
 skeletal abnormality =1 rostrum damaged/missing =4
 tumors =2 sampling gear injury =5

MICRA *PADDLEFISH RESEARCH* STATE _____
PADDLEFISH STOCK IDENTIFICATION FORM

TAGGING DATA Tagging Date: _____

Hatchery: Name _____ Location _____

Brood Source: River _____ Pool/Reservoir _____

River mile _____ Site Name _____

Tagging Crew: _____ Supervisor: _____

Size (mm) at Tagging: mean _____ range _____ - _____ Fish Age: _____ months / weeks

Coded Wire Tag Data: Agency _____ Data 1 _____ Data 2 _____

Attach reference tag here immediately before and after tagging batch: Start _____ End _____

(IMPORTANT: USE A NEW SHEET WITH EACH BATCH OF PADDLEFISH TAGGED)

	Tagging Machines	Hand-held Taggers	Total
Number in Operation			-----
Number of Fish Tagged			
Processing Time (hrs:min)			
Percent of Fish Missing Rostrums			
Mortality (at completion of tagging)			

RELEASE DATA Release Date: _____

Number of Fish Released: _____ Size (mm) at Release: mean _____ range _____ - _____

Release Site: River _____ Pool/Reservoir _____

River mile _____ Site Name _____

Release Coordinates: N/S Coordinates _____ E/W Coordinates _____

UTM Zone _____

Method (circle one) 1=UTM (map) 2=UTM (GPS) 3=L/L (GPS) 4=L/L (map)

Map Datum (circle one) 1=NAD 83 or GRS 80 2=NAD 27 or CLARK 1866

FINAL RETENTION SAMPLING

Date: dd / mm / yy	Retention Time (days)	Number of Fish	Number with Tags	Retention %	Mortality %
initial: ___ / ___ / ___			-----	-----	-----
intermediate: ___ / ___ / ___					
final: ___ / ___ / ___					

Comments:

Paddlefish Stock ID Form

Field Name	Description and Instructions
State	Two letter postal state abbreviation
Tagging Date	Date hatchery paddlefish were stocked. Record in mmddyy format (e.g. July 10, 1998 is recorded as 071098).
Tagging Data	
Hatchery:	
Name	Name of hatchery stocking the paddlefish.
Location	Location of hatchery stocking the paddlefish.
Brood Source:	
River	Name of river from which paddlefish broodstock were removed.
Pool/Reservoir	Name of impoundment/pool/reservoir from which paddlefish broodstock were removed. i.e. Lewis & Clark Lake or Pool 24.
River mile	Record river mile of broodstock collection location to nearest tenth, i.e. 102.3. If you use river kilometer please indicate by crossing out mile and writing in kilometer.
Site Name	Name of site where paddlefish broodstock were acquired. Name should be one commonly used by biologists/COE/river maps/etc.
Tagging Crew	Names of tagging crew.
Supervisor	Name of tagging supervisor.
Size at Tagging	Measure a subsample of fish tagged in millimeters. Provide the range of fish lengths and the mean length.
Fish Age	Enter the age of the fish at time of tagging. Please indicate whether the time increment is in months or weeks.
Coded Wire Tag Data:	
Agency	Check CWT spool for Agency code. This is located on the spool label after the A. The Agency code will always be 25 for MICRA paddlefish.

