Briefing Book

Executive Board Meeting

August 21-23, 2023

Amway Grand Plaza Hotel
187 Monroe Avenue NW
Grand Rapids, MI

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Supporting Documents

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Executive Board Meeting

August 21-23, 2023

Amway Grand Plaza Hotel
187 Monroe Avenue NW
Grand Rapids, MI

Remote Participation
Join Zoom Meeting
Meeting ID: 898 6076 2114
Passcode: 950266
Phone: 312-626-6799

AGENDA
(All times are Central)

Monday, August 21, 8:30-12:00, Governor's Room

Call to Order

1) Call to Order (Brad Parsons)

Prepare for MICRA Delegate Meeting

2) Policy and Government Affairs Update for MICRA Delegates (Ashlee Smith)

3) Success! Now What? Operationalizing the Mississippi River Basin Fishery Commission (Parsons)

4) Review of MICRA's Draft 2024-2028 Priorities Document (Greg Conover)

5) Review of MICRA's Draft Aquatic Habitat Action Plan (Conover)

6) Potential Revisions to MICRA's Constitution and By-laws (Conover)

7) Additional Topics and Preparations for the MICRA Delegate Meeting (Parsons)

Monday, August 21, 1:00-5:00, Governor's Room

MICRA Delegate Meeting

8) MICRA Delegate Meeting Agenda

Tuesday, August 22, 8:00-5:00, DeVos Place – Grand Gallery C

MICRA Sponsored AFS Symposium

9) Mississippi River Basin Habitat Management for Interjurisdictional Fishes Symposium Program

Tuesday, August 22, 5:30-9:30, Governor's Room

MICRA Mixer

Wednesday, August 23, 8:30-12:00, Governor's Room

MICRA Delegate Meeting Follow-up

10) MICRA Delegate Meeting and Symposium After-Action Review (Parsons)

Old Business

11) Mississippi River Basin Fishery Commission Next Steps (Parsons)

12) Legislative, Policy, and Outreach Next Steps (Smith)

13) Finalizing MICRA's Draft Aquatic Habitat Action Plan (Conover)

14) Finalizing MICRA's Draft 2024-2028 Priorities Document (Conover)

15) Finalizing MICRA's Draft 2019-2023 Priorities Accomplishment Tracking (Conover)

16) Approval of the Executive Board's February 2023 Meeting Notes (Parsons)

17) Review of Action Items (Conover)

Lunch Break

Wednesday, August 23, 1:00-5:00, Governor's Room

Committee Updates

18) Paddlefish/Sturgeon Committee Update (Sara Tripp)

19) MICRA AIS Committee Update (Bourgeois)

20) MRBP Update (Rob Bourgeois)

21) Invasive Carp Advisory Committee Update (Brian Schoenung and Rob Simmonds)

22) Sub-basin Invasive Carp Partnership Coordination Update (Neal Jackson and Caleb Aldridge)

Executive Board Member Updates

23) Executive Board Member Updates (All)

Chairman and Coordinator Reports

24) Chairman's Report (Parsons)

25) Coordinator's Report (Conover)

New Business

26) Webpage Dashboard Demonstration (Rebecca Neeley and Ross Ruehmann)

27) Appointment of New MICRA Chair-elect (Parsons)

28) Develop MICRA's 2024 Operational Budget (Conover)

29) Schedule Fall Conference Call and Winter Executive Board Meeting (Parsons)

30) Other New Business / Parking Lot (Parsons)

1) Call to Order

Roll call and introductions.

2022 MICRA Executive Board Members

Voting Members

Arkansas/Red/White Rivers	Ken Cunningham	ODWC
Lower Mississippi River	Mark Thurman	TWRA
Missouri River	Kasey Whiteman	MDC
Ohio River	Rich Zweifel	OH DNR
Tennessee/Cumberland Rivers	Dave Dreves	KDFWR
Upper Mississippi River	Joe Larscheid	IA DNR
USFWS	Aaron Woldt	USFWS
USGS	JC Nelson	USGS
MICRA Chairperson-Elect	Ben Batten	AGFC

* Six voting members are needed for a quorum.

Non-voting members

MICRA Chairperson	Brad Parsons	MN DNR
MICRA Past Chairman	Brian Schoenung	IL DNR
MICRA Coordinator	Greg Conover	USFWS

Committee Chairpersons

AIS Committee	Rob Bourgeois	LDFW
Invasive Carp Advisory Committee	Rob Simmonds	USFWS
MRBP	Rob Bourgeois	LDFW
Paddlefish/Sturgeon Committee	Sara Tripp	IL DNR

2) Policy and Government Affairs Update for MICRA Delegates

Discussion:

Ashlee Smith will lead preparations for the MICRA Delegate meeting discussion regarding the following three agenda topics.

1. Report out on MICRA's March 2023 DC Fly-in and Congressional outreach
2. Fishery Commission initiative, legislative, and coalition progress
3. Next steps for Congressional and partner outreach

The MICRA Delegate meeting agenda includes 80-minutes to discuss these topics.

3) Success! Now What? Operationalizing the Mississippi River Basin Fishery Commission

Discussion:

Parsons will lead preparations for the MICRA Delegate meeting 30-minute discussion regarding ‘Success! Now what?”. This topic was added to the MICRA Delegate meeting agenda to begin discussion with the broader membership regarding operationalizing the fishery commission. The Executive Board previously suggested including a discussion regarding ‘increasing resource management agency capacity’ related to both the proposed fishery commission and invasive carp.

Notes from February 2023 Executive Board Meeting:

Parsons requested the board members to have a focused discussion on the reality of the proposed fishery commission being authorized. That is, how do we prepare for that reality. MICRA will be in DC for the annual Fly-in in a couple weeks and the delegates may be asked some challenging questions. We want to be prepared for those discussions and we want to be prepared to act should the fishery commission be authorized.

Most of our focus to this point has been positioning ourselves for success in establishing a fishery commission. We haven’t spent a lot of time discussing the foundation so that the board is ready to move and begin to implement the commission and cooperative resource management as soon as the fishery commission is authorization and funding potentially appropriated. Now it is time to shift our focus to preparing for success following an authorization. For example, what will logistics of the commission look like, what is the structure that it will encompass, how do we develop our charter so that it is something we can implement as soon as the authorization is passed that we anticipate is coming. How do we establish that system so that someone will want to step into the role of the first Executive Director/Secretary of this new fishery commission?

Smith is late for the Executive Board meeting because she stayed in DC to talk with two Senators that she is hopeful will co-sponsor the legislation to authorize the Fishery Commission. She believes there is real potential for the fishery commission to be authorized by this Congress. We want to be prepared to implement and not get caught flatfooted.

The board has previously touched on initial staffing for the fishery commission at a high level, but we need to have a plan for the specific positions that would immediately need to be filled and the qualities that the board members would like to

see when recruiting for these positions. It would be useful for the board members to start thinking about their networks and who we might want to potentially recruit for the new secretariat.

Should we be looking outside of MICRA for assistance in guiding us through this part of the process? Would it be appropriate to reach out to the AFWA Management Assistance Team?

As the draft legislation gets legs, the MICRA delegates are likely to get more questions from their leaderships and Administrations. We need to be prepared to discuss details and address questions both internally and externally.

As currently laid out, the initial action will be for the MICRA Executive Board to hire an Executive Director to stand up the remainder of the Secretariat under the supervision of the board. The Joint Strategic Plan will serve as a guiding document. Initially, the MICRA Executive Board would continue to meet until the fishery commission structure is operationalized. We will need to develop an equitable way of distributing the non-competitive portion of the appropriations to the commission members. An even allocation across all member agencies may not be the best approach.

Getting something started doesn't require the same skill set as running something long term. Do we need an Executive Director whose skill set is to get the fishery commission up and running or are we looking for someone who can nurture and grow the fishery commission? Is it too early to consider potential individuals that are well suited for our needs? We may want to focus on the specific positions and different skill sets for the moment. For example, we may want a communications director to work alongside the executive director. A financial person to manage grants may be another immediate need.

We need to be cautious and keep any positions to a minimum. There will be some basic needs and cost to staffing the fishery commission. There is a strong emphasis by legislators right now in reducing administrative costs or keeping them as low as possible. Proposals that have a lot of administrative costs are not doing well. Those that are most successful have stricter limits on administrative costs than we have seen in a while. We need a plan for what the commission will need for staff, but I encourage us to keep it as light as possible initially. The Great Lakes Fishery Commission (GLFC) started much smaller than what it looks like today.

We've previously discussed an administrative assistant as a fundamental initial need for the fishery commission or secretariat to function. We do not want the executive director spending time on basic administrative functions.

Four key positions were proposed for discussion:

1. Executive director
    a. First position hired – by MICRA Executive Board
    b. Tasked with hiring additional secretariat staff
    c. Work with a consultant to assist with developing secretariat and governance structure with commission membership?
2. Communications director
    a. Potentially serve as deputy (director in training)
    b. Need may depend on who is hired as executive director
3. Grants manager / administrator
4. IJ fishery biologist

UMRBA is a lean and effective organization that is structured much like what is proposed. They have added a staff biologist as they have grown over the last 10 years.

Could the executive director and communications director be combined if needed? Ideally, they would be separate so that neither position is tasked with too many responsibilities to function effectively as needed. The communications director could also be used as a trainee position for the executive director (i.e., deputy or assistant) if a retiree or short-term hire was made for the initial executive director.

Something that is not captured here is legal assistance. It does not need to be a staff person necessarily, but there will be a need for legal assistance in establishing the organization properly (e.g., registering the entity, internal revenue service, etc.). We can look at contracting for communications or other needs to keep staff size smaller.

What would the mechanics of moving money to the states look like? The authority for the USFWS to move funding to the fishery commission is the authorizing legislation. The fishery commission would then manage moving funds to the member agencies or others in the case of the competitive grants. There are many federal laws that get passed along with funding so there will be a significant need for accountability, tracking, and regulatory aspects. Who is going to make sure of all this for the fishery commission if it is issuing grants or sub-awards of the federal funds?

The GLFC funding goes through the Department of State and not USFWS. If the funding came through the Department of Interior or USFWS, there are several authorities in place to make both competitive and non-competitive grants to partners. Congress can grant authority to agencies to pass money through for various purposes. That type of authorization may or may not be part of any legislation that authorizes the formation of a fishery commission. There are multiple options that could be explored.

If Congress appropriates funding to support the fishery commission, would the host federal agency administer the competitive and non-competitive grants, or would the funding be passed through to the commission to then administer the grants? Either the federal host agency or the commission would likely need to hire a full-time person to administer 30 or more grants.

The GLFC is a unique situation. The most recent ruling from solicitors is that once U.S. federal funds are mixed with Canadian federal funds, the funds are no longer considered U.S. federal funds.

Potential contract support:

1. Legal
2. Accounting / CPA
3. Communications

Considerations:

- Salary and benefits / payroll / retirement for commission staff
    - Commission staff, agency staff, or combination
        - GLFC: Inter-governmental Personnel Act and Cooperative Agreements
        - SARP: State dues and grant funding
- Allocation of non-competitive grants to commission member states
- State agency dues
    - How much?
    - How used?

Who does the Executive Director answer to? Initially the MICRA Executive Board until the transition to the fishery commission governance is complete. The MICRA Executive Board is proposed to transition to the commissioners, with one commissioner representing each sub-basin and two federal entity commissioners. The executive director and secretariat would work under the commissioners.

Would the commission be a federally entity? Would the executive director be a federal employee? No.

Should we expect USFWS to pull their current level of support for the partnership once the fishery commission is authorized and there is a secretariat handling the work of the commission? Future support would likely look different, but I would not characterize it as pulling back. The USFWS has several staff that support the GLFC. In the end, USFWS could potentially be at a similar or increased level from what it is now. It is all unknown at this point and we can only speculate how the agency may choose to participate once the commission structure is formalized. There would likely be interest in maintaining a liaison type role with the fishery commission.

If the commission is its own entity, then there are numerous administrative needs that will need to be setup around hiring staff, e.g., payroll, pension, and benefits such as health care and retirement. There is precedence that can be used. There can be agency staff working for the commission or commission staff or a combination of both. In the early days of the GLFC, the Service had staff working under agreements for the commission on both a part-time and full-time basis. It may not be necessary for the commission to hire all the key staff out of the gate. The USFWS had someone working for the commission for eight or nine years. There are still a couple USFWS employees working part-time for the GLFC. The salary, benefits, and retirement are all paid by the USFWS and GLFC reimburses only for salary. Those types of arrangements could be part of the initial or long-term structure. The Inter-governmental Personal Act and cooperative agreements are a couple of options. SARP uses some sort of arrangement for their coordinator and other staff. It may be another group for us to look at.

We will need to reach consensus on the allocation of the non-competitive grants to the commission member states. All member states currently pay the same level of membership dues to MICRA. The expectation is that all funds would be used to support work in the Mississippi River Basin. The states with a small proportion of the basin's interjurisdictional rivers will need to determine what level of funding they need to support their collaborative fisheries management in these waters.

A different model would be to allocate the funding (evenly?) to the sub-basins and let the sub-basins determine how to allocate the funding among their states. The allocation would need to be based on a non-competitive model and not competitively within the sub-basin. Who will handle the coordination and decision-making role within each of the sub-basins? For example, does the ORFMT or UMRCC have the capacity to fill that role? What about the Arkansas-Red-White and Tennessee

Cumberland sub-basins that do not have a formalized coordination structure in place like the other four sub-basins? There are differences in the level at which the state agencies are involved or participate in the different sub-basin partnerships. The sub-basin representatives would be responsible for discussing the allocation of non-competitive funding at the sub-basin level. That model would take more investment in coordination time than to do it at a basinwide scale.

I would not like the USFWS ANS state/interstate plan implementation funding model where the entire pie is split evenly among everyone. That model does not make sense for this scenario.

If the non-competitive funds are intended to support the addition of staff among the member agencies, then we would not want to be looking at changing or shifting these allocations on an annual basis. We will need input from the member agencies regarding their individual needs and abilities to add staff support. Is there a set of questions that we should send out to the delegates to gather their input, for example:

- Would the state intend to hire additional staff to be committed to the commission and large rivers interjurisdictional fisheries management work?
- What would the anticipate doing or needing?

There are different ways that we can go about gathering input from the delegates and we should consider how best to do that.

When we are talking with Congressional staff in DC, the most important thing for us to be able to clearly articulate is how the fishery commission will help the states and benefit the general public. How does more capacity make a meaningful difference?

- State and federal resource management agencies recognize the need and want to do more for sustainable management and utilization of interjurisdictional fishery resources but lack the resources and capacity to coordinate, plan, implement, and evaluate cooperative management actions
- States may not feel comfortable investing limited Sport Fish Restoration (SFR) funds into large river fisheries management when more of their constituents are interested in reservoir fisheries.
- The proposed commission would provide a secure funding source to support large rivers work without cutting into their SFR funds.
- Allows states to manage fisheries where SFR ends, e.g., paddlefish

- Allows states to have focused effort on large river, interjurisdictional fisheries "to provide for long-term, sustainable fishery resources and fishing opportunities into the future" – Joint Strategic Plan
- Dedicated staff to convene states and effectively accomplish cooperative management as opposed to ineffective approach afforded by MICRA with voluntary state dues ($1,500/year) and one part-time staff person

When management decisions are reached by the commission, the states are able to use that strength when discussing management direction with constituents and the state administration. Both Illinois and Indiana have relatively small shoreline of Lake Michigan, but the states are an equal part of the discussions that occur through the commission.

What is your vision for state engagement with the commission? For example, Minnesota has several positions that are dedicated to working just on the state's large rivers. The commission would allow states to increase capacity for large rivers fisheries management that may not be as strongly supported by the state's fishing license buying public. It will allow states to work where sport fish restoration funding ends. Kentucky has considerable needs for managing paddlefish in our interjurisdictional waters, but we don't have the funding to support this work. Interjurisdictional fisheries that have inadequate resources available to manage as we do other fisheries in the state that are supported by SFR funds.

The real advantage comes from having a single entity that is dedicated to and focused on supporting interjurisdictional fisheries management in the basin. Having the entity in place that is responsible for the planning, coordination, convening of meetings, provides support, brings the right people together at the right times, and has a uniform focus on addressing priorities. Many of the GLFC staff's function is not as biologists but as conveners.

At a sub-basin level, we have numerous sport fish and non-game species that are interjurisdictional, highly migratory, and are important to all the states. We also have a lot of different regulations for these species among the four states. However, in our case there is only one state that really has the staff that can collect the data necessary to inform management decisions. The fishery commission would allow the other states to increase their capacity to manage these large rivers interjurisdictional fisheries.

The fishery commission could be an important mechanism to provide capacity for states to collaborate in the numerous ecosystem restoration initiatives that emerging

around the basin. The fishery commission will also facilitate multi-agency coordination on a basinwide scale and leverage success from one sub-basin to the others.

Is MICRA requesting designated funding in conjunction with the authorization of the fishery commission? That is a steep hill to climb. Yes, the stability in funding is needed for the states to consider adding staff. The draft legislation includes authorization for increasing funding levels to support the commission. The first year is $1 million to get the commission stood up and operational. The authorization increases to $30 million for several years to provide the non-competitive grants to states, and then it increases to $50 million for several more years to expand the amount of funding available for competitive grants to support the commission's priorities. It would be similar to RBFF that is called for by law. ORSANCO is another example.

The formalized structure and funding provide all states the opportunity to be at the table to discuss and develop collaborative management decisions affecting the basin's fishery resources.

There is an initial need for planning and coordination that precedes the work on the ground. These are likely the first steps once the secretariat and governance are in place.

- Sub-basin management plans (akin to the GLFC lake management plans) to operationalize the Joint Strategic Plan
- Collaboratively develop shared management objectives at the sub-basin scale
- Prioritize management and research needs to support management

How do you measure your success in getting what you want as you go along? First step is getting it setup so that you can do the management that you want to do later. Decision makers will want to know: what is needed, what is preventing you from getting there, and how will the fishery commission remove these barriers to allow for success? It will be important to communicate progress and success along the way. You need to be able to simply convey the complexity of the issue.

We could look at how the UMR is looking at some of the values of ecosystem resilience in communicating what success might look like. For example, increasing habitat diversity increases opportunities for different species to have refugia to utilize. Investments through the UMRR program are at least $33 million/year and now are increasing to upwards of $70 million. There are additional ecosystem

investments through the NESP. Those kinds of messages can be used to discuss what is needed for the entire Mississippi River Basin. The states recognized the need and invested in MICRA as an initial step towards the establishment of a fishery commission.

Is there a canned example of species that the states want to prevent from happening to other species? Paddlefish, catfish species, and SFR funding limitations. We can speak to the highly modified nature of the large river systems brought about by the actions of federal agencies.

Is it just where SFR funding stops or is it also that it's not enough? The funding is additive to the management that states are able to accomplish with SFR. Many states do not have a mechanism or the resources to direct towards large rivers fisheries management needs.

The fishery commission fills a need for an entity that can bring the management agencies together to collaborate on interjurisdictional issues. Brings states and federal agencies together to address issues such as large river habitat restoration.

Topics to revisit:

- Does the board need to start putting together a rough budget on the initial administrative and operational needs, i.e., how will the $1 million in appropriations be used?
- Is more discussion needed regarding a request to AFWA or seeking a contractor to continue these planning discussions?
- What are our next steps?

More thinking and discussion about the fishery commission at this level of detail is needed. It will be valuable to hear feedback from the DC fly-in time about their discussions with Congressional staff.

4) Review of MICRA's Draft 2024-2028 MICRA's Priorities Document

Discussion:

Conover will lead preparations for the MICRA Delegate meeting 30-minute discussion about the draft 2024-2028 MICRA Priorities document. No changes were recommended by the MICRA Delegates following the review of the draft provided on May 8. However, Mark Gaikowski provided several comments recommending the additional of native freshwater mussel priorities. Several comments were also received from the MICRA AIS Committee members regarding priorities under the AIS objective. No revisions were suggested to the Appendix with 2018-2023 accomplishments.

The draft 2024-2028 MICRA priorities document is provided as a supporting document in Appendix 1. The Executive Board will review the comments and suggested revisions and consider messaging regarding the draft priorities document for the MICRA Delegate meeting.

5) Review of MICRA's Draft Aquatic Habitat Action Plan

Discussion:

Conover will lead preparations for the MICRA Delegate meeting 30-minute discussion about the draft MICRA Aquatic Habitat Action Plan.

Remaining steps for finalizing the draft Action Plan are to:

1. Finalize MICRA's updated list of interjurisdictional rivers in the basin and add as an appendix to the document.
2. Update the sub-basin tables and figures of interjurisdictional rivers.
3. Correct and update the basin wide map included on page iii.

General comments received on the draft list of 6th order and larger interjurisdictional river in the basin are provided below for consideration. The draft report is provided as Appendix 2 of the briefing book.

General

- Is stream order the most informative? Would a 6-digit HUC be easier to standardize this effort and limitation of IJ rivers?
- I do like the idea of adding some rivers based on order even if they are not interjurisdictional, especially since they may be/are very important for several species (sturgeon, catfishes, paddlefish, buffalo, etc.). However, I believe incorporating them does water down the original intent of interjurisdictional classification focusing on more than one management authority. Perhaps only include > 5th order rivers if they meet the criteria for the LMR's Black "not an interjurisdictional river but is formed by interjurisdictional tributaries" where the interjurisdictional tributary meets a certain order criteria. Also, see response to #5 below.
- Stream order alone should not be a deciding criteria. Multiple criteria will best capture the intent and definition that has been used by MICRA when developing the original IJ river's list. It is not mentioned below, but there must have been reasons for including rivers like the Kaskaskia and Big Muddy in Illinois. Perhaps it had to do with important spawning areas for sturgeon or paddlefish? It appears some on the original list were included because they were also federally authorized navigation projects. A portion of the Kaskaskia is a federally authorized commercial navigation river. This seems like a justifiable reason to keep any of the federally authorized commercial navigation rivers on the list. The

presence of commercial navigation does meet the criteria of more than one management entity.

- I have an unofficial map of federally recognized tribal areas. There are many more rivers west of the Mississippi that would be included using the Tribal lands criteria, but it would also be easy to miss some since it is not official. However, the larger Tribal interjurisdictional rivers > 4th order seems like a reasonable cutoff with some textual reference as to why that cutoff was used. But, as stated above, there are advantages to including rivers that are interjurisdictional due to Tribal lands even if 4th order.

6) Potential Revisions to MICRA's Constitution and By-laws

Discussion:

Parsons will lead preparations for the MICRA Delegate meeting 20-minute discussion on the board's recommendation to increase MICRA state agency member annual dues from $1,500 to $3,000. This change will require amendment of the By-laws and approval of by a ¾ majority of the MICRA membership.

Conover will discuss additional potential amendments to the By-laws that the Executive Board will consider. Items for discussion are noted in Appendix 3.

7) Additional Topics and Preparations for the MICRA Delegate meeting

Discussion:

Is there anything else that needs discussed in preparation for the MICRA Delegate meeting?

8) MICRA Delegate Meeting Agenda

MISSISSIPPI INTERSTATE COOPERATIVE RESOURCE ASSOCIATION

August 21, 2023
1:00 PM – 5:00 PM (EST)

Amway Grand Plaza Hotel
Governor's Room
187 Monroe Avenue NW
Grand Rapids, MI

Remote Participation
Join Zoom Meeting
Meeting ID: 880 4677 7428
Passcode: 612825

Meeting Agenda

1:00 Welcome and Introductions (Brad Parsons)

1:10 MICRA's Policy and Government Affairs Work in 2023 (Ashlee Smith)

- Fishery Commission Initiative, Legislative, and Coalition Progress
- Next Steps for Congressional and Partner Outreach

2:30 Success! Now what? Operationalizing the Mississippi River Basin Fishery Commission (Parsons)

3:00 Break / Refreshments

3:30 Draft 2024-2028 MICRA's Priorities Document (Parsons and Greg Conover)

4:00 Review of MICRA's Aquatic Habitat Action Plan (Parsons and Conover)

4:30 Proposal to Increase MICRA Member Annual Dues (Parsons)

4:50 Closing Remarks (Parsons)

5:00 Adjourn / Mixer

6:00 Mixer Closes

9) Mississippi River Basin Habitat Management for Interjurisdictional Fishes Symposium Program

Tue, August 22, 8:00 AM - 5:00 PM

DeVos Place - Grand Gallery C

Description

The waters of the Mississippi River Basin (Basin) annually provide more than $19 billion of recreational fishing value. This economic value derives in part from species that require Basin habitats managed by two or more government agencies, including tribal governments. These “interjurisdictional fishes” require cooperation at multiple levels of government to sustain resilient populations and the habitat critical to key life stages. The Mississippi River Interstate Cooperative Resource Association (MICRA) identified implementation of aquatic habitat enhancement or rehabilitation projects in the Basin as a critical component of agency habitat rehabilitation programs to meet the life history needs of interjurisdictional species. Numerous completed projects within the Basin demonstrate the feasibility of implementing large scale habitat improvement. This symposium will use examples to share insights from Basin-wide project implementation and completion and describe progress of projects soon to be completed for the benefit of interjurisdictional fishes and other species.

Session Chairs

Organizer: Neil P Rude, Minnesota Department of Natural Resources

Co-organizer: Jeffrey Janvrin, Wisconsin Department of Natural Resources

Presentations

8:00 AM - 8:20 AM
MICRA's Aquatic Habitat Action Plan for Native Interjurisdictional Fish
Greg Conover, USFWS

8:20 AM - 8:40 AM
A historical perspective on the value of interstate partnerships
Andrew Stephenson, Upper Mississippi River Basin Association

8:40 AM - 9:00 AM
Restoring America’s Greatest River: Partnerships and Potential for the Lower Mississippi
Angeline Rodgers, U.S. Fish and Wildlife Service; Jack Killgore, U.S. Army Engineer Research and Development Center; Gretchen Benjamin, The Nature Conservancy, Retired

9:00 AM - 9:20 AM
Island Construction: Managing Upper Mississippi River Connectivity through Rebuilding Natural River Levees
Jeffrey Janvrin, Wisconsin Department of Natural Resources

9:20 AM - 9:40 AM
Fisheries habitat reconnection and improvements in the Mississippi River batture of Louisiana
Raynie Harlan, LDWF Inland Fisheries; Robby Maxwell, LA Dept. of Wildlife and Fisheries; Richard McGuffee, LDWF Inland Fisheries

9:40 AM - 1:20 PM
Plenary/Lunch

1:20 PM - 1:40 PM
Fish community change over 15 years at Emiquon – a restored Illinois River backwater
Jim T. Lamer, Illinois Natural History Survey; Toby Holda, INHS; Levi Solomon; Amber Blackert, INHS

1:40 PM - 2:00 PM
The Klondike Dam Removal - Restoring Stream Connectivity in the Big Sioux River
Michael Hawkins, M.S., Iowa DNR - Fisheries

2:00 PM - 2:20 PM
Insights from Stream and Floodplain Restoration Efforts
Kevin Haupt, USFWS

2:20 PM - 3:00 PM
Ecological Restoration of a Midwest Agricultural Stream through Innovation and Fertile Collaboration
Jerry Sweeten, PhDUS, Ecosystemsconnections.com; Kevin Haupt, United States Fish and Wildlife Service

3:00 PM - 3:20 PM
Break

3:20 PM - 4:00 PM
Invasive Carp Underwater Acoustic Deterrent at Mississippi River Lock 19
Marybeth K. Brey, U.S. Geological Survey; Christa M. Woodley, US Army Engineer Research and Development Center; Jessica C. Stanton, PhD, U.S. Geological Survey;

Andrea K. Fritts, Andrea Fritts, PhD, U.S. Geological Survey; Matthew Sholtis, U.S. Geological Survey Columbia River Research Lab; Theodore Castro-Santos, U.S. Geological Survey Eastern Ecological Science Center

4:00 PM - 4:20 PM
Fish Passage Design and Pre-Construction Monitoring at Lock and Dam 22on the Upper Mississippi River
Mark Cornish, U.S. Army Corps of Engineers

4:20 PM - 4:40 PM
Fisheries Habitat Improvement through Dredging of Mississippi River Backwaters
Jeffrey Janvrin, Wisconsin Department of Natural Resources

4:40 PM - 5:00 PM
Panel Discussion

10) MICRA Delegate Meeting and Symposium After-Action Review

Discussion:

The Executive Board members will review the MICRA delegate meeting and the AFS Symposium to consider next steps moving forward.

11) Mississippi River Basin Fishery Commission Next Steps

Discussion:

Ashlee Smith will lead a discussion with the Executive Board to discuss next steps regarding MICRA's policy and government affairs priorities.

12) Legislative, Policy, and Outreach Next Steps

Discussion:

Parsons will lead a group discussion building from the Executive Board's February 2023 meeting regarding operationalizing the Mississippi River Basin Fishery Commission. Un February 2023, the Executive Board identified the following three topics to revisit:

1. Does the board need to start putting together a rough budget on the initial administrative and operational needs, i.e., how will the $1 million in appropriations be used?
2. Is more discussion needed regarding a request to AFWA or seeking a contractor to continue these planning discussions?
3. What are our next steps?

February 2023 Discussion notes:

Parsons requested the board members to have a focused discussion on the reality of the proposed fishery commission being authorized. That is, how do we prepare for that reality. MICRA will be in DC for the annual Fly-in in a couple weeks and the delegates may be asked some challenging questions. We want to be prepared for those discussions and we want to be prepared to act should the fishery commission be authorized.

Most of our focus to this point has been positioning ourselves for success in establishing a fishery commission. We haven't spent a lot of time discussing the foundation so that the board is ready to move and begin to implement the commission and cooperative resource management as soon as the fishery commission is authorization and funding potentially appropriated. Now it is time to shift our focus to preparing for success following an authorization. For example, what will logistics of the commission look like, what is the structure that it will encompass, how do we develop our charter so that it is something we can implement as soon as the authorization is passed that we anticipate is coming. How do we establish that system so that someone will want to step into the role of the first Executive Director/Secretary of this new fishery commission?

Smith is late for the Executive Board meeting because she stayed in DC to talk with two Senators that she is hopeful will co-sponsor the legislation to authorize the Fishery Commission. She believes there is real potential for the fishery commission to be authorized by this Congress. We want to be prepared to implement and not get caught flatfooted.

The board has previously touched on initial staffing for the fishery commission at a high level, but we need to have a plan for the specific positions that would immediately need to be filled and the qualities that the board members would like to see when recruiting for these positions. It would be useful for the board members to start thinking about their networks and who we might want to potentially recruit for the new secretariat.

Should we be looking outside of MICRA for assistance in guiding us through this part of the process? Would it be appropriate to reach out to the AFWA Management Assistance Team?

As the draft legislation get's legs, the MICRA delegates are likely to get more questions from their leaderships and Administrations. We need to be prepared to discuss details and address questions both internally and externally.

As currently laid out, the initial action will be for the MICRA Executive Board to hire an Executive Director to stand up the remainder of the Secretariat under the supervision of the board. The Joint Strategic Plan will serve as a guiding document. Initially, the MICRA Executive Board would continue to meet until the fishery commission structure is operationalized. We will need to develop an equitable way of distributing the non-competitive portion of the appropriations to the commission members. An even allocation across all member agencies may not be the best approach.

Getting something started doesn't require the same skill set as running something long term. Do we need an Executive Director whose skill set is to get the fishery commission up and running or are we looking for someone who can nurture and grow the fishery commission? Is it too early to consider potential individuals that are well suited for our needs? We may want to focus on the specific positions and different skill sets for the moment. For example, we may want a communications director to work alongside the executive director. A financial person to manage grants may be another immediate need.

We need to be cautious and keep any positions to a minimum. There will be some basic needs and cost to staffing the fishery commission. There is a strong emphasis by legislators right now in reducing administrative costs or keeping them as low as possible. Proposals that have a lot of administrative costs are not doing well. Those that are most successful have stricter limits on administrative costs than we have seen in a while. We need a plan for what the commission will need for staff, but I encourage us to keep it as light as possible initially. The Great Lakes Fishery Commission (GLFC) started much smaller than what it looks like today.

We've previously discussed an administrative assistant as a fundamental initial need for the fishery commission or secretariat to function. We do not want the executive director spending time on basic administrative functions.

Four key positions were proposed for discussion:

5. Executive director
    a. First position hired – by MICRA Executive Board
    b. Tasked with hiring additional secretariat staff
    c. Work with a consultant to assist with developing secretariat and governance structure with commission membership?
6. Communications director
    a. Potentially serve as deputy (director in training)
    b. Need may depend on who is hired as executive director
7. Grants manager / administrator
8. IJ fishery biologist

UMRBA is a lean and effective organization that is structured much like what is proposed. They have added a staff biologist as they have grown over the last 10 years.

Could the executive director and communications director be combined if needed? Ideally, they would be separate so that neither position is tasked with too many responsibilities to function effectively as needed. The communications director could also be used as a trainee position for the executive director (i.e., deputy or assistant) if a retiree or short-term hire was made for the initial executive director.

Something that is not captured here is legal assistance. It does not need to be a staff person necessarily, but there will be a need for legal assistance in establishing the organization properly (e.g., registering the entity, internal revenue service, etc.). We can look at contracting for communications or other needs to keep staff size smaller.

What would the mechanics of moving money to the states look like? The authority for the USFWS to move funding to the fishery commission is the authorizing legislation. The fishery commission would then manage moving funds to the member agencies or others in the case of the competitive grants. There are many federal laws that get passed along with funding so there will be a significant need for accountability, tracking, and regulatory aspects. Who is going to make sure of all this for the fishery commission if it is issuing grants or sub-awards of the federal funds?

The GLFC funding goes through the Department of State and not USFWS. If the funding came through the Department of Interior or USFWS, there are several

authorities in place to make both competitive and non-competitive grants to partners. Congress can grant authority to agencies to pass money through for various purposes. That type of authorization may or may not be part of any legislation that authorizes the formation of a fishery commission. There are multiple options that could be explored. If Congress appropriates funding to support the fishery commission, would the host federal agency administer the competitive and non-competitive grants, or would the funding be passed through to the commission to then administer the grants? Either the federal host agency or the commission would likely need to hire a full-time person to administer 30 or more grants.

The GLFC is a unique situation. The most recent ruling from solicitors is that once U.S. federal funds are mixed with Canadian federal funds, the funds are no longer considered U.S. federal funds.

Potential contract support:

4. Legal
5. Accounting / CPA
6. Communications

Considerations:

- Salary and benefits / payroll / retirement for commission staff
    - Commission staff, agency staff, or combination
        - GLFC: Inter-governmental Personnel Act and Cooperative Agreements
        - SARP: State dues and grant funding
- Allocation of non-competitive grants to commission member states
- State agency dues
    - How much?
    - How used?

Who does the Executive Director answer to? Initially the MICRA Executive Board until the transition to the fishery commission governance is complete. The MICRA Executive Board is proposed to transition to the commissioners, with one commissioner representing each sub-basin and two federal entity commissioners. The executive director and secretariat would work under the commissioners.

Would the commission be a federally entity? Would the executive director be a federal employee? No.

Should we expect USFWS to pull their current level of support for the partnership once the fishery commission is authorized and there is a secretariat handling the work of the commission? Future support would likely look different, but I would not characterize it as pulling back. The USFWS has several staff that support the GLFC. In the end, USFWS could potentially be at a similar or increased level from what it is now. It is all unknown at this point and we can only speculate how the agency may choose to participate once the commission structure is formalized. There would likely be interest in maintaining a liaison type role with the fishery commission.

If the commission is its own entity, then there are numerous administrative needs that will need to be setup around hiring staff, e.g., payroll, pension, and benefits such as health care and retirement. There are precedence that can be used. There can be agency staff working for the commission or commission staff or a combination of both. In the early days of the GLFC, the Service had staff working under agreements for the commission on both a part-time and full-time basis. It may not be necessary for the commission to hire all the key staff out of the gate. The USFWS had someone working for the commission for eight or nine years. There are still a couple USFWS employees working part-time for the GLFC. The salary, benefits, and retirement are all paid by the USFWS and GLFC reimburses only for salary. Those types of arrangements could be part of the initial or long-term structure. The Inter-governmental Personal Act and cooperative agreements are a couple of options. SARP uses some sort of arrangement for their coordinator and other staff. It may be another group for us to look at.

We will need to reach consensus on the allocation of the non-competitive grants to the commission member states. All member states currently pay the same level of membership dues to MICRA. The expectation is that all funds would be used to support work in the Mississippi River Basin. The states with a small proportion of the basin's interjurisdictional rivers will need to determine what level of funding they need to support their collaborative fisheries management in these waters.

A different model would be to allocate the funding (evenly?) to the sub-basins and let the sub-basins determine how to allocate the funding among their states. The allocation would need to be based on a non-competitive model and not competitively within the sub-basin. Who will handle the coordination and decision-making role within each of the sub-basins? For example, does the ORFMT or UMRCC have the capacity to fill that role? What about the Arkansas-Red-White and Tennessee Cumberland sub-basins that do not have a formalized coordination structure in place like the other four sub-basins? There are differences in the level at which the state agencies are involved or participate in the different sub-basin partnerships. The sub-basin representatives would be responsible for discussing the allocation of non-competitive funding at the sub-basin

level. That model would take more investment in coordination time than to do it at a basinwide scale.

I would not like the USFWS ANS state/interstate plan implementation funding model where the entire pie is split evenly among everyone. That model does not make sense for this scenario.

If the non-competitive funds are intended to support the addition of staff among the member agencies, then we would not want to be looking at changing or shifting these allocations on an annual basis. We will need input from the member agencies regarding their individual needs and abilities to add staff support. Is there a set of questions that we should send out to the delegates to gather their input, for example:

- Would the state intend to hire additional staff to be committed to the commission and large rivers interjurisdictional fisheries management work?
- What would the anticipate doing or needing?

There are different ways that we can go about gathering input from the delegates and we should consider how best to do that.

When we are talking with Congressional staff in DC, the most important thing for us to be able to clearly articulate is how the fishery commission will help the states and benefit the general public. How does more capacity make a meaningful difference?

- State and federal resource management agencies recognize the need and want to do more for sustainable management and utilization of interjurisdictional fishery resources but lack the resources and capacity to coordinate, plan, implement, and evaluate cooperative management actions
- States may not feel comfortable investing limited Sport Fish Restoration (SFR) funds into large river fisheries management when more of their constituents are interested in reservoir fisheries.
- The proposed commission would provide a secure funding source to support large rivers work without cutting into their SFR funds.
- Allows states to manage fisheries where SFR ends, e.g., paddlefish
- Allows states to have focused effort on large river, interjurisdictional fisheries “to provide for long-term, sustainable fishery resources and fishing opportunities into the future” – Joint Strategic Plan

- Dedicated staff to convene states and effectively accomplish cooperative management as opposed to ineffective approach afforded by MICRA with voluntary state dues ($1,500/year) and one part-time staff person

When management decisions are reached by the commission, the states are able to use that strength when discussing management direction with constituents and the state administration. Both Illinois and Indiana have relatively small shoreline of Lake Michigan, but the states are an equal part of the discussions that occur through the commission.

What is your vision for state engagement with the commission? For example, Minnesota has several positions that are dedicated to working just on the state's large rivers. The commission would allow states to increase capacity for large rivers fisheries management that may not be as strongly supported by the state's fishing license buying public. It will allow states to work where sport fish restoration funding ends. Kentucky has considerable needs for managing paddlefish in our interjurisdictional waters, but we don't have the funding to support this work. Interjurisdictional fisheries that have inadequate resources available to manage as we do other fisheries in the state that are supported by SFR funds.

The real advantage comes from having a single entity that is dedicated to and focused on supporting interjurisdictional fisheries management in the basin. Having the entity in place that is responsible for the planning, coordination, convening of meetings, provides support, brings the right people together at the right times, and has a uniform focus on addressing priorities. Many of the GLFC staff's function is not as biologists but as conveners.

At a sub-basin level, we have numerous sport fish and non-game species that are interjurisdictional, highly migratory, and are important to all the states. We also have a lot of different regulations for these species among the four states. However, in our case there is only one state that really has the staff that can collect the data necessary to inform management decisions. The fishery commission would allow the other states to increase their capacity to manage these large rivers interjurisdictional fisheries.

The fishery commission could be an important mechanism to provide capacity for states to collaborate in the numerous ecosystem restoration initiatives that emerging around the basin. The fishery commission will also facilitate multi-agency coordination on a basinwide scale and leverage success from one sub-basin to the others.

Is MICRA requesting designated funding in conjunction with the authorization of the fishery commission? That is a steep hill to climb. Yes, the stability in funding is needed for the states to consider adding staff. The draft legislation includes authorization for increasing funding levels to support the commission. The first year is $1 million to get the commission stood up and operational. The authorization increases to $30 million for several years to provide the non-competitive grants to states, and then it increases to $50 million for several more years to expand the amount of funding available for competitive grants to support the commission's priorities. It would be similar to RBFF that is called for by law. ORSANCO is another example.

The formalized structure and funding provide all states the opportunity to be at the table to discuss and develop collaborative management decisions affecting the basin's fishery resources.

There is an initial need for planning and coordination that precedes the work on the ground. These are likely the first steps once the secretariat and governance are in place.

- Sub-basin management plans (akin to the GLFC lake management plans) to operationalize the Joint Strategic Plan
- Collaboratively develop shared management objectives at the sub-basin scale
- Prioritize management and research needs to support management

How do you measure your success in getting what you want as you go along? First step is getting it setup so that you can do the management that you want to do later. Decision makers will want to know: what is needed, what is preventing you from getting there, and how will the fishery commission remove these barriers to allow for success? It will be important to communicate progress and success along the way. You need to be able to simply convey the complexity of the issue.

We could look at how the UMR is looking at some of the values of ecosystem resilience in communicating what success might look like. For example, increasing habitat diversity increases opportunities for different species to have refugia to utilize. Investments through the UMRR program are at least $33 million/year and now are increasing to upwards of $70 million. There are additional ecosystem investments through the NESP. Those kinds of messages can be used to discuss what is needed for the entire Mississippi River Basin. The states recognized the need and invested in MICRA as an initial step towards the establishment of a fishery commission.

Is there a canned example of species that the states want to prevent from happening to other species? Paddlefish, catfish species, and SFR funding limitations. We can speak to the highly modified nature of the large river systems brought about by the actions of federal agencies.

Is it just where SFR funding stops or is it also that it's not enough? The funding is additive to the management that states are able to accomplish with SFR. Many states do not have a mechanism or the resources to direct towards large rivers fisheries management needs.

The fishery commission fills a need for an entity that can bring the management agencies together to collaborate on interjurisdictional issues. Brings states and federal agencies together to address issues such as large river habitat restoration.

Topics to revisit:

- Does the board need to start putting together a rough budget on the initial administrative and operational needs, i.e., how will the $1 million in appropriations be used?
- Is more discussion needed regarding a request to AFWA or seeking a contractor to continue these planning discussions?
- What are our next steps?

More thinking and discussion about the fishery commission at this level of detail is needed. It will be valuable to hear feedback from the DC fly-in time about their discussions with Congressional staff.

13) Finalizing MICRA's Draft Aquatic Habitat Action Plan

Discussion:

During the Executive Board's February 2022 meeting, board members discussed multiple problems with the existing MICRA list of interjurisdictional rivers included in the near final Aquatic Habitat Action Plan. Several action items resulted from that discussion.

1. Rodgers will work with her GIS specialist to develop a few lists of interjurisdictional rivers in the Mississippi River Basin using different criteria for the board to consider.
2. The Executive Board will consider proposed new GIS-based lists of interjurisdictional rivers in the Mississippi River Basin and make a decision on the preferred criteria and list to use as an updated list for MICRA.
3. Conover will work with Janvrin to finalize the draft action plan once the Executive Board approves a new MICRA list of interjurisdictional rivers in the Mississippi River Basin.