Data 1	<p>Check CWT spool for the Data 1 code. This is located on the spool label after the D and before the /. The Data 1 codes for cooperating states are as follows:</p> <table border="0"> <tr> <td>Iowa</td> <td>1</td> <td>Minnesota</td> <td>34</td> </tr> <tr> <td>Indiana</td> <td>4</td> <td>Nebraska</td> <td>37</td> </tr> <tr> <td>Louisiana</td> <td>7</td> <td>South Dakota</td> <td>40</td> </tr> <tr> <td>Kentucky</td> <td>10</td> <td>West Virginia</td> <td>43</td> </tr> <tr> <td>Missouri</td> <td>13</td> <td>Wisconsin</td> <td>46</td> </tr> <tr> <td>Ohio</td> <td>16</td> <td>Pennsylvania</td> <td>49</td> </tr> <tr> <td>Mississippi</td> <td>19</td> <td>Alabama</td> <td>52</td> </tr> <tr> <td>Tennessee</td> <td>22</td> <td>Montana</td> <td>54</td> </tr> <tr> <td>Arkansas</td> <td>25</td> <td>Oklahoma</td> <td>56</td> </tr> <tr> <td>Illinois</td> <td>28</td> <td>North Dakota</td> <td>60</td> </tr> <tr> <td>Kansas</td> <td>31</td> <td>Texas</td> <td>62</td> </tr> </table>	Iowa	1	Minnesota	34	Indiana	4	Nebraska	37	Louisiana	7	South Dakota	40	Kentucky	10	West Virginia	43	Missouri	13	Wisconsin	46	Ohio	16	Pennsylvania	49	Mississippi	19	Alabama	52	Tennessee	22	Montana	54	Arkansas	25	Oklahoma	56	Illinois	28	North Dakota	60	Kansas	31	Texas	62
Iowa	1	Minnesota	34																																										
Indiana	4	Nebraska	37																																										
Louisiana	7	South Dakota	40																																										
Kentucky	10	West Virginia	43																																										
Missouri	13	Wisconsin	46																																										
Ohio	16	Pennsylvania	49																																										
Mississippi	19	Alabama	52																																										
Tennessee	22	Montana	54																																										
Arkansas	25	Oklahoma	56																																										
Illinois	28	North Dakota	60																																										
Kansas	31	Texas	62																																										
Data 2	Check Coded Wire Tag spool for the Data 2 code. This is located on the spool label after the D(data 1 code)/.																																												
Start	Attach 1 inch piece of Coded Wire Tag prior to tagging fish. This will provide the beginning number for the range of codes used in the hatchery fish.																																												
End	Attach 1 inch piece of Coded Wire Tag after tagging fish. This will provide the end number for the range of codes used in the hatchery fish.																																												
Number in Operation	Enter the number of tagging machines and hand-held taggers used to tag the batch of fish.																																												
Number of Fish Tagged	Enter the number of fish tagged by tagging machines and hand-held taggers. Enter the total fish tagged in the last column.																																												
Processing Time	Enter the time it took to tag the batch of fish in hours and minutes for both tagging machines and hand-held taggers. Enter the total processing time in the last column.																																												
Percent of Fish Missing Rostrums	Enter the percentage of fish missing rostrums encountered by both tagging machines and hand-held taggers. Enter the total percentage of fish missing rostrums in the last column.																																												
Mortality (at completion of tagging)	Enter the number of fish which died during tagging with both tagging machines and hand-held taggers. Enter the total number of dead fish in the last column.																																												
RELEASE DATA																																													
Release Date	Date coded-wire tagged hatchery paddlefish were released. Record in mmddy format (e.g. July 10, 1998 is recorded as 071098).																																												
Number of Fish Released	Enter number of fish released. All fish released should be marked with coded wire tags.																																												

Size at Release	Measure a subsample of fish released in millimeters. Provide the range of fish lengths and the mean length.
Release Site:	
River	Name of river in which paddlefish were stocked.
Pool/Reservoir	Name of impoundment/pool/reservoir in which paddlefish were stocked. i.e. Lewis & Clark Lake or Pool 24.
River mile	Record river mile of stocking location to nearest tenth, i.e. 102.3. If you use river kilometer please indicate by crossing out mile and writing in kilometer.
Site Name	Name of site where young paddlefish were stocked. Name should be one commonly used by biologists/COE/river maps/etc.
2. Location/Map Coordinates - Release Location	
N/S Coordinates	Record latitudinal (north/south) coordinates of the release location. Units are specific to the location method; UTM Northing or degrees-minutes-seconds north latitude. For fixed release sites, this value should be measured using a GPS unit at least once when each site is marked and recorded.
E/W Coordinates	Record longitudinal (east/west) coordinates of the release location. Units are specific to the location method; UTM Easting or degrees-minutes-seconds west longitude. For fixed release sites, this value should be measured using a GPS unit at least once when each site is marked and recorded.
Method	Specify the method used to acquire location data. Please circle one: 1 = UTM's reached from cross-reference between base map and site features. 2 = UTM's recorded from GPS device 3 = Latitude and longitude recorded from GPS 4 = Latitude and longitude recorded from cross-reference between base map and site features. Option #2 is the preferred method. Please program your GPS unit to record in UTM's if possible.
Map Datum	The map datum is the cartographic approximation of the sphericity of the globe. You should be able to locate the map datum your GPS unit is using in its setup menu. Enter one of the map datum options provided: 1 = NAD 83 or GRS 80 2 = NAD 27 or CLARK 1866 Option #1 is the preferred map datum. Please program your GPS unit to use this map datum if possible.