Conover has been working with Angela Erves since the Executive Board meeting in February 2023 to develop a list of 6th order and larger interjurisdictional rivers. Executive Board members were provided revised sub-basin lists in May. Erves and Conover have been working to address comments and develop final sub-basin lists. Updated sub-basin lists are provided below for review and discussion with the Executive Board.

The Executive Board will also review the revisions and comments in the draft Action Plan provided in Appendix 2 of the briefing book. Board members will then discuss next steps and a timeline for finalizing the Aquatic Habitat Action Plan by the end of 2023.

Remaining steps for finalizing the draft Action Plan are to:

1. Finalize MICRA's updated list of interjurisdictional rivers in the basin (see pages 20-27 in the briefing book) and add the list as an appendix to the Action Plan.
2. Update the sub-basin tables and figures of interjurisdictional rivers.
3. Correct and update the basin wide map included on page iii.

Arkansas-Red-White Rivers Sub-basin – 6th order and larger interjurisdictional rivers

Rivers	Stream Order	States	Tribal
White (including Bull Shoals, Norfork, and Table Rock Reservoirs)	8	AR, MO	
North Fork	6	MO, AR	
Black	7	MO, AR	
Current	6	AR, MO	
Eleven Point	6	AR, MO	
~~Spring~~ [1]	~~5~~	~~MO, AR~~	
Arkansas	9	CO, KS, OK, AR	x
Salt Fork Arkansas	7	OK, KS	x
Medicine Lodge	6	OK, KS	
Chikaskia	6	OK, KS	x
Cimarron	6	OK, KS, CO	x
Verdigris	7	KS, OK	x
Caney	6	OK, KS	x
Little Caney	6	OK, KS	x
Neosho	7	OK, KS	x
Spring	6	MO, KS, OK	x
Illinois	6	AR, OK	x
Canadian	8	OK, TX, NM	x
North Canadian[3]	7	OK	x
Beaver	6	OK, TX	x
Poteau	6	AR, OK	x
Red	7	LA, AR, OK, TX	x
North Fork Red River	6	OK, TX	
Washita	6	OK, TX	x
Muddy Boggy Creek[3]	6	OK	x
Kiamichi[3]	6	OK	x
Little	6	OK, AR	x
Mountain Fork	6	OK, AR	x
Sulphur	6	AR, TX	
Twelve Mile Bayou[2]	6	LA	
Big Cypress (including Cypress Springs, Lake Bob Sandlin, Lake O' the Pines, and Caddo Lake)	6	TX, LA	
Loggy Bayou[2]	6	LA	
Bayou Dorcheat	6	AR, LA	

Green text are additions to MICRA list.

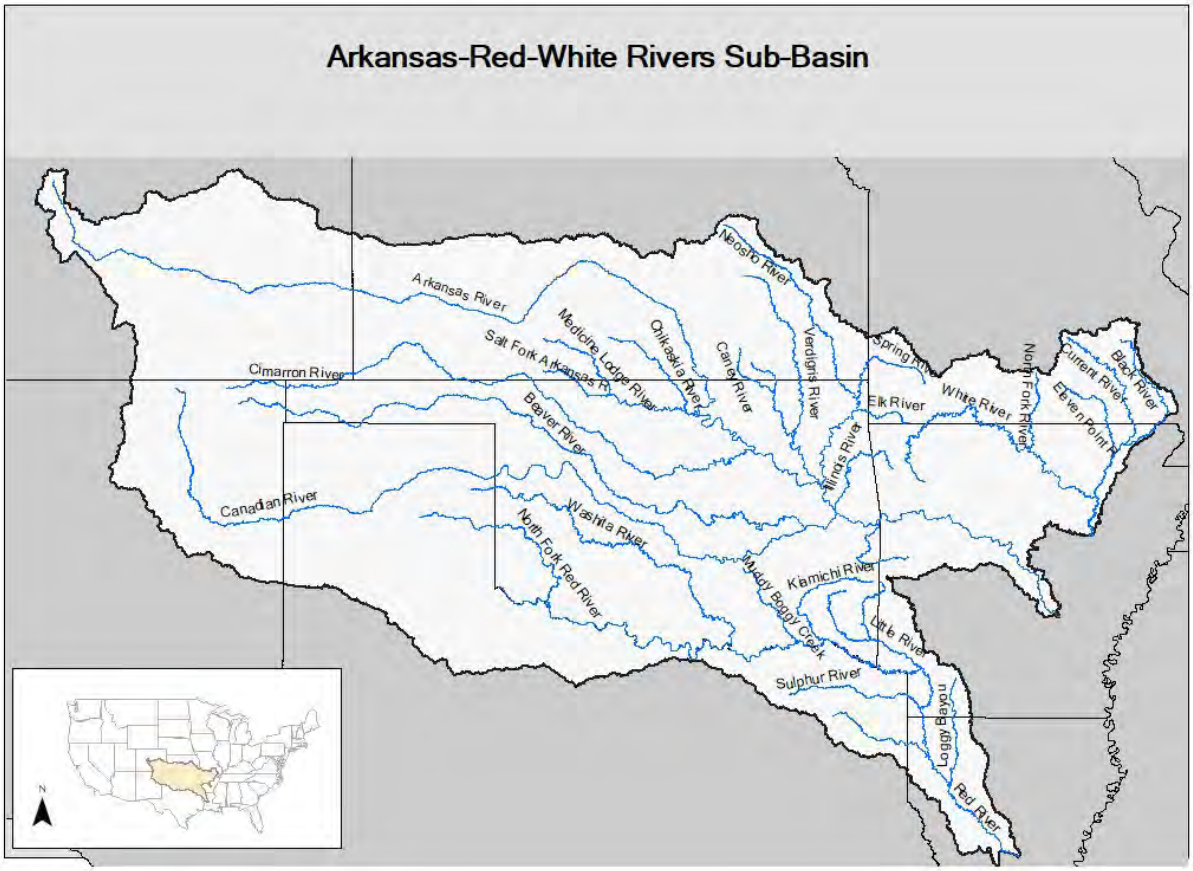
Red text are recommended deletions due to stream order.

Notes:

[1] The 3.7 mile stretch of river between the confluence of the Eleven Point and Black rivers is not in the USGS NHD flowline database. USGS NHD database shows Spring River flows into the Eleven Point, but MDC's website states that the Eleven Point flows into the Spring and the Spring flows into the Black. Recommend leaving the Spring River off MICRA's list based on data in the USGS NHD database.

[2] Twelve Mile Bayou and Loggy Bayou are not interjurisdictional rivers but are formed by IJ tributaries.

[3] North Canadian, Muddy Boggy Creek, and Kiamichi flow through or border tribal lands.



Lower Mississippi River Sub-basin – 6th order and larger interjurisdictional rivers

Rivers	Stream Order	States	Tribal
Mississippi	10	MS, LA, TN, AR, MO, KY	
Ohio	9	OH, PA, WV, KY, IN, IL	
Hatchie	6	TN, MS	
St. Francis	7	AR, MO	
Right Hand Chute Little River	6	MO, AR	
White	8	AR, MO	
Arkansas	9	AR, KS, CO, OK	
Yazoo	7	MS, LA	
Red	8	TX, OK, AR, LA	
Black[1]	7	LA	
Oauchita	7	LA, AR	
Bayou Bartholomew	6	LA, AR	
Boeuf	6	LA, AR	
Amite	7	MS, LA	
Atchafalaya[2]	8	LA	

Green text are additions to MICRA list.

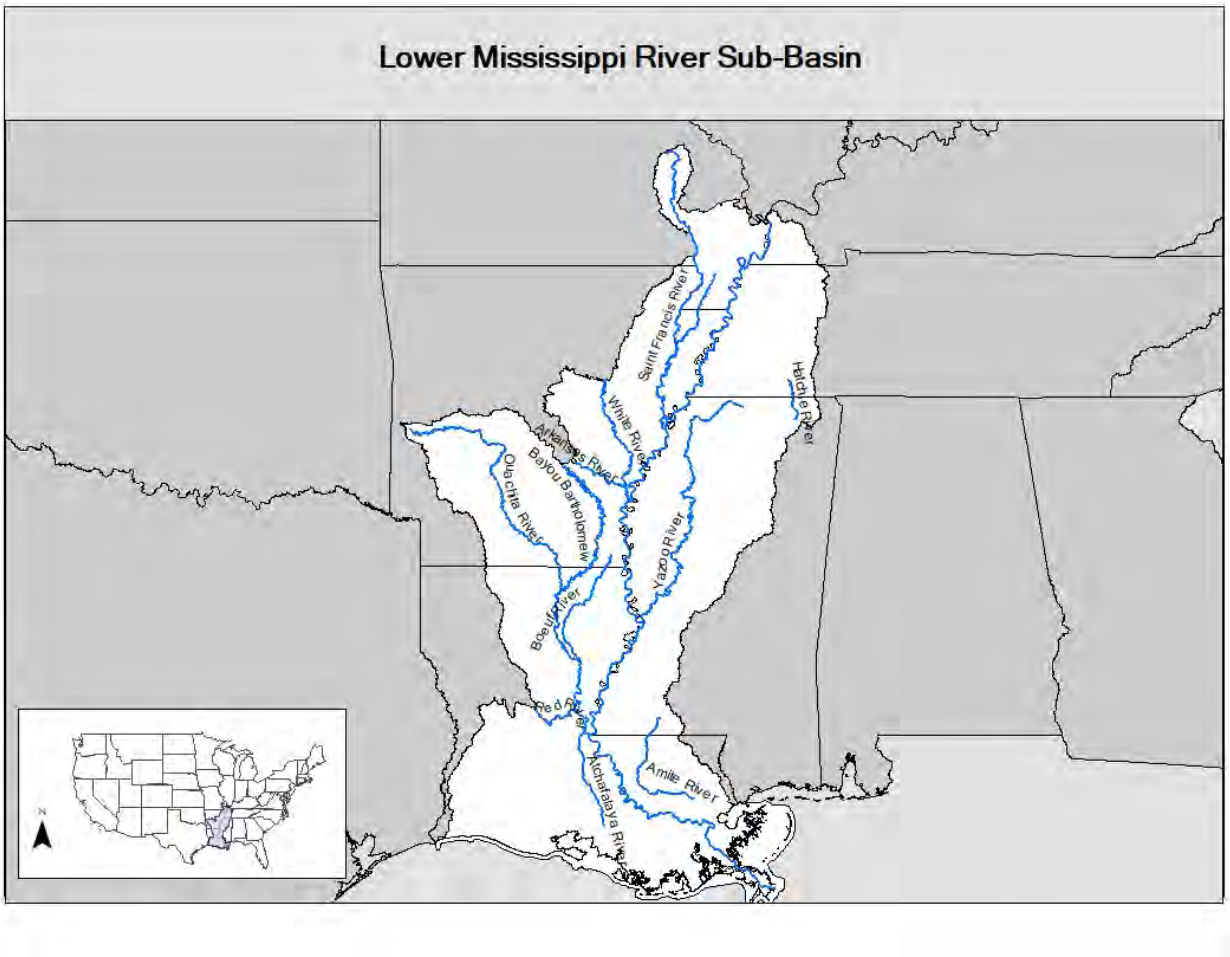
Notes:

[1] The Black River is not an interjurisdictional river but is formed by interjurisdictional tributaries.

[2] The Atchafalaya River is a distributary river formed by the Mississippi and Red Rivers.

Questions:

1. Is the Amite River a Mississippi River tributary? Reference material says it drains into Lake Maurepas which is connected to Lake Pontchartrain.
2. Arkansas, Red, and White are all listed as tributaries of the lower Mississippi River. All tributaries of the Arkansas and White rivers are listed in the Arkansas-Red-White Sub-basin table. However, the Red River includes one tributary (Black River) in the LMR table and multiple others in the ARW table. This breaks out in the sub-basin maps and can be avoided with a single table of Mississippi River Basin tributaries in appendix of report.


Lower Mississippi River Sub-Basin
Saint Francis River
White River
Arkansas River
Bayou Bartholomew
Ouachita River
Boeuf River
Red River
Yazoo River
Big Sunflower River
Tensas River
Atchafalaya River
Amite River
Big Black River
N

Missouri River Sub-basin – 6th order and larger interjurisdictional rivers

Rivers	Stream Order	States	Tribal
Missouri	9	MO, NE, SD, ND, MT, IA, KS	x
Madison	6	WY, MT	
Gallatin	6	WY, MT	
Milk[2]	6	MT, AB[3], SK[3]	X
Marias[2]	6	MT, SK[3]	X
Yellowstone	8	WY, MT, ND	
Clarks Fork	6	WY, MT	
Bighorn[2]	7	MT, WY	X
Wind[2]	7	WY	X
Tongue[2]	6	MT, WY	X
Powder	6	MT, WY	
Little Missouri	6	SD, ND, WY, MT	X
Grand[1]	6	SD	
North Fork Grand	6	ND, SD	
Moreau[2]	6	SD	X
Cheyenne	7	WY, SD	
Belle Fourche	6	WY, SD	
White	6	SD, NE	X
Niobrara	6	WY, NE	
James	7	ND, SD	
Big Sioux	7	SD, IA	
Rock	6	MN, IA	
Little Sioux	6	IA, MN	
Platte[1]	8	NE	
South Platte	7	NE, CO	
Laramie	6	WY, CO	
North Platte	7	NE, WY, CO	
Nishnabotna	6	IA, MO, NE	
Kansas[1]	8	KS	
Smoky Hill	7	CO, KS	
Republican	7	NE, KS	
Beaver Creek	6	WY, SD	
Big Blue	7	NE, KS	
Little Blue	6	NE, KS	
Grand	7	IA, MO	
Thompson	6	IA, MO	
Osage[1]	7	MO	
Marais des Cygne	6	KS, MO	

Green text are additions to MICRA list.

Notes:

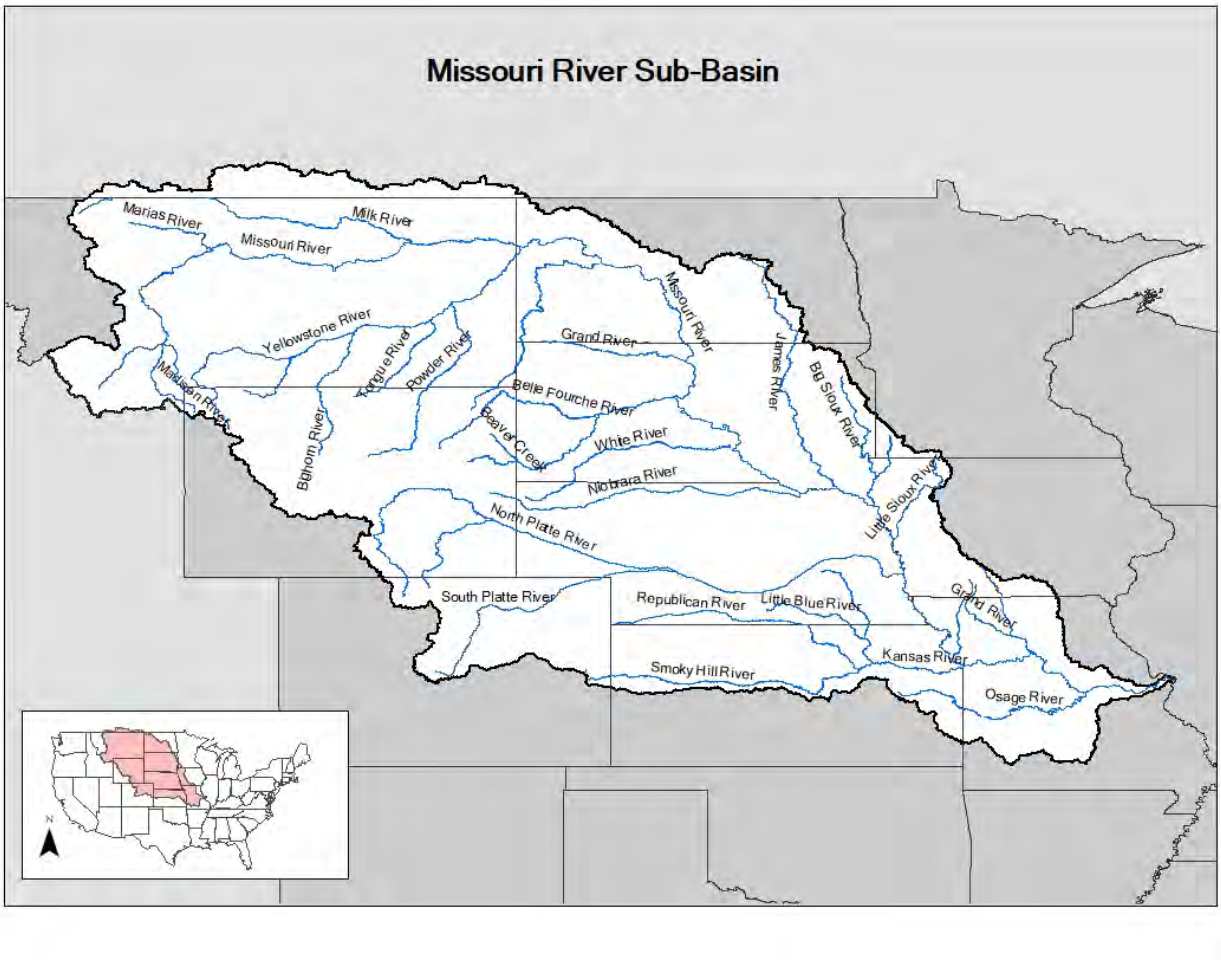
[1] The Grand (SD), Platte, Kansas, and Osage rivers are not interjurisdictional rivers but are formed by interjurisdictional tributaries.

[2] The Milk, Marias, Bighorn, Wind, Tongue, and Moreau rivers flow through or border tribal lands.

[3] AB = Alberta Canada, SK = Saskatchewan

Question:

1. Do we want to include provinces in addition to states?



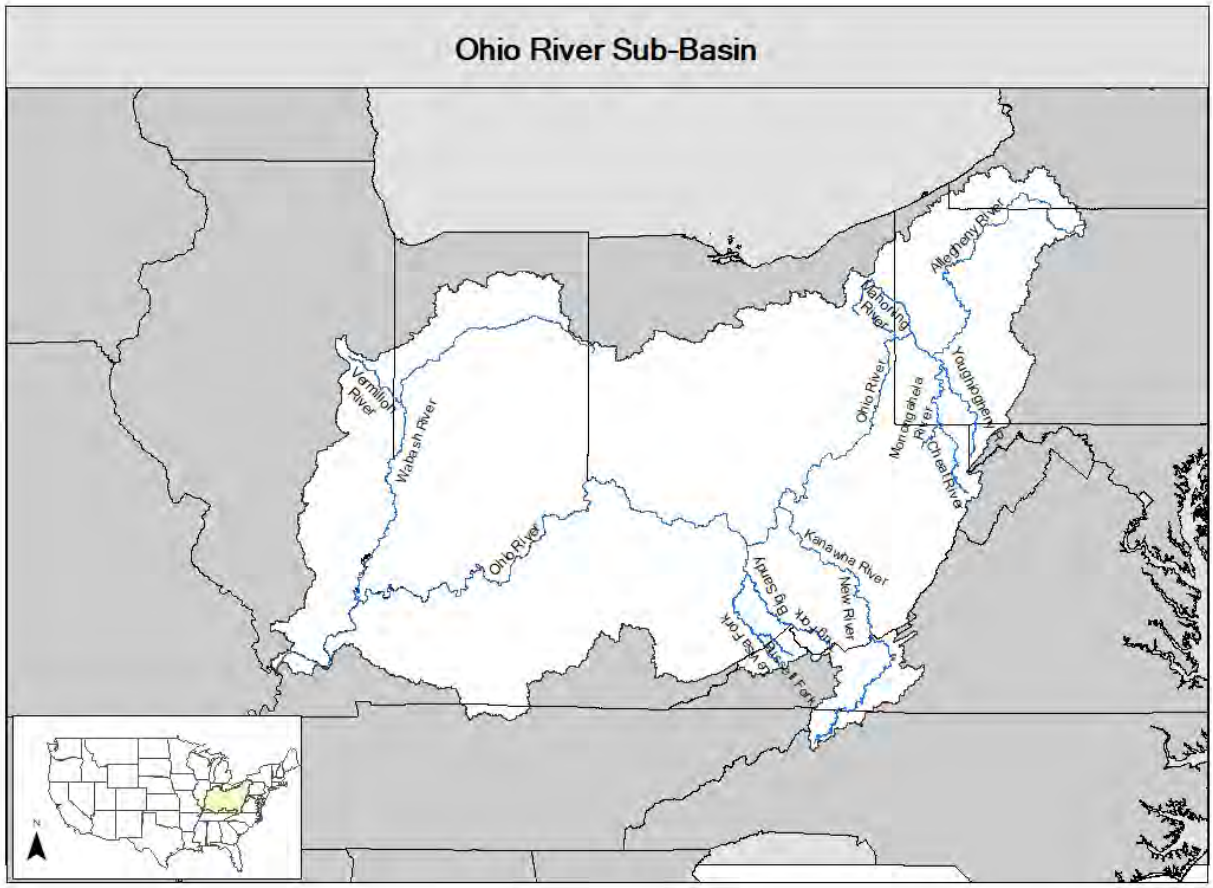
Ohio River Sub-basin – 6th order and larger interjurisdictional rivers

Rivers	Stream Order	States	Tribal
Ohio	9	OH, PA, WV, KY, IN, IL	
Allegheny	8	NY, PA	
Monongahela	7	PA, WV	
Cheat	6	WV, PA	
Youghiogheny	6	PA, MD	
Beaver[1]	7	PA	
Mahoning	6	OH, PA	
Little Beaver Creek	6	OH, PA	
Kanawha[1]	6	WV	
New	6	WV, VA, NC	
Big Sandy	7	WV, KY	
Tug Fork	6	KY, WV, VA	
Levisa Fork	6	VA, KY	
Russell Fork	6	KY, VA	
Wabash	6	IN, IL, OH	
Vermillion	6	IL, IN	
Cumberland	7	KY, TN	
Tennessee	8	KY, TN, MS, AL	

Green text are additions to MICRA list.
Yellow highlighted cell is being verified by Angela.

Notes:

[1] The Beaver and Kanawha rivers are not interjurisdictional rivers but are formed by interjurisdictional tributaries.


Ohio River Sub-Basin
Allegheny River
Monongahela River
Youghiogheny
Ohio River
Vermilion River
Wabash River
Ohio River
Kanawha River
New River
Big Sandy
Guyandotte River
Tug Fork
Levisa Fork
Ohio River
N

Tennessee and Cumberland Rivers Sub-basin – 6th order and larger interjurisdictional rivers

Rivers	Stream Order	States	Tribal
Tennessee (including Kentucky Lake, Pickwick Lake, and Guntersville Lake)	**8**	**KY, TN, MS, AL**	
Holston[1]	**6**	**TN**	
South Fork Holston	**6**	**TN, VA**	
Wautaga (including Wautaga Reservoir)	**6**	**TN, NC**	
French Broad	**7**	**TN, NC**	
~~**Pigeon**~~	~~**5**~~	~~**TN, NC**~~	
Nolichucky	**6**	**TN, NC**	
Little Tennessee (including Tellico and Calderwood Reservoirs)	**6**	**TN, NC, GA**	
Clinch	**6**	**VA, TN**	
Hiwassee (including Chatuge and Nottely Reservoirs)	**6**	**TN, AL**	
Elk	**7**	**TN, AL**	
Tennessee-Tombigbee Waterway[2]	**N/A**	**TN, MS, AL**	
Cumberland (including Cordell Hull Lake and Dale Hollow Lake)[3]	**7**	**KY, TN**	
Red	**6**	**KY, TN**	

Green text are additions to MICRA list.
The Pigeon River is recommended for deletion due to stream order.

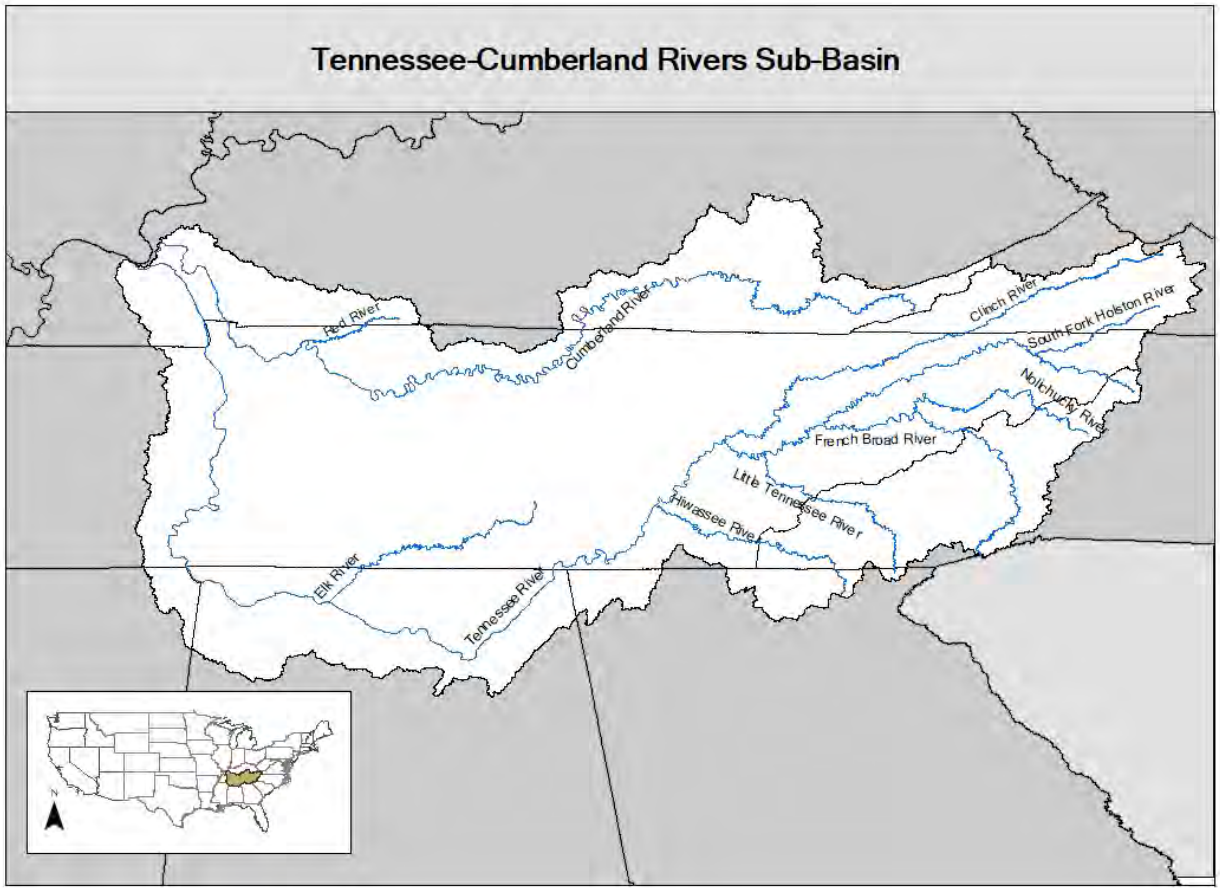
Notes:

[1] The Holston River is not an interjurisdictional river, but it is formed by interjurisdictional tributaries.

[2] The Tennessee-Tombigbee Waterway divide cut is not in the USGS NHD flowline database so no stream order is available for this manmade canal. It is included in MICRA's list because it is an IJ waterway and connects the TN river to the Tombigbee River in the Mobile Drainage.

Questions:

1. Are Wautaga, Tellico, Calderwood, and Cordell Hull reservoirs IJ? All are formed by dams on 6th order or larger IJ rivers.
2. Dale Hollow Lake is formed on 5th order Obey River. Should it stay on the list?
3. Tennessee Tombigbee Waterway was included in the original list of MICRA IJ rivers. Is there interest in including as a distributary in the revised list?


Tennessee-Cumberland Rivers Sub-Basin
Red River
Cumberland River
Clinch River
South Fork Holston River
Nolichucky River
French Broad River
Little Tennessee River
Hiwassee River
Elk River
Tennessee River

Upper Mississippi River Sub-basin – 6th order and larger interjurisdictional rivers

Rivers	Stream Order	States	Tribal
Mississippi River	**10**	**MN, WI, IA, IL, MO**	
Minnesota (incl. Big Stone Lake)	**8**	**MN, SD**	
Whetstone	**6**	**SD, MN**	
St. Croix	**6**	**MN, WI**	
Chippewa[1]	**7**	**WI**	**x**
Black[1]	**6**	**WI**	**x**
Wisconsin[1]	**6**	**WI**	**x**
Rock	**7**	**IL, WI**	
Pecatonica	**7**	**IL, WI**	
Sugar	**6**	**IL, WI**	
Iowa[1]	**7**	**IA**	**x**
Des Moines	**7**	**IA, MN, MO**	
Illinois[2]	**8**	**IL**	
Kankakee	**6**	**IN, IL**	
Iroquois	**6**	**IN, IL**	
Fox	**6**	**WI, IL**	
Missouri	**9**	**MO, NE, SD, ND, MT, IA, KS**	**x**

Green text are additions to MICRA list.

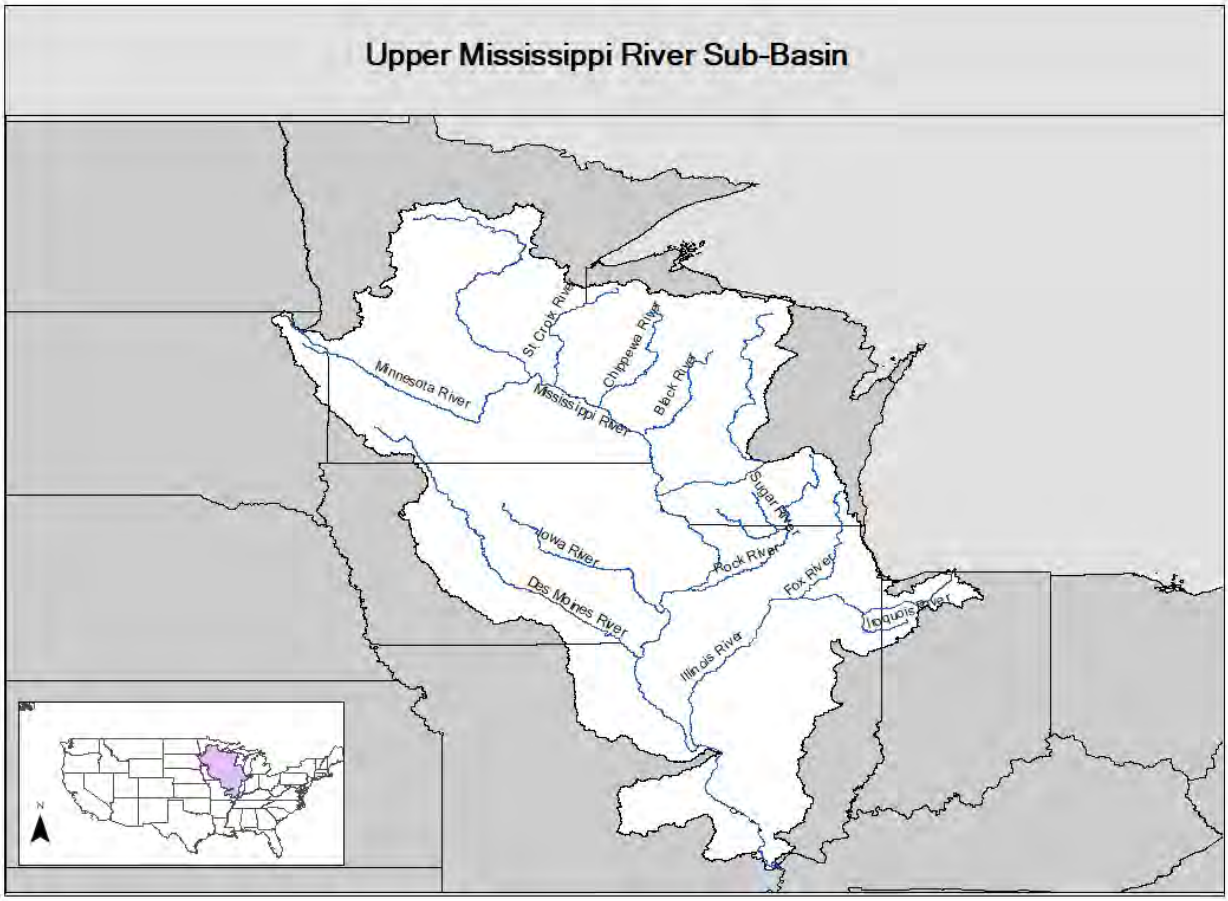
Notes:

[1] The Chippewa, Black, Wisconsin, and Iowa rivers flow through tribal lands.

[2] The Illinois River is not an interjurisdictional river, but it is formed by interjurisdictional tributaries.

Comments:

1. Upper Iowa, Wapsinicon, Cedar, and Shell Rock should be maintained due to 2 state jurisdiction. There are others but will let those basins weigh in (i.e., TN/Cumberland and Ohio have several proposed to be dropped that I believe should be maintained.)


Upper Mississippi River Sub-Basin
St Croix River
Chippewa River
Black River
Minnesota River
Mississippi River
Sugar River
Iowa River
Rock River
Fox River
Des Moines River
Illinois River
Iroquois River
N

14) Finalizing MICRA's Draft 2024-2028 Priorities Document

Discussion:

The Executive Board will review the comments and suggested revisions in the draft 2024-2028 priorities document and discuss next steps and a timeline for finalizing the document. The document is provided in Appendix 1.

15) Finalizing MICRA's Draft 2019-2023 Priorities Accomplishment Tracking

Discussion:

The Executive Board will review the draft 2019-2023 priorities document accomplishment tracking and discuss next steps and a timeline for finalizing the document. The draft document is provided in Appendix 4.

16) Approval of the Executive Board's February 2023 Meeting Notes

Discussion:

Conover will provide an update on the status of the meeting notes from the Executive Board's February 2023 meeting.

17) Review of Action Items

Discussion Item:

Executive Board members will review the status of Decisions and Action Items from the board's February 2023 meeting and discuss completion of outstanding action items. Outstanding Action Items from previous meetings are also included for consideration. Status of each action item was noted in the briefing book ahead of the Executive Board meeting in green font if complete and red font if not completed.

February 2023 Meeting

Decisions

1. The Executive Board requested detailed notes following Executive Board meetings for their reference and a meeting summary to be uploaded to the MICRA website rather than the detailed meeting notes.
2. The Executive Board approved a nomination for Duane Chapman to receive the MICRA River Champion Award.
3. The Executive Board approved the MRBP's request for the MICRA AIS Committee chair to also serve in the MRBP's newly created MICRA Liaison position.
4. The Executive Board will consider development of a "storyboard" for an interactive map housed on the MICRA website as a next step after the revision of MICRA's list of interjurisdictional rivers has been finalized.
5. The Executive Board approved the revised August 2022 Executive Board meeting notes as final.
6. The Executive Board, sub-basin invasive carp partnership coordinators, and ICAC will all continue to consider and discuss basinwide invasive carp communications needs.
7.

Action Items

1. Gaikowski will contact USACE Rock Island District to determine if a letter of support from MICRA can still be included with the USACE's Upper Mississippi River Restoration Program 2022 Report to Congress, and if so, who the letter should be submitted to.

   Complete: Letter submitted

2. Conover will invite Duane Chapman to attend the MICRA Executive Board's Summer meeting to receive the MICRA River Champion Award.

   Complete:

3. Conover will review the MICRA By-laws and research Robert's Rules of Order to determine if the MICRA Chair-elect is, or should be, a voting board member.

   Complete: Will be discussed during the August 2023 meeting.

4. Conover will notify the ANS Task Force Executive Secretary that Rob Bourgeois will now serve as MICRA's primary representative to the ANS Task Force and the MICRA Chair will serve as the alternate voting representative.

   Complete:

5. Conover will contact Stephen McMurray to let him know that MICRA can provide up to $1,000 in financial assistance to support the FMCS Biennial Symposium.

   On-going: Follow-up needed with new FMCS Chair

6. Conover will contact Stephen McMurray regarding potential native mussel priorities for the next MICRA priorities document.

   On-going: Follow-up needed with new FMCS Chair

7. Angela Erves will provide the Executive Board members with lists of 4th and 5th order and larger interjurisdictional rivers for each sub-basin by the end of February.

   Complete

8. Executive Board members will review the lists of interjurisdictional rivers provided by Angela Erves and provide a response within 2 weeks.

   Complete

9. Conover will create meeting minutes from the August 2022 Executive Board meeting notes that include the meeting agenda, participants, and decisions and action items to be uploaded to the MICRA website.

   Incomplete

10. Simmonds will send an updated list of ICAC and technical workgroup representatives to Conover; Conover will send to the sub-basin representatives; and the sub-basin representatives will send to their respective sub-basin delegates for their information.

    ?

11. Conover will follow-up with Smith to determine what invasive carp maps she is interested in and for what purpose so that he can help her directly or coordinate as needed.

    On-going

12. Thurman will send an electronic version of the TWRA invasive carp fact sheet to Conover, and he will share it with the board members and invasive carp sub-basin partnership coordinators.

    Complete

13. Bourgeois will share the TWRA video from the Congressional field visit at Pickwick Dam in August 2021, along with the appropriate context, at the next AIS Committee meeting.

    Complete

14. The ICAC was asked to provide the Executive Board with a list of questions to survey the basin states regarding limitations, challenges, and needs for increasing staff capacity to collaboratively work on invasive carp and how MICRA can potentially assist address these needs.

    Incomplete

15. The ICAC was asked to develop a list of survey questions to gather baseline information from the basin states on current invasive carp removal efforts and potentially other needs to support the workgroups with the basinwide population assessment.

    On-going: Control Actions Workgroup recently formed and will address this action item.

16. The Executive Board will survey the delegates (questions to be developed by the ICAC) regarding staffing or hiring challenges to increase capacity for invasive carp work, as well as asking separate questions regarding the likelihood that the states would use fishery commission funding to hire additional staff to work on collaborative interjurisdictional fisheries management through the commission.

    Incomplete: This is on the agenda for the August MICRA Delegate meeting.

17. The Executive Board will survey the delegates (questions to be developed by the ICAC) regarding current invasive carp removal efforts.

    Incomplete:

18. Smith will provide Kim Lutz, AWI, with an updated version of MICRA's talking points for the 2023 DC fly-in.

    ?

19.

Outstanding Action Items

June 2023 Conference Call

1. The Executive Board will also need to approve an additional travel budget for Ashlee Smith for the rest of 2023.

   Incomplete: Executive Board will address during the August 2023 meeting.

2. The Executive Board agreed to revisit the development of a recommendation to USFWS regarding FY23 invasive carp funding during their August meeting.

   On-going: Executive Board will address during the August 2023 meeting.

3. Conover will share the revised draft MICRA 2024-2028 priorities document with all delegates prior to the August all-delegate meeting.

   Incomplete: Updated version included in the August 2023 meeting briefing book but was not shared with the Executive Board or Delegates in time for review ahead of the meeting. This was time sensitive so will be deleted.

April 2023 Conference Call

1. The Executive Board may need a call to discuss any major comments received from the delegates or Executive Board on the draft MICRA 2024-2028 priorities document.

   On-going: Discussion added to the August 2023 meeting agenda, but a stand-alone Executive Board conference call was not scheduled between meetings.

August 2022

9. The sub-basin partnership coordinators and ICAC co-chairs will provide examples of communications needs and barriers to the Executive Board.

   Not started: This action item should be further discussed during the board's February 2023 meeting.

10. The Executive Board will hold a conference call specifically focused on resuming this discussion about internal and external communication needs, particularly the following considerations (see details in August 2022 meeting notes page 25).

    Complete: Conference call held February 24, 2023

11. The Executive Board will work with the sub-basin partnership coordinators to develop a request and guidance regarding sub-basin scale objectives for invasive carp management and control.

    Complete: Chair sent a request to the sub-basin coordinators that was shared with the invasive carp partnerships.

12. The sub-basin partnership coordinators will work with their respective sub-basin partnerships to identify sub-basin scale objectives to assist the ICAC and MICRA Executive Board with basinwide planning and communications.

    On-going: Update from sub-basin partnership coordinators during the August 2023 meeting?

13. The sub-basin partnership coordinators and the ICAC co-chairs will continue to discuss how the sub-basin scale objectives should be consistently developed and will report back to the Executive Board when they have reached consensus.

    On-going: Update from sub-basin partnership coordinators during the August 2023 meeting?

15. Gaikowski will work with USGS staff to provide the Executive Board and Invasive Carp Advisory Committee with a factsheet on FishTracks and the potential to expand the database to include telemetry data from other sub-basins and species.

    Complete: Factsheet provided to sub-basin partnership coordinators and ICAC Co-chairs in June and included in the August 2023 meeting briefing book.

16. Sub-basin partnership coordinators will share the FishTracks factsheet with their partners once it is updated and provided by USGS.

    ?

17. Sub-basin partnership coordinators will discuss the Executive Boards interest in basinwide platforms for data management and analysis with the sub-basin partnerships.

    ?

18. Sub-basin partnership coordinators will work with USGS to schedule a webinar on FishTracks for the sub-basin partnerships.

    Incomplete

19. Sub-basin partnership coordinators follow-up with their partners to determine interest and concerns in a basinwide approach to collecting and storing telemetry data.

    ?

21. The Executive Board will work with Ashlee Smith to schedule a few Zoom meetings for the MICRA Delegates to be briefed on MICRA's fishery commission outreach effort.

    Complete: Meetings were held February 14 and 16.

29. Parsons will contact Dirk Miller, Deputy Chief of Fisheries, Wyoming Game and Fish Department, regarding the MICRA Joint Strategic Plan.

Complete: Wyoming is hesitant to sign the MOA.

30. Parsons will follow-up with Montana, Nebraska, and Colorado regarding status of their director's signing the MICRA Joint Strategic Plan Memorandum of Agreement.

    Complete: Nebraska signed the MOA. No response from Montana or Colorado.

32. Marybeth Brey will be invited to provide an overview of the FishTracks database at the next Paddlefish Sturgeon Committee meeting.

    Complete

33. Conover will follow-up with Stephen McMurray about the Freshwater Mollusk Conservation Society referring to MICRA in their guidance documents and providing an annual update to the Executive Board.

    On-going: Need to follow-up with new FMCS Chair.

34. Conover will follow-up with Stephen McMurray to discuss incorporating Freshwater Mollusk Conservation Society priorities into the next MICRA priorities document.

    On-going: Need to follow-up with new FMCS Chair.

35. Conover will add the final February 2022 Executive Board meeting notes to the MICRA website.

    Incomplete

38. Sub-basin representatives will provide the annotated 2019-2023 MICRA Priorities document to their respective sub-basin delegates to request initial input on 2024-2028 priorities by the end of the calendar year.

    Complete

43. Conover will follow-up with Gaikowski and a few USFWS field offices regarding Innovasea discount pricing of telemetry equipment.

    On-going: USGS progress on this?

<u>February 2022</u>

13. The Executive Board will consider proposed new GIS-based lists of interjurisdictional rivers in the Mississippi River Basin and make a decision on the preferred criteria and list to use as an updated list for MICRA.

    Complete

14. Conover will work with Janvrin to finalize the draft action plan once the Executive Board approves a new MICRA list of interjurisdictional rivers in the Mississippi River Basin.

On-going

August 2021

30. Conover will add a discussion about an interjurisdictional fisheries symposium to the agenda for the next MICRA Executive Board meeting.

    Incomplete: Potentially discuss during the after-action discussion of the habitat symposium during the August 2023 meeting.

37. Conover will reach out to Bruce Reid to inform him about the Executive Board's interest in improving the MICRAs website and gage his interest in discussing the website with the MICRA Executive Board.

    Incomplete: Website action items not addressed yet.