UTM Zone	Record the two-digit Global Positioning System (GPS) zone of the coordinate location. You should be able to locate your UTM Zone on your GPS unit. In the Mississippi River Basin, the zone will be a whole number between 13 and 17. For example, most of MN, IA, MO, AR, and LA fall within Zone 15 (Figure A1).
Final Retention Sampling	
Date:	Enter the date in six-digit month-date-year (mm dd yy) format for the initial date, intermediate retention test date, and final retention test date.
Retention Time (days)	Indicate the number of days fish have retained tags between the tagging date and the initial, intermediate, and final retention test dates.
Number of Fish	Indicate the number of fish in the retention subsample at the initial, intermediate, and final retention test dates.
Number with Tags	Indicate the number of fish in the retention subsample which have tags at the intermediate and final retention test dates.
Retention %	Indicate the percentage of fish in the retention subsample which have retained their coded wire tags at the intermediate retention test date and the final retention test date.
Mortality %	Indicate the percentage of fish in the retention subsample which have died at the intermediate retention test date and the final retention test date.
Comments:	Insert any additional comments regarding hatchery tagging.

PADDLEFISH STOCK IDENTIFICATION FORM - EXAMPLE

TAGGING DATA Tagging Date: 08/15/98

Hatchery: Name Blind Pony Location Sweet Springs, MO

Brood Source: River Mississippi River Pool/Reservoir _____

River mile 145.5 Site Name Chester

Tagging Crew: DeiSanti, Milligan, Finley Supervisor: Kim Graham

Size (mm) at Tagging: mean 177.8 range 163.0 - 190.3 Fish Age: 4.5 (months) / weeks

Coded Wire Tag Data: Agency 25 Data 1 13 Data 2 _____

Attach reference tag here immediately before and after tagging batch: Start _____ End _____

(IMPORTANT: USE A NEW SHEET WITH EACH BATCH OF PADDLEFISH TAGGED)

	Tagging Machines	Hand-held Taggers	Total
Number in Operation	1	1	-----
Number of Fish Tagged	3510	3490	7000
Processing Time (hrs:min)	2:56	3:00	5:56
Percent of Fish Missing Rostrums	0	0	0
Mortality (at completion of tagging)	2	3	5

RELEASE DATA Release Date: 08/25/98

Number of Fish Released: 6987 Size (mm) at Release: mean 180.2 range 167.0 - 198.2

Release Site: River Missouri River Pool/Reservoir _____

River mile 97.9 Site Name Hermann, MO

Release Coordinates: N/S Coordinates 4310300N E/W Coordinates 0510922E

UTM Zone 15

Method (circle one) 1=UTM (map) [2=UTM (GPS)] 3=L/L (GPS) 4=L/L (map)

Map Datum (circle one) [1=NAD 83 or GRS 80] 2=NAD 27 or CLARK 1866

FINAL RETENTION SAMPLING

Date: mm dd yy	Retention Time (days)	Number of Fish	Number with Tags	Retention %	Mortality %
initial: 08 15 98	0	6995	-----	-----	-----
intermediate: 08 20 98	5	600	600	100%	0%
final: 08 25 98	10	599	598	99%	0.1%

Comments:

Figure B1. UTM Zones of the United States.

Regional Tag Coordinators

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