18) Paddlefish/Sturgeon Committee Update

Discussion:

Sara Tripp, IL DNR, will provide the Executive Board with an update on the Paddlefish/Sturgeon Committee.

19) MICRA AIS Committee Update

Discussion:

Rob Bourgeois, LDWF, will review the update provided below on the MICRA AIS Committee.

Summary:

At the MICRA AIS Meeting in July 2023, Ashley Smith provided updates on efforts to gain bipartisan support from senators, a tour of the Mississippi River to educate legislators, and the need to push for co-sponsors of a bill. Additionally, the meeting discussed a video to promote the carp partnership between states, a Lacey Act presentation to explain the ongoing legislative actions, the MICRA AIS Action Plan was discussed and a MICRA Priorities document was discussed. An AIS Committee Governance document will be developed and a Sub-Committee was formed to help with that.

Details:

1. Ashlee Smith updated the committee and we started to discuss the DC fly-in.
    a. We discussed changing our DC documents to include both AIS, vegetation issues, and native fishes so we do not just portray MICA as only concerned with carp.
    b. We need to tell the Fly in delegates what are the highest AIS priorities.
    c. The Committee requested an easier to edit document. The Chair of the committee is looking into that.
2. The Tennessee Pickwick Lake video was discussed. The Committee would like to develop videos like this that could be used for Congressional outreach as well as to outreach to the people of the states in the MS Basin.
    a. This video is an example of the type of outreach events Ashley would like to do with Congressional staffers.
    b. It was suggested to host this video on the MICA Website.
    c. The hurdle to producing our own videos is expertise. Gathering the info is a longer task compared to the actual video production.
    d. Thoughts were also to have three one-minute videos: an AIS video, a carp video, and a native fish video.
    e. The idea is to promote the partnership between states that MICRA facilitates.

3. The Lacey Act and its current problems were presented to the committee to generate discussion on how states can address the current problems while Legislative action works its way through Congress. The overall opinion is nothing is likely to happen fast so perhaps the states need to be more proactive with their laws to protect themselves as the Lacey Act had before.
    a. Iowa has a clause in its regulations that references the Federal injurious list. Iowa will provide that wording to the Committee so states can start to develop that into their regulations if possible.
    b. Developing regional lists within MICRA would help avoid the dilution or loss of those species that are only found regionally or may be native in part of MICRA and invasive in other parts (ex. Red Swamp Crayfish).
4. MICRA AIS Action plan was discussed. The discussion centered around providing the MICRA Executive Board with comments and letters on proposed legislation. The committee also develop a sub-committee that can react to these legislative actions and provide quicker comment for review by the entire AIS committee before passing it on to the MICRA Executive board. The AIS committee will provide comments on this document to update its relevance.
5. MICRA Priorities Document was discussed. The group added some ideas to address bait and organisms in trade. Those comments were provided to Greg Conover for discussion by the board.
6. The AIS Committee is developing a governance document. This will be developed by a sub-committee of 5 people.
7. The AIS Committee will meet later this year to get started on the DC documents and the AIS sub-committee will meet to discuss and draft the governance document.

Executive Board Action Items:

1. Does the Executive Board want the AIS committee to develop videos similar to the TN video? Does the board think this would be a suitable DC Fly-in item?

20) MRBP Update

Discussion:

Rob Bourgeois, LDWF, will review the update on the Mississippi River Basin Panel provided below with the Executive Board.

Recently completed activities and projects

- MRBP Coordination Meeting – Held in Brighton, CO on July 25-26, 2023
    - Hybrid Meeting
    - Committees
        - The Research and Risk Assessment, Prevention and Control, and Education and Outreach committees have continued to meet in advance of the coordination meetings to discuss committee business.
    - Action Items – 18 Total
        - 5 for the Research and Risk Assessment
        - 6 for the Education and Outreach Committee;
        - 3 for the Prevention and Control Committee;
        - 4 for the Executive Committee;
        - Most relevant
            - Priority pathogen list may be modified after discussion at the meeting. Two committees and the executive board all have tasks related to this item.

Ongoing Activities

- Priority Pathogens
    - Proposed compiling a list of top 10 priority pathogens concerning MRBP states within the live-bait trade
    - 21 of 26 states listed have responded
    - Top 4 priority pathogens
        - Viral Hemorrhagic Septicemia Virus (VHSV)
        - Spring Viremia of Carp Virus (SVCV)
        - Largemouth Bass Virus (LMBV)
        - Infectious Pancreatic Necrosis Virus (IPNV)
- Invasive Carp Genetics
    - Identify genetic population structure through genomic analyses for directed management of invasive silver carp.

- The project is taking longer than expected. The people involved will update the Executive Committee if it looks like it can't be completed in time.

Planned Future Activities

- The Education and Outreach Committee has updated the website and is seeking to update the MRBP logo and branding. They are looking into contracting someone to do this task.
- The Education and Outreach Committee is planning a Community Based Social Marketing Workshop – intended to aid state partners and other outreach professionals realize the tools and media already available for ANS/AIS outreach and education. This meeting is being proposed for early Dec.
- The panel is seeking a fish health expert to serve as a member of the panel to assist in the ongoing pathogen discussion.
- Cole Harty, TN, is the 2nd-Term Co-chair started on July 1st. Amy Kretlow, WI, will be the 1st-Term Co-chair.
- Future 2024 Panel Coordination Meeting(s) – meets every ~9 months
  - March 2024 and meeting locations in Arkansas are being explored.

21) Invasive Carp Advisory Committee Update

Discussion:

Rob Simmonds, USFWS, and Brian Schoenung, IL DNR, will provide the Executive Board with an update on the MICRA Invasive Carp Advisory Committee.

22) Sub-basin Invasive Carp Partnership Coordination Update

Discussion:

Neal Jackson and Caleb Aldridge, USFWS, will provide the Executive Board with an update on the MICRA sub-basin invasive carp partnerships coordination. The coordinators and Executive Board will continue to discuss several action items from the board's August 2022 meeting.

1. Executive Board members will work with the sub-basin partnership coordinators to develop a request and guidance regarding sub-basin scale objectives for invasive carp management and control.
2. The sub-basin partnership coordinators will work with their respective sub-basin partnerships to identify sub-basin scale objectives to assist the ICAC and MICRA Executive Board with basinwide planning and communications.
3. The sub-basin partnership coordinators and the ICAC co-chairs will continue to discuss how the sub-basin scale objectives should be consistently developed and will report back to the Executive Board when they have reached consensus.
4. Sub-basin partnership coordinators will discuss the Executive Boards interest in basinwide platforms for data management and analysis with the sub-basin partnerships.
5. Sub-basin partnership coordinators follow-up with their partners to determine interest and concerns in a basinwide approach to collecting and storing telemetry data.
6. The sub-basin partnership coordinators and ICAC co-chairs will provide examples of communications needs and barriers to the Executive Board.

23) Executive Board Member Updates

Discussion:

Executive Board members will have an opportunity to bring agency or sub-basin activities, concerns, and emerging issues up for discussion.

24) Chairman's Report

Discussion:

Brad Parsons will provide an update on the Chairman's activities since the board's February 2023 meeting.

- Represented MICRA during the DC Fly-in March 6-10, 2023
- Submitted a letter of support to the USACE for the Upper Mississippi River Restoration Program 2022 Report to Congress (copy provided below)
- Represented MICRA and provided a presentation as part of the USGS Science Forum
- Conducted two MICRA Delegate Policy Briefings with Ashlee Smith via Zoom in February
- Held a MICRA Executive Board virtual meeting in February to focus on MICRA communications
- Held a MICRA Executive Board virtual meeting in June
- Represented MICRA on Tennessee Wildlife Federation Invasive Carp professionals calls in February and May
- Approved MICRA Interim Performance Progress and Financial reports for FY22 USFWS grant to support the MRBP
- Coordinated an extension of the contract agreement with Ashlee Smith
- Approved a new Verizon Wireless business account for MICRA internet service

February 16, 2023

Colonel Jesse Curry
District Commander
U.S. Army Corps of Engineers, Rock Island District
Clock Tower Building, P.O. Box 2004
Rock Island, IL 61204

Dear Colonel Curry,

The Mississippi Interstate Cooperative Resource Association (MICRA) is pleased to endorse the Upper Mississippi River Restoration Program (UMRR) 2022 Report to Congress (RTC). The Mississippi River and its tributaries comprise one of the largest and most valuable ecosystems in the world. The Mississippi River Basin, including the Upper Mississippi River (UMR), supports vibrant and diverse sport and commercial fisheries. Economic output from recreational fishing in the basin in 2011, including associated impoundments, exceeded $19 billion (USFWS unpublished data).

MICRA is an organization of 28 state natural resources management agencies with fisheries management jurisdiction in the Mississippi River Basin formed to improve the conservation, development, management, and utilization of interjurisdictional fishery resources in the basin through improved coordination and communication among the responsible management entities. MICRA provides basinwide coordination and communication among multi-state compacts and partnerships that address interjurisdictional fishery management issues within the Upper Mississippi River, Lower Mississippi River, Ohio River, Tennessee-Cumberland rivers, Missouri River, and Arkansas-Red-White rivers.

The UMR provides an ecologically important assemblage of riverine habitats for fish and wildlife throughout its expanse. Restoration of riverine habitats and dynamic processes in the UMR directly benefits local fish and wildlife populations, can provide systemic benefits to the greater Mississippi River Basin, have positive impacts on additional river uses, and contributes significant economic benefits to the region and nation. Sustained economic benefits are achieved through increased hunting, fishing, and other recreational opportunities, while significant local economic benefits are also realized during project construction.

The UMR continues to be stressed by navigation structures, invasive species, and hydrological changes due to climate change and land use within the watershed, impacting the long-term sustainability and utilization of economically and socially important fisheries.

While there are challenges to addressing declining habitat, it is possible to create a system that maintains support of multiple river uses and provides the resiliency needed to recover from floods, impacts from land and water uses, and pollution. The UMRR Long Term Resource Monitoring element provides vital scientific monitoring and analysis needed to improve habitat restoration projects and allows the partners to make informed Mississippi River management and policy decisions. Continued long-term monitoring will be essential to manage the ecosystem responses to these stressors and guide future restoration planning efforts.

The UMRR continues to be the major habitat restoration program and long-term scientific learning tool for the UMR. The program provides an effective partnership approach to science-based ecosystem management that optimizes both the ecological and public benefits derived from the UMR. The partnerships that exist among the five UMR states, the U.S. Army Corps of Engineers, the U.S. Geological Survey, the U.S. Fish and Wildlife Service, and multiple non-government organizations are crucial to the long-term health and resiliency of this nationally significant ecosystem. The UMRR serves as a model for collaborative, science-based decision making and ecological restoration for improved natural resource management throughout the basin.

MICRA supports the report's recommendations and stresses the importance of ensuring that non-federal cost-share sponsors are allowed to participate more fully in the program. The Project Partnership Agreements (PPA) must also meet the needs of the cost-share sponsors, in addition to the USACE needs, for the continued long-term success of this program. Resolving the barriers the current PPA language poses to non-federal sponsors is necessary to further strengthen the vibrant partnership that is central to the UMRR program's success.

The UMRR provides significant benefits to the UMR and the nation. The report's recommendations are important to achieving continued success of habitat enhancement and restoration and long-term resource monitoring within the UMR. The substantial knowledgebase of large river ecological dynamics and large river restoration techniques pioneered by the UMRR program are important for the ongoing management of the Mississippi River. Much work remains to ensure the river remains a nationally significant ecosystem. The UMRR should remain fully functional and continue to provide the ecosystem restoration and monitoring needs on the UMR.

Sincerely,

Bradford Parsons Digitally signed by Bradford Parsons
Date: 2023.02.16 12:46:49 -06'00'

Brad Parsons
MICRA Chairman

Cc: Mike McClelland, Illinois Department of Natural Resources
Joe Larscheid, Iowa Department of Natural Resources
Brad Parsons, Minnesota Department of Natural Resources
Bruce Drecktrah, Missouri Department of Conservation
Justine Hasz, Wisconsin Department of Natural Resources

25) Coordinator's Report

Discussion:

Financials

- Accountant, bank, and coordinator financial records all reconcile as of 7/31/2023
  - 7/31/2023 balance on hand = $229,819.12
  - MRBP = $39,411.52
  - MICRA = $190,407.60

- Status of 2023 membership dues
  - 19 states, USGS, and TVA have paid 2023 dues
  - 2nd dues invoices will be sent in early September to Georgia, Iowa, Kansas, Nebraska, New York, North Dakota, Tennessee, and Virginia
  - $10,000 (MDC) and $5,000 (MN DNR) were received for policy coordination support

- MRBP funding
  - FY23 USFWS funding for MRBP awarded
    - Funding level remained at $50,000
    - MICRA receives $4,500 for indirect costs
    - Funds are invoiced for reimbursement and are not included in the MRBP balance above
    - Balance on hand reflects $42,910.67 in MICRA funding obligated for the MRBP minus $3,499.15 in expenditures through 07/31/23 to be reimbursed to MICRA by the USFWS grant

- New Verizon Wireless business account established
  - Transitioned from personal hot spot to business router to provide better network capability for on-line meetings

Projects / Travel

- Coordinated reviews and made revisions to the 2024-2028 priorities document
- Coordinated reviews and revisions to MICRA list of interjurisdictional rivers and draft MICRA Aquatic Habitat Action Plan
- Reviewed and developed recommendations for updating MICRA's Constitution and By-laws
- Prepared a presentation for the MICRA Chairman to present as part of the USGS Science Forum; drafted and submitted approved MICRA response to USGS Science Forum survey

- Established a new Verizon Wireless business account for MICRA internet
- Drafted and submitted approved MICRA Interim Performance Progress and Financial reports for FY22 USFWS grant to support the MRBP
- Drafted Mississippi River Basin Fishery Commission presentation and talking points for the AFWA Fisheries and Water Resources Policy Committee and the Invasive Species Committee meetings and attended the meetings with Ben Batten who gave the presentations
- Updated the Mississippi River Basin Fishery Commission presentation and talking points for the Midwest Association of Fish and Wildlife Agencies Directors' Business Meeting; attended with Brad Parsons who gave the presentation
- Attended MICRA Paddlefish and Sturgeon Committee meetings
- Assisted Ashlee Smith with coordinating a Congressional Field visit at Lock and Dam 19, Mississippi River, for May 16. After numerous calls over a several week period the tour was cancelled due to high water.
- Assisted with planning the AFS habitat symposium; presented on the MICRA draft Aquatic Habitat Action Plan
- Attended multiple virtual MRBP Executive Committee meetings
- Assisted with planning and attended the MRBP meeting
- Attended the virtual ANS Task Force meeting
- Attended monthly virtual MICRA ICAC meetings
- Coordinated and attended multiple MICRA virtual meetings: all delegate policy updates, Executive Board communications discussion, etc.
- Coordinate review and submission of MICRA's list of 2023 Mississippi River Basin invasive carp projects to the USFWS for funding consideration
- Coordinated review and revisions to the 2022 Monitoring and Response Plan for invasive carp and posted the final document on the MICRA website
- Drafted and submitted the approved MICRA application package for FY23 USFWS grant to support the MRBP
- Attended Tennessee Wildlife Federation invasive carp professionals calls in February and April; sent reminders to MICRA delegates to include opportunities for Congressional staff to accompany agency staff conducting field work
- Attended the USACE Ohio River Basin Inspection Tour and discussed MICRA
- Assisted with planning and attended the MICRA AIS Committee meeting
- Assisted Ashlee Smith with coordinating a Congressional Field visit in La Crosse, Wisconsin, in partnership with the Upper Mississippi River Basin Association. Attended and spoke about the MICRA partnership and the Mississippi River Basin Fishery Commission initiative.
- Drafted MICRA testimony for the USACE Mississippi River Low Water Inspection Tour. Attended and presented approved testimony on behalf of MICRA Chair

26) Webpage Dashboard Demonstration

Discussion:

During the Executive Board's February 2023 meeting, there was a discussion about the potential future development an interactive basin map or story board on the MICRA website. The discussion resulted in the following action item:

- The Executive Board will consider development of a storyboard for an interactive map housed on the MICRA website as a next step after the revision of MICRA's list of interjurisdictional rivers has been finalized.

Rebecca Neeley and Ross Ruehmann, USFWS La Crosse Fish and Wildlife Conservation Office, will provide a demonstration on how a dashboard housed on the MICRA website could be used to get information out to the public or as needed by MICRA.

27) Appointment of New MICRA Chair-elect

Decision:

MICRA officers are scheduled to change 2024. Ben Batten will automatically transition to the MICRA Chair, vacating the MICRA Chair-elect position. The MICRA Constitution stipulates “A candidate for Chairperson-Elect will be nominated during odd numbered years by one of the sub-basin organizations comprising the Executive Board, or anytime the position is vacated. Responsibility for nominating a candidate for Chairperson-Elect will be rotated among the sub-basin organizations comprising the Executive Board.” The board members will identify a sub-basin to request a nomination for a chair-elect for the 2024-2025 term.

The agency and sub-basin affiliation of the past six chairmen is provided below.

Term	Chair	State	Sub-basin
2014-2015	Bobby Wilson	Tennessee	TNCR, LMR
2016-2017	Ron Brooks	Kentucky	OHR, TNCR, LMR
2018-2019	Brian Canaday	Missouri	MOR, UMR, LMR, ARW
2020 (partial term)	Larry Pugh	Mississippi	LMR
2020-2021	Brian Schoenung	Indiana	OHR
2022-2023	Brad Parsons	Minnesota	UMR
2024-2025	Ben Batten	Arkansas	LMR, ARW

There is not a set rotation for the sub-basins. Several states are in multiple sub-basins which makes it difficult to track a rotation through the six sub-basins. The board will consider if the rotation should be based on all six sub-basins or if the LMR/ARW and OHR/TNCR should be combined so that the rotation is based on four major sub-basins. The board will also consider if a set rotation would be helpful.

28) Develop MICRA's 2024 Operational Budget

Discussion:

The Executive Board will approve an operational budget for 2024. A proposed budget for 2024 is provided on the next page. Line-item changes from 2023 are shaded light blue.

Proposed Annual Budgets	2020	2021	2022	2023	Actual	Notes	2024	Notes
Beginning Projected Balance	190,400.28	214,674.50	229,605.30	228,114.07	232,619.89		124,795.25	
Projected Income								
Membership Dues	43,000.00	43,000.00	43,000.00	43,000.00	47,500.00	2023 actual includes $9k projected	43,000.00	projecting 22 states and 2 federal agencies
Potential State Agency Membership Dues Increase							33,000.00	if approved by membership
MRBP Funding	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00		50,000.00	
Member Support for Policy Coordination		5,000.00	5,000.00	5,000.00	15,000.00		0	
Interest Income	78.00	48.00	15.00	15.00	15.70		15.00	
Total Projected Income	93,078.00	98,048.00	98,015.00	98,015.00	112,515.70		126,015.00	
Projected Expenses								
Fixed								
Legal and Professional Fees	3,180.00	3,180.00	3,180.00	3,180.00	3,180.00		3,180.00	
Bank Fees	150.00	25.00	25.00	25.00	25.00		25.00	
Dues and Subscriptions	75.00	75.00	75.00	75.00	75.00		75.00	
Website	700.00	500.00	3000.00	500.00	350.00	$2.5k remains obligated for website redesign	350.00	web hosting only in 2024
Computer, Internet, and Software Expenses (Adobe, Zoom)	200.00	1000.00	1,000.00	1,000.00	1,619.58	Verizon Wireless increase, hard drive	2,668.25	VW increase plus $1k for new projector
Total Fixed Expenses	4,305.00	4,780.00	7,280.00	4,780.00	5,249.58		6,298.25	
Discretionary								
Executive Board Meetings and Travel Support	3,500.00	1,500.00	1,500.00	3,000.00	3,000.00		3,000.00	
MICRA Coordinator	9,000.00	6,000.00	6,000.00	6,000.00	6,000.00		6,000.00	
Hill Visits / Summer Congressional Briefing	12,000.00	6,000.00	12,000.00	12,000.00	10,304.77	includes $5k projection for Oct briefing	12,000.00	
Policy Coordination	29,000.00	29,000.00	29,000.00	29,000.00	29,000.00		60,000.00	$5k / mo for 12 months
Additional Policy Coordination / Travel budget				36,000.00	36,000.00	does not include additional travel for 2023	10,000.00	additional travel budget
Young Professionals Travel Stipened	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	projected	1,000.00	
Awards	500.00	150.00	150.00	150.00	303.82		150.00	
Freshwater Mussel Committee	1,000.00	1,000.00		1,000.00	1,000.00		1,000.00	
Gamefish Committee	0.00	-	-	-	-		-	
Habitat Committee	0.00	-	-	-	-		-	
Paddlefish Sturgeon Committee	1,000.00	-	-	-	40.42		500.00	
MICRA AIS Committee				-	-		500.00	
MRBP Committee	45,500.00	45,500.00	45,500.00	45,500.00	45,500.00		45,500.00	
Total Discretionary Expenses	102,500.00	90,150.00	95,150.00	133,650.00	132,149.01		139,650.00	
Total Discretionary Expenses without MRBP	57,000.00	44,650.00	49,650.00	88,150.00	86,649.01		94,150.00	
Annual Projects								
All Delegate Meeting	10,000.00							
Paddlefish Basinwide Framework					37,500.00	obligated		
MRBP old funding					42,910.67	obligated		
Total Annual Projects	10,000.00	0.00	0.00	0.00	80,410.67		0.00	
Total Projected Expenses	116,805.00	94,930.00	102,430.00	138,430.00	217,809.26		145,948.25	
Projected Yearend Balance	166,673.28	217,792.50	225,190.30	187,699.07	127,326.33		104,862.00	
+/-	-23,727.00	3,118.00	-4,415.00	-40,415.00	-105,293.56		-19,933.25	

29) Schedule Fall Conference Call and Winter Executive Board Meeting

Discussion:

Executive Board members will schedule a Fall conference call and Winter Executive Board meeting.

30) Other New Business / Parking Lot

Discussion:

Executive Board members will address topics put in the parking lot during the meeting and additional business items not on the agenda that board members would like to bring up for discussion.

Goals, Objectives, and Priorities

2024 - 2028

Contents

Introduction

MICRA works to preserve, protect, restore, and enhance interjurisdictional fishery resources and aquatic habitats in the Mississippi River Basin (Basin) through cooperative assessment and management of the basin's aquatic resources. MICRA's member agencies developed a comprehensive Strategic Plan in 1991 and completed an Activity Prioritization of the Plan's 10 goals and 133 tasks in 1992.

The MICRA Executive Board established an Operational Plan for the 5-year period 2014-2018 to focus on a much smaller subset of priorities for the partnership to accomplish during the operational period through the work of member agency delegates, the Executive Board, and committees. This Operational Plan, which is updated every five years, is intended to be a guiding document that is timely and responsive to the current biological, social, and political issues that influence fishery resource management. As such, the Operational Plan is an adaptive document that will be updated as needed to remain relevant and provide for the most effective cooperative management of the fishery and aquatic resources in the basin.

MICRA developed 'A Joint Strategic Plan for Management of Mississippi River Basin Fisheries' (Joint Strategic Plan) in February 2021. Twenty-six of the twenty-eight MICRA member state agency Directors have signed a Memorandum of Acceptance of the Joint Strategic Plan. The Joint Strategic Plan is intended to serve as a foundational document for the proposed Mississippi River Basin Fishery Commission (Fishery Commission). Based on mission statements, the following common goal statement was developed to represent the shared intent of the MICRA member agencies regarding interjurisdictional fishery resources in the Basin:

> *Coordinate the conservation, development, and utilization of sustainable interjurisdictional fishery and aquatic resources in the Mississippi River Basin for the public through cooperative management among the responsible entities.*

The Joint Strategic Plan identifies four key problem areas that must be addressed to comprehensively manage interjurisdictional fishery resources now and in the future and identifies broad strategies and strategic processes necessary to collaboratively resolve these complex issues.

Problem Areas

1. Aquatic Invasive Species
2. Inadequate Resources for Research and Management of Shared Fisheries

3. Habitat Loss and Degradation
4. Limited Public and Stakeholder Involvement and Support

Strategies

1. Ecosystem Management
2. Information Management and Sharing
3. Outreach and Communication
4. Consensus
5. Accountability

Accomplishing this shared goal statement would benefit from increased diversity, equity, inclusion, and accessibility in human resources working on fisheries and aquatic resources and by providing opportunities for the public to become engaged in this effort.

MICRA drew heavily from its Joint Strategic Plan in the development of this Operational Plan for 2024-2028. However, the absence of a federal authorization and appropriations to form and support the proposed Fishery Commission constrains full implementation of the Joint Strategic Plan.

MICRA's priorities and accomplishments for the operational period 2019-2023 are reported in Appendix 1.

Goals and Objectives

GOALS

I. Coordinate basin-wide management of interjurisdictional fishery resources and aquatic habitats among the responsible management entities. *[INTERNAL COMMUNICATION]*

II. Increase awareness, support, and funding for basin-wide management of interjurisdictional fishery resources and aquatic habitats. *[EXTERNAL COMMUNICATION]*

OBJECTIVES

1. Coordinate implementation of interjurisdictional fishery and aquatic resource management programs throughout the basin. *[IJ FISH]*
2. Identify priority habitat restoration needs for the Mississippi River Basin, coordinate with national and regional aquatic habitat initiatives, and provide a forum for information and technical exchange. *[AQUATIC HABITAT]*
3. Coordinate prevention and control measures for Aquatic Invasive Species (AIS) to ensure sustainable native aquatic ecosystems within the basin. *[AIS]*
4. Develop and implement a communication plan for disseminating information to target audiences. *[COMMUNICATION]*
5. Secure funding for long-term operational needs and implementation of basin-wide programs. *[FUNDING]*

Priorities

Objective 1: Coordinate implementation of interjurisdictional fishery and aquatic resource management programs.

MICRA Joint Strategic Plan Excerpt

Problem Area: Limited Public and Stakeholder Involvement and Support

Interjurisdictional management of shared fishery and aquatic resources throughout the basin would benefit from:

- Basin-wide plans that prioritize fishery management needs and identify mechanisms for the development of shared management objectives and collaborative implementation, data sharing, and evaluation of management actions.
- Improving communication, coordination, and collaboration among state and federal agencies and NGOs to identify shared priorities, interests, and opportunities to address significant problem areas affecting long-term management of self-sustaining interjurisdictional fishery resources in the basin.
- Promoting partnerships (working and funding) among governments, the public, and NGOs to promote economic and environmental security and stability along the Mississippi River and its tributaries.
- Effective non-technical communication resulting in increased public awareness and improved public perception of the economic, social, and cultural value of the basin's natural resources.
- Effective stakeholder involvement practices to identify public concerns and values, develop consensus among affected parties, and produce efficient and effective solutions through an open, inclusive process.

Priorities:

1. Identify and prioritize basin-wide resource management issues of concern in the Mississippi River Basin.
    a) MICRA delegates meet every 3-5 years to review priorities and discuss emerging issues of concern within the basin.
    b) Standing committees review priorities and discuss emerging issues of concern within the basin every 3-5 years. Committees

will report to the Executive Board at least once annually on progress of priorities identified in this document.

c) Encourage and support the development of sub-basin management plans under the *Joint Strategic Plan for Management of Mississippi River Basin Fisheries*.

d) Executive Board updates MICRA's priorities document every 5 years.

2. Use standing technical committees and temporary working groups as needed to provide for the development of coordinated strategies to address priority issues and identify basin-wide research needs to support conservation, management, and utilization of native interjurisdictional fishes and aquatic resources.

    a) Support continued efforts for coordinated basin-wide management of paddlefish and sturgeon species.

        i. The Paddlefish and Sturgeon Committee will complete a basin-wide management framework for paddlefish.

        ii. Develop or update sub-basin paddlefish management plans in support of the basin-wide paddlefish management framework.

        iii. The Paddlefish and Sturgeon Committee will consider the need for coordination and management of a basin-wide tag database for paddlefish in support of the basin-wide paddlefish management framework and the sub-basin management plans, and provide recommendations to the Executive Board regarding the future of the database.

        iv. The Paddlefish and Sturgeon Committee will provide the Executive Board with a recommendation and cost estimate for completing sensitivity analysis of the available paddlefish age and growth data from commercial harvest states to inform priority next steps and additional research needs.

        v. The Paddlefish and Sturgeon Committee will develop a list of priority research needs to advance cooperative interjurisdictional management of paddlefish and sturgeon.

    b) Support and collaborate with the Freshwater Mollusk Conservation Society to conserve native freshwater mussels.

3. Build consensus for compatible regulations and policies for priority interjurisdictional fishery and aquatic resources issues.
    a) Encourage and facilitate law enforcement participation in the development of collaborative management and regulatory strategies to support conservation, management, and utilization of interjurisdictional fishes and aquatic resources, including to preventing the introduction and spread of aquatic invasive species.
    b) Work with USFWS and AFWA to host a facilitated workshop or meetings for biologists and law enforcement representatives from paddlefish and sturgeon commercial harvest states to determine the need for standardized methods for documenting and reporting harvest data, developing and maintaining basin-wide commercial harvest databases including roe harvest and roe buyers, and developing a system for tracking commercially harvested roe through final sale.
4. Determine the socio-economic value of fishery resources and related recreation in the Mississippi River Basin.
    a) Work with USFWS to provide a written economic value report for the Mississippi River Basin, including an analysis by MICRA sub-basin boundaries, using 2022 National Survey of Fishing, Hunting, and Wildlife Associated Recreation data.
    b) Work with USFWS to explore the possibility of developing a report that includes an estimated return on dollars invested to manage fishery resources in the Mississippi River Basin based on 2022 National Survey of Fishing, Hunting, and Wildlife Associated Recreation data. (Report similar to the USFWS 2011 publication 'Net Worth: The Economic Value of Fisheries Conservation' that focuses on contributions to the U.S. economy in terms of jobs created and conservation stimulated commerce.)

Objective 2: Identify priority habitat restoration needs for the Mississippi River Basin, coordinate with national and regional aquatic habitat initiatives, and provide a forum for information and technical exchange.

MICRA Joint Strategic Plan Excerpt

Problem Area: Habitat Loss and Degradation

Interjurisdictional management of shared fisheries habitat loss and degradation throughout the basin would benefit from the following actions:

- Strategically coordinating interstate and inter-agency actions to identify mutually beneficial (ecology, economics, human health, safety) solutions for addressing:
    - Watershed improvements to maximize benefit to interjurisdictional rivers and reservoirs,
    - Floodplain habitat improvements for interjurisdictional fishes,
    - Conflicting water uses that address interjurisdictional fish habitat needs.
- Effectively identifying the combination of measures needed to restore water quality and quantity in areas where it has the greatest impact on fish stocks and habitats.
- Coordinating actions to address past, present, and potential future sources of contamination (i.e., pharmaceuticals and plastics).

Priorities:

1. The Executive Board will identify and implement next steps for the MICRA Aquatic Habitat Action Plan completed in 2023.
2. Identify and support opportunities to establish regular information exchange, communication, and coordination between entities responsible for aquatic habitat management in the basin.
3. Create awareness of the needs and opportunities to increase and direct funding to implement priority habitat projects identified in the MICRA Aquatic Habitat Action Plan.

Objective 3: Coordinate prevention and control measures for Aquatic Invasive Species (AIS) to ensure sustainable aquatic ecosystems within the basin.

MICRA Joint Strategic Plan Excerpt

Problem Area: Aquatic Invasive Species

Interjurisdictional management and control of aquatic invasive species throughout the basin would benefit from:

- Coordinated delivery of basin-wide, state-based invasive carp management and control actions, in partnership with relevant federal agencies, to achieve the goals and objectives of the national *Management and Control Plan for Bighead, Black, Grass, and Silver Carps in the United States*.
- Coordinated regulatory strategies and enforcement to prevent the introduction of new AIS, and the transportation and spread of existing AIS within the basin.
- Effective actions to minimize the risk of introduction of AIS from other watersheds via man-made (e.g., Great Lakes via the Chicago Area Waterway System) and natural connections.
- Coordinated planning, implementation, and evaluation of management and control actions to minimize the abundance of AIS introduced within the basin.
- Comprehensive monitoring and assessment programs to provide for the evaluation of AIS impacts on native species and ecosystems, and to inform the effective implementation of management and control actions within the basin.
- Execution of Mutual Aid and similar agreements to empower the basin states to work together to address a serious regional threat from AIS.
- Research and development of deterrents and control tools to contain and reduce the abundance of AIS in the basin.

Priorities:

1. Serve as an *ex officio* member of the national Aquatic Nuisance Species Task Force.
2. Host, coordinate, and support activities of the Mississippi River Basin Panel on Aquatic Invasive Species, a regional advisory committee to the national Aquatic Nuisance Species Task Force.

3. Support a standing technical committee on Aquatic Invasive Species for coordination of basin-wide efforts to prevent introductions, manage introduced populations, and develop recommendations regarding AIS policy concerns.
4. ~~Promote strengthening of~~Seek Congressional support to strengthen the Injurious Wildlife provisions of the Lacey Act.
    a) The Aquatic Invasive Species Committee will identify needs and provide recommendations to the Executive Board to promote streamlining of the Lacey Act Injurious Wildlife Listing process.
    b) The Aquatic Invasive Species Committee will identify needs and provide recommendations to the Executive Board for establishment of an efficient federal screening process to evaluate risk of non-native species prior to importation, particularly species not already in trade.
    c) The Aquatic Invasive Species Committee will identify needs and provide recommendations to the Executive Board for establishment of an efficient federal screening process for organisms in trade.
5. Promote development of consistent basin-wide regulatory approaches for the management of AIS.
    a) The Executive Board will facilitate meetings and discussions with the states that allow stocking of diploid grass carp within the basin~~states~~, as needed, to establish regulatory consistency for grass carp as recommended in the February 2015 MICRA Grass Carp Report.
    b) The Mississippi River Basin Panel and Aquatic Invasive Species Committee will coordinate efforts to implement recommendations in the February 2015 MICRA Grass Carp Report.
    c) Bait trade…
    d) Contribute to the development of model regulations for organisms in trade…
6. Support efforts to prevent the exchange of AIS between the Mississippi River basin and connected watersheds such as the Great Lakes and Mobile River basins.

a) Raise awareness of the immediate need for the U.S. Army Corps of Engineers to initiate the scoping phase for a feasibility study to prevent the *two-way* transfer of AIS as the next step for the Great Lakes and Mississippi River Interbasin Study authorized by Congress in the Water Resources Development Act of 2007.

7. Support the Invasive Carp Advisory Committee for basinwide coordination to develop collaborative advice and recommendations on the development, implementation, and assessment of management and control actions across the six sub-basin partnerships to promote a unified, collaborative strategy for the Mississippi River Basin.

    a) In partnership with USFWS, coordinate the collaborative development of an annual Monitoring and Response Plan to identify highest priority management actions for invasive carps in the Mississippi River Basin.

    b) Coordinate the collaborative development, prioritization, and submission of an annual basin-wide suite of priority project proposals to USFWS for federal funding assistance to implement sub-basin Invasive Carp Control Strategy Frameworks.

    c) ~~Develop recommendations for standardized methods for collecting and reporting population data for invasive carps sufficient to monitor and evaluate management actions on a basinwide scale.~~Develop recommendations for population assessment approach(es) that most directly and effectively target and evaluate the success of management actions in reducing the abundance and/or distribution of invasive carp across the basin.

    d) Develop recommendations for coordinating invasive carp removal programs on a basin-wide scale.

8. Promote the development and support promulgation of consistent outreach materials and messages throughout the Mississippi River Basin to support AIS prevention, management, and control.

    a) The Aquatic Invasive Species Committee will review and make recommendations for revising the MICRA AIS Action Plan so that it remains a relevant outreach tool.

Objective 4: Develop and implement a communication plan for disseminating information to target audiences.

Priorities:

1. Identify and implement an approach for developing a MICRA communications plan.
2. Continue to host and manage content on the MICRA website.
3. Engage in efforts to increase awareness and action of Congressional members to improve management of fishery and aquatic resources in the Mississippi River Basin.
4. Develop a 5-year report of activities, accomplishments, and remaining resource needs identified in the MICRA priorities document.
5. Host workshops and networking opportunities at national and regional professional meetings (e.g., Midwest Fish & Wildlife Conference, SEAFWA, AFS Parent Society meetings) for MICRA member agency delegates, committee members, and partners.

Objective 5: Secure funding for long-term operational needs and implementation of basin-wide programs.

MICRA Joint Strategic Plan Excerpt

Problem Area: Inadequate Resources for Research and Management of Shared Fisheries

Interjurisdictional management of fishery and aquatic resources throughout the basin would benefit from:

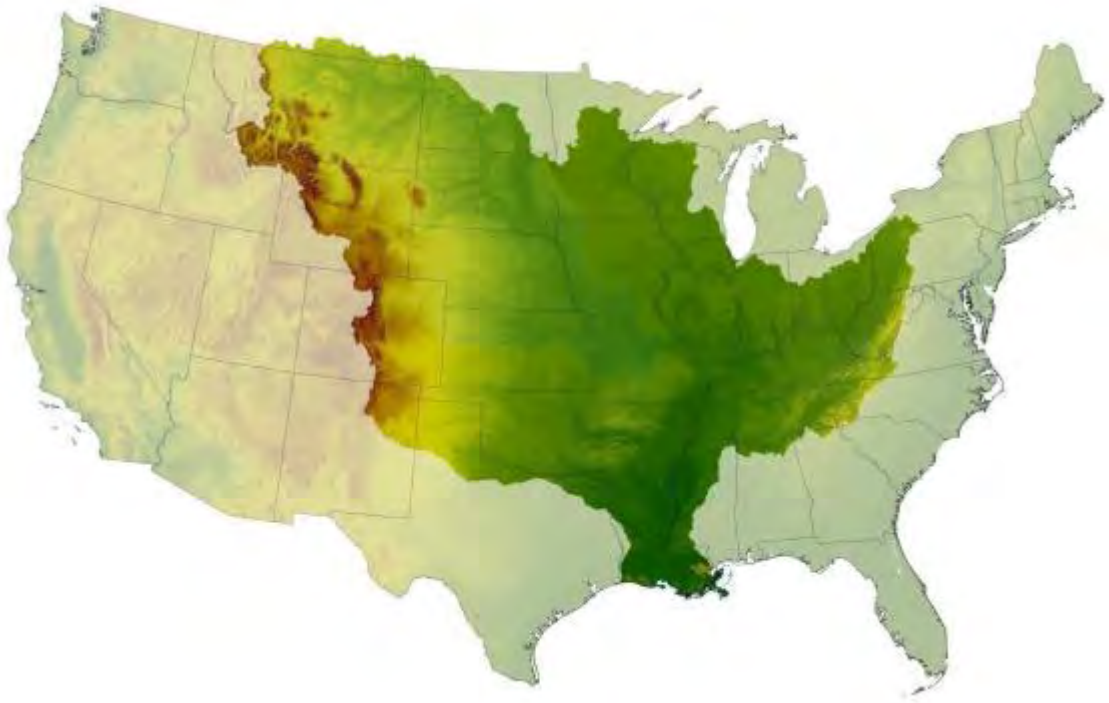
- Increasing communication of the status of these fishes, habitat needs, harvest statistics, and barriers to effective management efforts.
- Identifying the research, management, and conservation actions necessary to maintain and recover species classified as threatened, endangered, or species of concern.
- Increasing coordination and funding support for research necessary to inform management activities and provide for improved management of interjurisdictional fishery resources.
- Promoting partnerships (working and funding) among governments, the public, and non-governmental organizations (NGOs) to manage shared fishery resources.
- Facilitating effective management strategies that allow movement of native fishes while deterring invasive species.
- Implementing coordinated efforts to standardize and compile agency harvest regulations for interjurisdictional fishery resources.

Priorities:

2. Pursue reliable, long-term funding sources and mechanisms for MICRA.

Work with MICRA member agencies, partner organizations, and stakeholder groups to pursue formation of a congressionally funded Mississippi River Basin Fishery Commission to facilitate cooperative management of interjurisdictional fishery and aquatic resources among the state, tribal, and federal management agencies; control AIS (e.g., invasive carps, mussels, and vegetation); and coordinate research to inform and evaluate fisheries management and AIS control actions.

AQUATIC HABITAT ACTION PLAN FOR NATIVE INTERJURISDICTIONAL FISH OF THE MISSISSIPPI RIVER BASIN



Mississippi Interstate Cooperative Resource Association

www.MICRArivers.org

August 2023

Acknowledgements

The MICRA Executive Board would like to acknowledge the work of the MICRA Habitat Committee in preparing the *Aquatic Habitat Action Plan for Native Interjurisdictional Fish of the Mississippi River Basin*. The MICRA Executive Board members provided the Habitat Committee with draft sections and guidance for producing the final document. The information presented in this document represents the contributions of biologists from several fish and wildlife management agencies throughout the Mississippi River Basin, including several that were not members of the Habitat Committee. Special recognition is given to Jeff Janvrin, Wisconsin Department of Natural Resources, and Joseph Zimmerman, Kentucky Department of Fish and Wildlife Resources for their work as co-chairs of the MICRA Habitat Committee and for coordinating the development of this document. Angela Erves, U.S. Fish and Wildlife Service, assisted the Executive Board with GIS-based revisions to MICRA's list of 6th order and larger interjurisdictional rivers in the Mississippi River Basin. Jeff Janvrin and Angela Erves develop the numerous GIS-based maps presented throughout this document.

MICRA Habitat Committee members and other contributors included:

Jeff Janvrin[1] – Wisconsin Department of Natural Resources
Joseph Zimmerman[1] – Kentucky Department of Fish and Wildlife Resources
Butch Atwood – Illinois Department of Natural Resources
Nathan Aycock – Mississippi Department of Wildlife, Fisheries & Parks
Tim Bister – Texas Parks and Wildlife Department
David Breth – Kansas Department of Wildlife, Parks and Tourism
Tim Broadbent – Tennessee Wildlife Resources Agency
Brandon Brown – Oklahoma Department of Wildlife Conservation
Mike Clancy – New York Department of Environmental Conservation
Harry Crockett – Colorado Parks and Wildlife
Jim Darling – Montana Fish, Wildlife & Parks
Dan Dieterman – Minnesota Department of Natural Resources
Phil Ekema – Alabama Department of Conservation and Natural Resources
Angela Erves – U.S. Fish and Wildlife Service
Jeff Garner – Alabama Department of Conservation and Natural Resources
Jessica Hogrefe – U.S. Fish and Wildlife Service
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Scott Loftis – North Carolina Wildlife Resources Commission
Chris Longhenry – South Dakota Game, Fish & Parks Department
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Robby Maxwell – Louisiana Department of Wildlife and Fisheries
Joe McMullen – Missouri Department of Conservation
Gerald Mestl – Nebraska Game & Parks Commission
Chris O'Bara – West Virginia Division of Natural Resources
Chris Racey – Arkansas Game and Fish Commission
Bobby Reed – Louisiana Department of Wildlife and Fisheries
Scott Robinson – Georgia Department of Natural Resources
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George Scholten – Iowa Department of Natural Resources
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Kasey Whiteman – Missouri Department of Conservation
Lynn Wright – Texas Parks and Wildlife Department

[1] Co-chairs of the MICRA Habitat Committee

MICRA Executive Board members:

Table of Contents

AQUATIC HABITAT ACTION PLAN FOR NATIVE INTERJURISDICTIONAL FISH OF THE MISSISSIPPI RIVER BASIN

Mississippi Interstate Cooperative Resource Association

Introduction

The waters of the Mississippi River Basin (Basin) contribute more than $19 billion of recreational fishing value annually (USFWS, unpublished data). This economic value is generated, in part, from a variety of species that, during some part of their life cycle, utilize rivers of the Basin managed by two or more governmental or tribal agencies. These species are referred to as "interjurisdictional fish" due to the cooperation necessary at multi-governmental levels to sustain their populations and habitat.

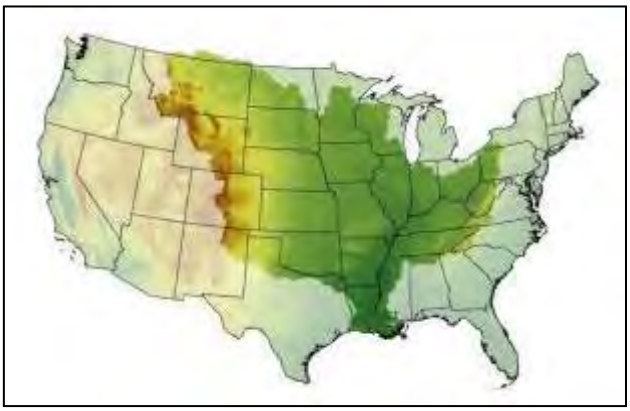

Figure 1. The Mississippi River Basin, or watershed, includes rivers and lakes from 31 states.

Interjurisdictional fish are often dependent on unique habitat types within these rivers and access to these habitats. Human actions have altered habitat quality and availability throughout the Basin due to construction of dams, impacts of sedimentation from the watershed, pollution and other factors. While many of these actions have led to losses of habitat for some species some actions have led to benefits for other species. For example, dams that create large reservoirs have been shown to negatively impact paddlefish and sturgeon populations (Cooke, D.W. and S. D. Leach 2004, Zigler et al.2004, Firehammer and Scarnecchia 2006.) while other recreational species often become abundant within the lakes created by these dams (Miranda 1999, Cameron et al. 2006). Unfortunately, there are many examples of where the reservoirs created have become less productive overtime due to sedimentation, fluctuating water levels or poor water quality (Miranda et al. 2010).

Management and protection of habitat for interjurisdictional fisheries' resources is dependent on actions that are achieved through a variety of governmental entities. Likewise, habitat protection, enhancement and restoration require financial contributions from a variety of local, state and federal sources. Within the Basin, there are numerous examples of how the combined efforts of local, state and federal partnership projects have resulted in protection or restoration of critical habitat for interjurisdictional fish. These examples show what is possible, but cumulatively they have affected <1% of the total interjurisdictional river miles within the Basin.

More work is needed to protect existing quality habitat and to enhance/restore once productive habitats within the Basin for interjurisdictional fish. Many of the Basin's interjurisdictional rivers

have existing authorities though which work can be done if funding were increased to authorized levels. However, there are still many rivers and reservoirs where new funding sources or authorities are needed to address human caused impacts to fisheries habitat.

MICRA members continue to observe an overall decline in habitat quality throughout the basin, which will eventually lead to a reduction in populations of some interjurisdictional fish species and their associated recreational and commercial value to the economy. Additionally, many threatened and endangered species will be negatively impacted if habitat protection and restoration actions do not increase for the rivers and reservoirs.

Figure 2. Paddlefish collected from the Mississippi River Basin.

Goals:

1. Conserve and protect high quality aquatic habitats in the Mississippi River Basin
2. Restore and create aquatic habitats and system functions in the basin

Priority Needs with Recommended Management Strategies:

A. Maintain and enhance high quality habitats and habitat diversity
   - Avoid and minimize degradation of aquatic habitats through best management practices for watershed management, shoreline stabilization, channel training structure modifications, and acquisition of land/easements from willing private landowners.
   - Enhance and restore secondary channels, off-channel aquatic areas, and other critical habitats (e.g., crossovers; riffle pools; mussel beds; isolated wetlands; spawning, nursery, and over-winter habitat; etc.) requiring special protection or acquisition to increase habitat diversity.

B. Manage sediment transport
   - Support watershed initiatives to reduce/eliminate watershed induced degradation of aquatic habitats and ecosystem functions.
   - Promote restoration of a sediment transport regime such that transport, deposition, and erosion rates are within acceptable limits.

C. Restore main stem and tributary hydrology
   - Implement changes to dam operating procedures and water level management techniques that facilitate more natural hydrographs (i.e., reduced daily fluctuations).
   - Develop and implement watershed management actions to facilitate more natural hydrographs.
   - Restore hydraulic and habitat connectivity

D. Restore hydraulic and habitat connectivity
   - Enhance lateral connectivity to the current and historic floodplain using a variety of techniques on publicly-owned properties and willing private ownerships.
   - Increase longitudinal migration opportunities for fish through changes in dam operations and fish passage structures at dams and other human induced barriers.

E. Restore floodplain geomorphology/landforms
   - Restore or construct floodplain landforms (e.g., islands, seed islands, chevrons, reefs, etc.) in locations where floodplain structural diversity is needed to increase variability in flow patterns, sediment composition, bathymetry, and reductions in wind fetch.
   - Increase the area of naturally functioning floodplain through acquisition and restoration of bottomland hardwoods, wetlands, and other floodplain habitat.

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Arkansas-Red-White Rivers Sub-Basin

Mississippi Interstate Cooperative Resource Association

Geography

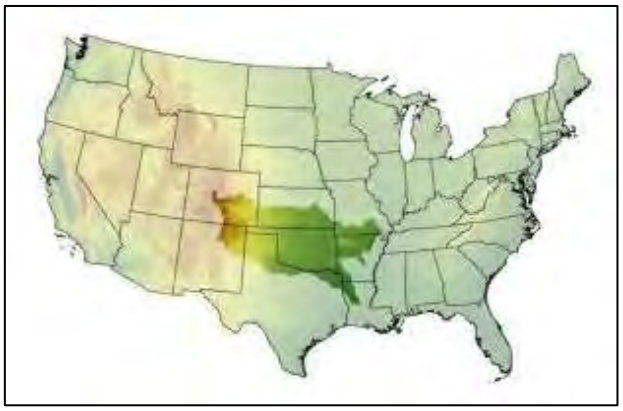

Figure 3. The Arkansas-Red-White Rivers Sub-Basin, or watershed, includes rivers and lakes from 8 states.

The Arkansas-Red-White Rivers sub- basin of the Mississippi River Basin is an ecologically important and diverse area incorporating the Arkansas River, Red River, White River, and their corresponding tributaries within the states of Colorado, New Mexico, Kansas, Oklahoma, Texas, Missouri, Arkansas, and Louisiana. At 1,469 miles, the Arkansas River is the sixth longest river in the United States, and its drainage basin covers nearly 170,000 square miles. The White River is 722 miles long and has a watershed of nearly 28,000 square miles. The Red River is 1,360 miles long and has a watershed of almost 66,000 square miles. These three rivers, along with dozens of major and minor tributaries and reservoirs, are home to hundreds of native fish and mussel species.

Economics

Fishing is an important recreational activity within the Arkansas-Red-White Rivers sub-basin, with more than 1,561,807 anglers annually generating $2,270.8 in revenue. Commercial fishing and musseling are also economically significant within the sub-basin. Ten endangered fish and mussel species are found in the rivers and streams of the Arkansas-Red-White Rivers sub-basin. The Aquatic Habitat Action Plan for the Arkansas-Red-White Rivers sub-basin is designed to improve aquatic habitat for these ecologically and economically important fish and mussel species.

In 1994, five lock and dam structures were completed on the Louisiana portion of the Red River to promote transportation and associated economic development. This transformed the lower Red River into a series of five “pools.” Barge traffic on the river is light, with an average of 3.8 daily openings of Lock and Dam #2 between 2010 and 2018.

Problem Statement/Greatest Needs

Habitat within the sub-basin’s rivers is often highly altered and can be limiting for aquatic species. Aquatic habitat enhancement within the Arkansas-Red-White Rivers sub-basin is critical to maintaining and restoring fish and mussel diversity and populations.

Existing Partnerships/Plans

Arkansas Stream Heritage Partnership (ASHP)

The ASHP was established in 2017 to restore the natural free-flowing heritage of Arkansas streams, opportunistically, and efficiently. The partnership is a consortium of federal, state, and NGO partners working to foster the development of a network and process for supporting, aiding, and implementing the removal of barriers to stream connectivity, thereby restoring hydrologic, biologic, and ecologic function in an opportunistic, non-regulatory, and efficient manner. The partnership has already assisted with several barrier removals and crossing improvements, with more in the works for 2022.

Red River Waterway Project (RRWP)

The RRWP was authorized by Congress in 1968, and five locks and dams were completed in 1994 ensuring the navigability of the Red River from Shreveport to the Mississippi River. Three additional lock and dam structures have been proposed – one in Louisiana north of Shreveport, and two in Arkansas.

Red River Waterway Commission (RRWC)

The RRWC is a political subdivision of the State of Louisiana created following the 1968 authorization of the RRWP. The RRWC is tasked with fostering economic growth and recreational opportunities in the seven parishes along the Louisiana portion of the Red River. Commission members are appointed from each of the seven parishes along with four at-large commissioners.

Red River Compact Commission (RRCC)

Negotiations on the RRCC were authorized by Congress in 1955, and the Compact was signed by member states Oklahoma, Texas, Arkansas, and Louisiana in 1978. The purpose of the RRCC is to resolve and prevent disputes over issues regarding interstate waters. Provisions of the compacts specify how much water each member state is allowed to develop and store in the system. In recent years, water quality and pollution issues have received increased attention from member commissions. The RRCC consists of nine members -- two from each of the four states, and one federal representative appointed by the President.

Red River Valley Association (RRVA)

The RRVA was founded in 1925 as a non-profit member-supported organization. The RRVA works on local, state, and federal levels to promote the economic development and well-being of citizens along the Red River waterway in Oklahoma, Texas, Arkansas, and Louisiana.

Examples of Completed Habitat Restoration

Past experience with restoration projects within the Arkansas-Red-White Rivers sub-basin provide examples of what can be accomplished with increased funding and both existing and new authorities. Natural flow regimes have been restored in parts of the Big Cypress Bayou

downstream of Lake O' the Pines (Smith et al. 2019). Research and evaluation of flows began in 2004. In 2011, USACE and the North East Texas Municipal Water District (NETMWD) agreed to implement the key recommendations of the stakeholders for the flow regime. They intend to release water from Lake O' the Pines for the next five years to provide base flows and certain pulses while the stakeholders monitor the results. The pulses include flows needed for paddlefish spawning. Stakeholders include the Caddo Lake Institute, The Nature Conservancy, USACE, USFWS, NETMWD, USGS, Texas Parks and Wildlife Department, Texas Commission on Environmental Quality, Louisiana Department of Wildlife and Fisheries, Cypress Valley Navigation District, the City of Jefferson, and others.

Spawning habitat for paddlefish and other native fish has been enhanced through the construction of a 1,500-foot-long gravel shoal in the Big Cypress Bayou between Lake O' the Pines and Caddo Lake.

Management of invasive species through herbicide or biological controls has been implemented at a variety of locations within the sub-basin. From 2015 – 2020, Louisiana and Arkansas treated a combined average of more than 18,313 acres of nuisance aquatic vegetation in the sub-basin.

Implementation Needs

Currently, project funding is a critically limiting factor and a requirement to achieving the Plan's objectives. Even with appropriate project funding, continued partnership by a suite of state and federal agencies, non-governmental organizations, and the public will be necessary for success.

The Aquatic Habitat Action Plan highlights restoration objectives, recommends management strategies, identifies potential management actions, and provides specific project examples that are necessary to maintain and restore fish and mussel diversity within the Arkansas-Red-White Rivers sub-basin. The Plan's objectives are to:

1. Maintain and enhance high quality habitat and habitat diversity,
2. Manage sediment transport,
3. Restore main stem and tributary hydrology,
4. Restore hydraulic and habitat connectivity, and
5. Restore floodplain geomorphology and landforms.

Projects focused on addressing these objectives will improve riverine aquatic habitat. Several examples of projects that could be conducted across the Arkansas-Red-White Rivers sub-basin to improve habitat are provided in the Plan.

The Plan addresses aquatic habitat needs for a variety of recreational, commercial, non-game and threatened or endangered fish and mussel species.

Table 1. Interjurisdictional rivers (6th order and larger) of the Arkansas-Red-White Rivers Sub-basin.

Rivers	Stream Order	States	Tribal
White (including Bull Shoals, Norfork, and Table Rock Reservoirs)	8	AR, MO	
North Fork	6	MO, AR	
Black	7	MO, AR	
Current	6	AR, MO	
Eleven Point	6	AR, MO	
Arkansas	9	CO, KS, OK, AR	x
Salt Fork Arkansas	7	OK, KS	x
Medicine Lodge	6	OK, KS	
Chikaskia	6	OK, KS	x
Cimarron	6	OK, KS, CO	x
Verdigris	7	KS, OK	x
Caney	6	OK, KS	x
Little Caney	6	OK, KS	x
Neosho	7	OK, KS	x
Spring	6	MO, KS, OK	x
Illinois	6	AR, OK	x
Canadian	8	OK, TX, NM	x
North Canadian[1]	7	OK	x
Beaver	6	OK, TX	x
Poteau	6	AR, OK	x
Red	7	LA, AR, OK, TX	x
North Fork Red River	6	OK, TX	
Washita	6	OK, TX	x
Muddy Boggy Creek[1]	6	OK	x
Kiamichi[1]	6	OK	x
Little	6	OK, AR	x
Mountain Fork	6	OK, AR	x
Sulphur	6	AR, TX	
Twelve Mile Bayou[2]	6	LA	
Big Cypress (including Cypress Springs, Lake Bob Sandlin, Lake O' the Pines, and Caddo Lake)	6	TX, LA	
Loggy Bayou[2]	6	LA	
Bayou Dorcheat	6	AR, LA	

[1] North Canadian, Muddy Boggy Creek, and Kiamichi flow through or border tribal lands.

[2] Twelve Mile Bayou and Loggy Bayou are not interjurisdictional rivers but both are formed by interjurisdictional tributaries.

Table 2. Select ecological and economic statistics for the Arkansas-Red-White Rivers Sub-basin.

Arkansas-Red-White Rivers Sub-basin	
Watershed (square miles)	248,000
Number of Interjurisdictional Rivers	13
Number of States in sub-basin	8
Number of Fish/Mussel Species	290/80
Number of Endangered Fish/Mussels	3/10
Recreational Fishery Value (millions)	$2,270.8
Commercial Fishery Harvest (lbs.)	878,261
2011 Commercial Navigation (tons)	10,600

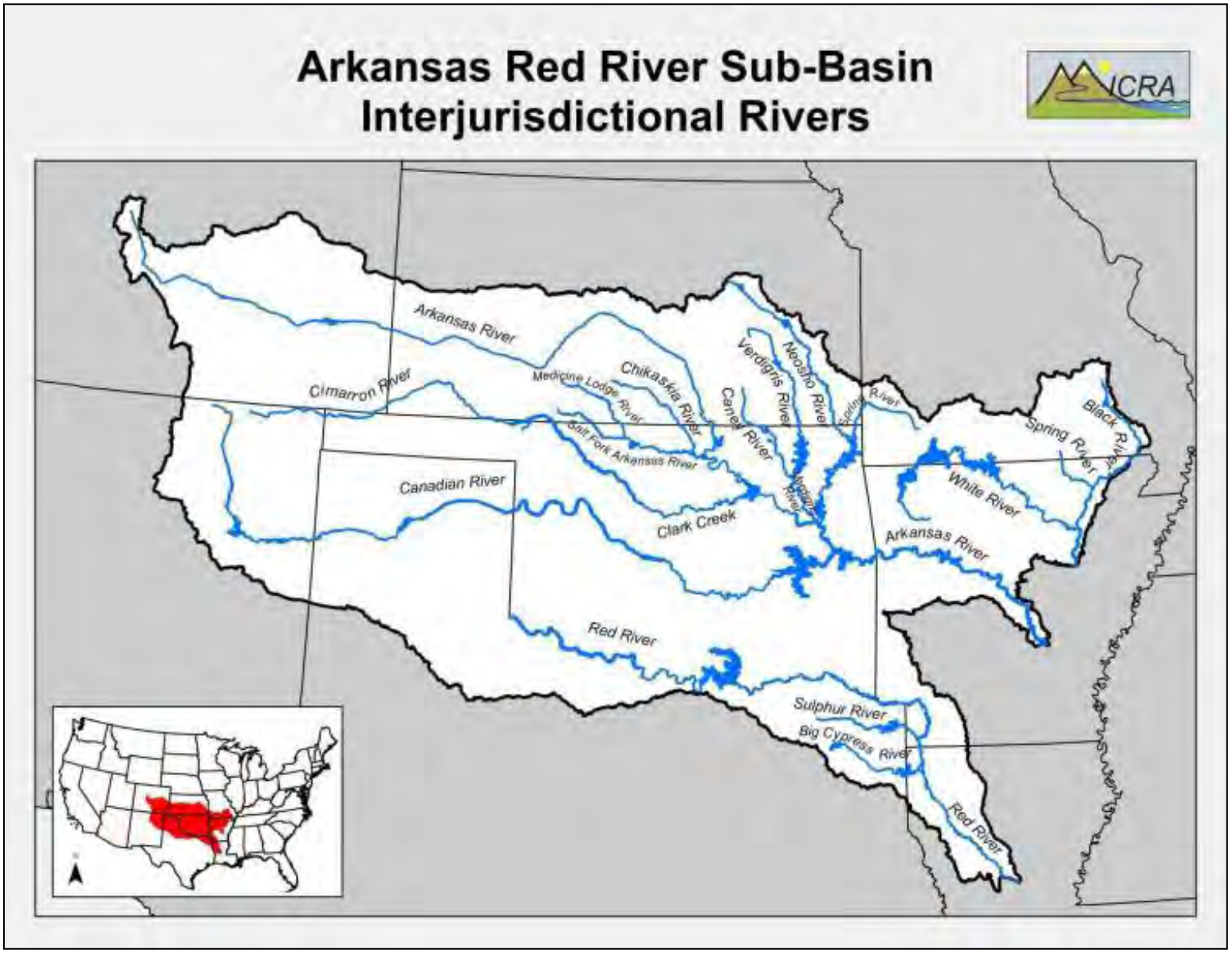

Figure 4. Select 6th order and larger interjurisdictional rivers of the Arkansas-Red-White Rivers Sub-basin.

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Lower Mississippi River Sub-Basin

Mississippi Interstate Cooperative Resource Association

Geography

The Lower Mississippi River (LMR) begins at the confluence of the Mississippi and Ohio Rivers in southern Illinois and flows 953.5 miles to the Head of Passes, where the river subdivides into several distributaries to the Gulf of Mexico (USACE 2013, USFWS 2013). The Lower Mississippi River Valley (LMRV) lies within the Central Gulf Coastal Plain physiographic province (Baker et al. 1991, USACE 2013). The LMRV varies in width between 40 and 110miles and includes parts of the states of Missouri, Illinois, Tennessee, Kentucky, Arkansas, Mississippi, and Louisiana.

Figure 5. The Lower Mississippi River Sub-Basin, or watershed, includes rivers and lakes from 6 states.

Major tributaries to the LMR include the St. Francis River, Arkansas River, Yazoo River, and Red River. Major distributaries include the Atchafalaya River. Although the historic floodplain of the LMR has been reduced by the construction of the levee system, the system remains unimpounded and the active floodplain currently consists of 2.25 million acres and remains a vitally important ecosystem.

Economics

A recent study (Industrial Economics 2014) examined economic sectors associated with the Lower Mississippi River and reported annual revenues of $151.7 billion and over 585,000 jobs. Sectors examined included: harvest of natural resources, outdoor recreation, tourism, water supply, agriculture and aquaculture, mineral resources, energy, navigation and manufacturing. Of the examined sectors, tourism and outdoor recreation were associated with 11% of total annual revenues and 42% of total employment.

Annually, LMR natural resources produces revenues of $559 million, employs 13,000 individuals, and provide over 375 million cubic feet of timber products, almost 20 million pounds of freshwater fish, and over 1 billion pounds of seafood. Outdoor recreation activities, such as fishing, hunting, and wildlife watching, attract 38 million trips that generate $1.3 billion in expenditures and provide jobs for over 54,000 people. The tourist sector in the LMR corridor generates $15.5 billion in annual expenditures, making it the second largest sector after manufacturing in the region. Tourism is estimated to provide employment to 190,000 workers (Industrial Economics 2014).

Greatest Needs/Problem Statements

In response to the 1927 flood, the U.S. Army Corps of Engineers initiated the Mississippi River and Tributaries (MR&T) project, which consists of levees, revetments, flood storage reservoirs, and floodways to reduce flood risk, as well as dikes, and other river training structures in the channel to facilitate low-water navigation by towboats. Construction of the MR&T project, which still continues today, has resulted in one of the most highly engineered large river channels on the planet (USACE 2013).

The construction of the Mississippi River levee system has significantly altered the LMR habitat in a variety of ways. Levee construction has reduced the floodplain of the river by over 80% (Baker et al. 1991), channel meandering has been eliminated by revetments, channel cutoffs have significantly altered the energy in the system, and channel engineering for navigation has resulted in a gradual but significant loss of secondary channel habitat in the LMR.

Existing Partnerships/Plans

Lower Mississippi River Conservation Committee (LMRCC)

The Lower Mississippi River does not have a funded restoration program but has relied on unique partnerships and collaboration to accomplish species monitoring and habitat restoration projects. The LMRCC (www.LMRCC.org) was founded in 1994 and is a coalition of 12 state natural resource conservation and environmental quality agencies from the six Lower Mississippi River (LMR) states of Arkansas, Kentucky, Louisiana, Mississippi, Missouri and Tennessee. The LMRCC Executive Committee is comprised of one member from each of the 12 delegate agencies. There are also federal partners, including: U.S. Army Corps of Engineers (USACE), U.S. Department of Agriculture Natural Resources Conservation Service (NRCS), U.S. Environmental Protection Agency (EPA), USFWS, and U.S. Geological Survey (USGS). The USFWS provides a full-time coordinator; LMRCC staff work out of the USFWS's Lower Mississippi River Fish and Wildlife Conservation Office in Mississippi. The LMRCC focuses on habitat restoration, long-term conservation planning, and nature-based economic development.

LMRCC Planning – Restoring America's Greatest River

In 2000, the LMRCC completed the Aquatic Resources Management Plan (ARMP) for the LMR. The ARMP outlines strategies for restoring aquatic resources within the 2.25-million-acre active floodplain from the confluence of the Mississippi and Ohio rivers at Cairo, Illinois, to the Gulf of Mexico. The Mississippi River Conservation Initiative (MRCI) was the implementation phase of the ARMP. From 2001-2004, the LMRCC held state-level planning meetings in each of the six member states to identify projects that would improve aquatic habitat and enhance public access to river habitats. Through these meetings, over 230 restoration projects were identified. The restoration work of the LMRCC was coined "Restoring America's Greatest River" (RAGR) and is based on a unique partnership between the LMRCC, the USACE, and the USFWS. The focus of these proposed projects is not only to enhance LMR habitats, but to restore floodplain hydrology and connectivity between the river and its floodplain.

To better focus LMRCC restoration efforts, a ranking system for the proposed secondary channel work was completed by the USACE Engineer Research and Development Center (ERDC) by establishing a Habitat Quality Index and Economy of Restoration Index that were combined into a Priority Index (Killgore et al. 2012). Projects were ranked according to improvements to habitat quality and cost-effectiveness. This ranking system has been and will continue to be used to guide the selection of future restoration projects for secondary channels.

Implementation of the Restoring America's Greatest River plan began in 2006. To date, the focus has been on rehabilitating secondary channels. Dikes and closure dikes are notched to provide more permanent flow between productive secondary channels and the main channel and to create new secondary channels through existing dike fields. To date, 14 projects have been completed, restoring more than 56 miles of channel habitat and thousands of surrounding acres. USACE Districts have constructed 774 dikes between river miles 212 and 953.5 (up to 2012) and 225 (29%) of these structures have been notched (USACE 2013). These notches increase bathymetric diversity, and therefore habitat, below the dikes (USACE 2013). Notching structures has also been directed to enhance secondary channels.

In addition to completing secondary channel projects, the LMRCC has worked in the river floodplain. An example is a project to restore a weir at Lake Perry Martin in Mississippi. The project permanently raised lake water levels, improved water quality, increased fish access and created better public fishing opportunities. Combining the habitat restoration accomplishments of the LMRCC, USACE and other agencies, 76 of the original projects (30%) are in some stage of completion.

Lower Mississippi River Reforestation

The NRCS has identified the Mississippi River basin as a top priority because of water quality concerns (i.e., nutrient loading), and subsequently implemented the Mississippi River Basin Healthy Watersheds Initiative (MRBI). As part of the MRBI, the Batture Reforestation Project was initiated in 2012 to restore wetlands and forests within the active floodplain (i.e., batture) of the LMR. The LMRCC, nonprofit Mississippi River Trust, and the NRCS work in partnership to identify flood-prone cleared land in the Lower Mississippi River active floodplain that landowners desire to reforest through Wetland Reserve Easements. Funding is provided by the NRCS, along with the Walton Family Foundation, and the U.S. Endowment for Forestry and Communities. By late 2014, 58 properties covering 12,059 acres had been enrolled in the program.

Lower Mississippi River Resource Assessment (LMRRA)

The Lower Mississippi River Resource Assessment (LMRRA) was authorized by the Water Resources Development Act (WRDA) of 2000 and is the region's first comprehensive natural resources study since the Lower Mississippi Region Comprehensive Study (Lower Mississippi Region Comprehensive Study Coordinating Committee 1974). The LMRAA will identify information needed for river-related management, natural resource habitat needs, and river-related recreation and access needs. The project area includes the entire LMR, the Atchafalaya

River, and extends into some of the navigable tributaries of the LMR. This project assesses available information and will make recommendations for improvement. This study began in 2012. Partners include the USACE districts in Memphis, Vicksburg, and New Orleans; LMRCC; The Nature Conservancy; National Audubon Society; Mississippi River Corridor-Tennessee; Wildlife Mississippi; Delta Wildlife; and Quapaw Canoe Company.

Lower Mississippi River Conservation Plans

The USFWS produced a Strategic Habitat Conservation Plan (USFWS 2012) for the Lower Mississippi river that outlined a framework for the USFWS vision, partnership and involvement in efforts to conserve endangered species and their habitats. The USACE took this information and produced a Conservation Plan for the Interior Least Tern, Pallid Sturgeon, and Fat Pocketbook Mussel in the Lower Mississippi River (USACE 2013) that addresses the Channel Improvement Program (CIP) of the Mississippi River and Tributaries Project. It identifies programmatic mechanisms by which the CIP is incorporating ecological engineering opportunities, cost-effective restoration and other conservation measures to maintain and improve habitat for the recovery of endangered species and other trust species.

Examples of Completed Habitat Restoration

The Lower Mississippi Conservation Committee (LMRCC), a coalition of 12 state natural resource and environment quality agencies, has been involved with 29 aquatic habitat improvement projects in the Lower Mississippi River sub-basin since 2013. These projects have collectively rehabilitated 101.75 river miles of side channel habitats. Other habitat project within the basin have included notching rock dikes and reconnecting meander cutoffs along the Mississippi River. The USACE has notched 29% of the 774 dikes between river miles 212 and 953.5 (LMRCC 2015).

Figure 6. Dyke notching of 225 dykes has opened up additional habitat to aquatic life between river miles 212 and 953.5 on the Mississippi River. These efforts help ensure fish and other aquatic life are not stranded following high-water events when they seek flow refuges in the shelter of these structures. For some species they also provide spawning, feeding, hunting, and/or shelter habitat.

Implementation Needs

A recent assessment by the U.S. Army Corps of Engineers listed multiple areas of habitat implementation needs in the LMR, including:

1. Restoration of backwater areas, side channels, and floodplain lakes,
2. Restoration of bottomland hardwood forests in the Mississippi River and tributary floodplains,
3. Improved water quality,
4. Restoration of in-channel habitat such as gravel bars, sand bars, and islands
5. Preserving and rebuilding coastal wetlands, and
6. Control of exotic invasive species (USACE 2015).

Table 3. Interjurisdictional rivers (6th order and larger) of the Lower Mississippi River Sub-basin.

Rivers	Stream Order	States	Tribal
Mississippi	**10**	**MS, LA, TN, AR, MO, KY**	
Ohio	**9**	**OH, PA, WV, KY, IN, IL**	
Hatchie	**6**	**TN, MS**	
St. Francis	**7**	**AR, MO**	
Right Hand Chute Little River	**6**	**MO, AR**	
White	**8**	**AR, MO**	
Arkansas	**9**	**AR, KS, CO, OK**	
Yazoo	**7**	**MS, LA**	
Red	**8**	**TX, OK, AR, LA**	
Black[1]	**7**	**LA**	
Oauchita	**7**	**LA, AR**	
Bayou Bartholomew	**6**	**LA, AR**	
Boeuf	**6**	**LA, AR**	
Amite	**7**	**MS, LA**	
Atchafalaya[2]	**8**	**LA**	

[1] The Black River is not an interjurisdictional river, but it is formed by interjurisdictional tributaries.

[2] The Atchafalaya River is not an interjurisdictional river, but it is a distributary river formed by the Mississippi and Red rivers.

Table 4. Select ecological and economic statistics for the Lower Mississippi River Sub-basin.

Lower Mississippi River Sub-basin	
Watershed (square miles)	110,600
Number of Interjurisdictional Rivers	9
Number of States in sub-basin	6
Number of Fish/Mussel Species	121/60
Number of Endangered Fish/Mussels	2/8
Recreational Fishery Value (millions)	$2,576.2
Commercial Fishery Value (millions)	$3.147
Commercial Fish Harvest (lbs.)	8,270,000
2011 Commercial Navigation (tons)	530,000

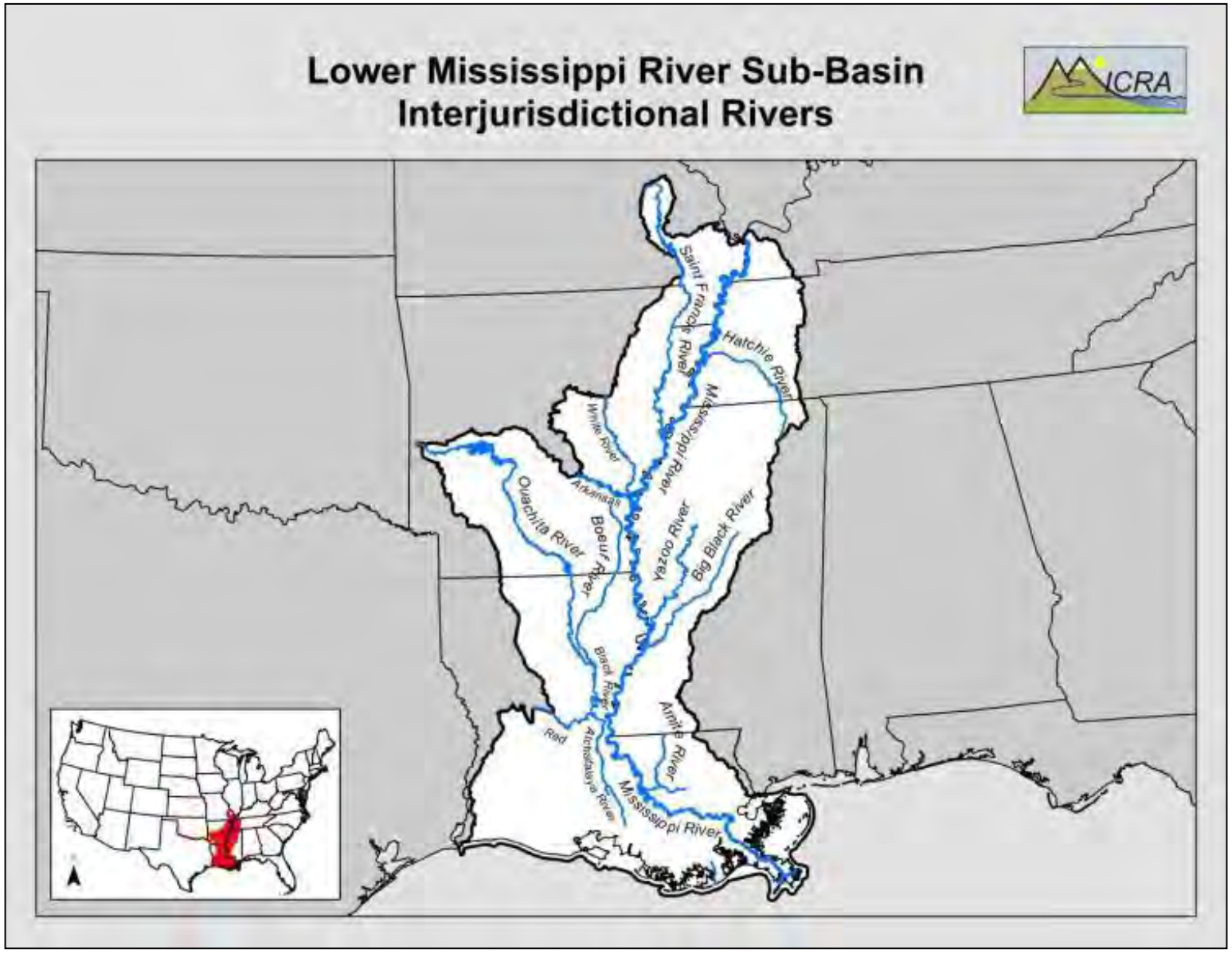

Figure 7. Select 6th order and larger interjurisdictional rivers of the Lower Mississippi River Sub-basin.

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Missouri River Sub-Basin

Mississippi Interstate Cooperative Resource Association

Geography

The Missouri River Basin encompasses 1/6 of the continental United States and is the second largest basin behind the Mississippi with drainage exceeding 530,000 square miles. The basin covers portions of 10 states and 2 Canadian provinces. The Missouri River is the longest river in the United States at 2,341 miles with head waters in the Bitterroot Mountains of Montana and flows into the Mississippi River near St. Louis, MO. Land use within the basin is comprised of cropland (37%), grassland (30%), shrub (13%), forested (11%), and developed areas (9%) (Galat et al. 2005).

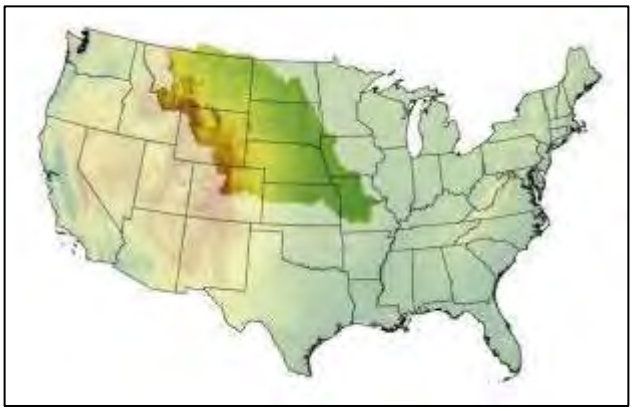

Figure 8: The Missouri River Sub-Basin, or watershed, includes rivers and lakes from 9 states.

The Pick Sloan Plan and Missouri River Navigation Project greatly impacted the Missouri River Basin. The construction of 6 main stem dams and channelization of the lower 750 miles resulted in 3 million acres of riparian habitat being altered including the loss of 522,000 acres primarily for agriculture production. The current Missouri River configuration has left 1/3 of the river impounded, 1/3 channelized, and the remaining 1/3 influenced by reservoir releases. Water Resource Development Acts (WRDA 1986, 1999, and 2007) authorized the restoration of 166,750 acres and USFWS Biological Opinion (2000, amended 2003) in response to listing of threatened and endangered species required restoration of up to 20,000 acres of shallow water habitat in the channelized portion of the Missouri River.

The Missouri River is a vital resource for the inhabitants of the basin and Congress has authorized 8 river management purposes: water quality, water supply, hydropower, flood control, irrigation, navigation, fish and wildlife, and recreation.

Economics

The Missouri River provides drinking water for 3.1 million people in the basin and water intake for 25 power plants (Galat et al. 2005). In addition to those power plants, all main stem dams have hydropower plants. Operation of the main stem dams averts an estimated $414 million/year in flood damage

Figure 9: Missouri River, Montana.

(USACE 1998). The river provides over $12 million/year in irrigation benefits. Commercial navigation on the Missouri River has been declining since its peak in 1977 and currently averages around 5 million tons transported each year (USACE 2016) with sand and gravel being the most common material hauled and generally for very short distances, not long-haul commercial products. The net economic benefit for commercial navigation is less than 3 million dollars per year with most traffic occurring below Kansas City, MO or the lower 367.5 river miles of the channelized reach of the lower Missouri River (National Research Council 2002). In 1994, recreation benefits from Fort Peck Lake to the confluence were reported as $87.1 million. In the state of Missouri alone it was reported that there is $12 billion in economic impact from wildlife related recreation and forest products industry (DOI, et al. 2011). Jacobson et al. (2014) reported that if lateral connectivity were restored through habitat mitigation it would not only increase flood storage capacity but would benefit restoration efforts for fish and wildlife. These efforts would save tens of billions of federal expenditures for flood control/damage. This is especially important in the river reaches between large cities where opportunities to achieve this dual purpose still exist.

Problem Statement/Greatest Needs

The alteration of 3 million acres of natural river habitat has resulted in 51 native fish species becoming rare, uncommon, or decreasing. Furthermore, there is little to no cottonwood reproduction, which was historically the most dominant floodplain tree, and a 70% reduction in aquatic insects (National Research Council 2002).

Platte River

The over utilization of Platte River Basin water resources significantly impacted flows in the central Platte River that is utilized by federally threatened and endangered species. Nebraska, Colorado, and Wyoming signed a cooperative agreement and with assistance from the Bureau of Reclamation, USFWS, stakeholders, and environmental groups developed the Platte River Recovery Implementation Program.

Figure 10. North Platte River, Wyoming

Niobrara River

The Nebraska Game and Parks Commission has entered a Memorandum of Understanding with the Niobrara River Basin Alliance and Nebraska Public Power District to possibly obtain Spencer Hydro-dam and water rights for $12 million dollars to improve stream flows. During the spring 2019 rain-on-snow event, which caused severe flooding across much of Nebraska including the Niobrara River basin, Spencer Dam was blown out by ice flows.

Yellowstone River

The Lower Yellowstone Project (Intake Dam) diverts water for irrigation in Montana and North Dakota, but it impedes upstream migration of pallid sturgeon and other native species. The

diversion dam and canal have been modified with a fish passage structure to prevent entrainment and improve passage.

Existing Partnerships/Plans

Missouri River Natural Resources Committee (MRNRC)

MRNRC was formed in 1988 and is comprised of members from the seven state fish and game agencies that border the main stem Missouri River. The purpose of this committee is to provide management recommendations and technical assistance to state and federal agencies with river management responsibilities. MRNRC sponsors an annual conference to encourage information exchange (MRNRC 2016).

Missouri River Ecosystem Recovery Plan (MRERP)

This program was defunded following 2011 flood event. The purpose of this collaborative effort between the US Army Corps of Engineers and USFWS was to develop a plan to guide recovery efforts on the Missouri River for the next 30 to 50 years (USACE 2016).

Missouri River Recovery Implementation Committee (MRRIC)

MRRIC was authorized by Congress in WRDA 2007 to make recommendations and provide guidance on MRERP and MRRP. The Committee is comprised of representatives from 8 states, 18 American Indian Tribes, 15 federal agencies, and 16 non-government categories represented by 28 stakeholders (USACE 2016).

Missouri River Recovery Program (MRRP)

The scope for MRRP applies to the Missouri River from Fort Peck to the confluence with the Mississippi and the Yellowstone River from Intake Dam to the confluence with the Missouri. It is designed to address the BIOP and BSNP Mitigation plan (USACE 2016).

Platte River Recovery Implementation Program (PRRIP)

The PRRIP Final agreement was signed on January 1, 2007. In 2005, it was estimated to cost $320 million for the entire program. Habitat work will focus on the Central Platte River Basin between Lexington and Chapman Nebraska. The goal of this project is to provide ESA compliance for existing and future water related activities (PRRIP 2016).

Examples of Completed Habitat Restoration

About 60,000 acres of habitat has been acquired for restoration efforts in the Missouri River below Gavins Point Dam. Habitat restoration actions include construction of emergent sandbars within the designated Missouri National Recreational River in South Dakota and Nebraska, and top width widening projects, side channels, backwater complexes, and interception and rearing complexes in Iowa, Nebraska, Kansas, and Missouri (Figure 11). Biological monitoring of the areas indicates that these projects are providing vital habitats for native riverine species. However, most of these side channels and backwater complexes have been closed off as a

result of the 2011 and 2019 floods and construction of new IRCs has been halted due to lack of understanding of impacts to other authorized purposes.

Figure 11. Habitat restoration sites in the Missouri River below Gavins Point Dam. Deer Island (A) located near Tekamah, NE represents a top-width widening project, Lower Decatur revetment lowering (B) located near Decatur, NE, Deroin side channel (C) located near Indian Cave State Park, NE, and Glover's Point backwater complex (D) located near Sloan, IA.

Table 5. Number and types of habitat restoration projects constructed in the Missouri River.

Missouri River Habitat Restoration	
Side channels chutes	39
Backwaters	14
Revetment chutes	20
Top-width projects	3
Navigation dike modifications	2,150

Implementation Needs

Although over 100,000 acres remains to be acquired from willing sellers and restored to meet the Corps requirements for mitigation of the Missouri River Navigation Project, the Corps has not funded this requirement for the past several years. This land acquisition is imperative for enhancing the natural form and function of the Missouri River. It would allow for reduction of flood risks due to increased channel capacity, increased recreation opportunities, and provide vital habitat for fish and wildlife.

Table 6. Interjurisdictional rivers (6th order and larger) of the Missouri River Sub-basin.

Rivers	Stream Order	States	Tribal
Missouri	9	MO, NE, SD, ND, MT, IA, KS	x
Madison	6	WY, MT	
Gallatin	6	WY, MT	
Milk[2]	6	MT, AB[3], SK[3]	X
Marias[2]	6	MT, SK[3]	X
Yellowstone	8	WY, MT, ND	
Clarks Fork	6	WY, MT	
Bighorn[2]	7	MT, WY	X
Wind[2]	7	WY	X
Tongue[2]	6	MT, WY	X
Powder	6	MT, WY	
Little Missouri	6	SD, ND, WY, MT	X
Grand[1]	6	SD	
North Fork Grand	6	ND, SD	
Moreau[2]	6	SD	X
Cheyenne	7	WY, SD	
Belle Fourche	6	WY, SD	
White	6	SD, NE	X
Niobrara	6	WY, NE	
James	7	ND, SD	
Big Sioux	7	SD, IA	
Rock	6	MN, IA	
Little Sioux	6	IA, MN	
Platte[1]	8	NE	
South Platte	7	NE, CO	
Laramie	6	WY, CO	
North Platte	7	NE, WY, CO	
Nishnabotna	6	IA, MO, NE	
Kansas[1]	8	KS	
Smoky Hill	7	CO, KS	
Republican	7	NE, KS	
Beaver Creek	6	WY, SD	
Big Blue	7	NE, KS	
Little Blue	6	NE, KS	
Grand	7	IA, MO	
Thompson	6	IA, MO	
Osage[1]	7	MO	
Marais des Cygne	6	KS, MO	

[1] The Grand (SD), Platte, Kansas, and Osage rivers are not interjurisdictional rivers but are formed by interjurisdictional tributaries.

[2] The Milk, Marias, Bighorn, Wind, Tongue, and Moreau rivers flow through or border tribal lands.

[3] AB = Alberta Canada, SK = Saskatchewan

Table 7. Select ecological and economic statistics for the Missouri River Sub-basin.

Missouri River Sub-basin	
Watershed (square miles)	520,900
Number of Interjurisdictional Rivers	29
Number of States in sub-basin	10
Number of Fish/Mussel Species	166/44
Endangered Fish/Mussel Species	5/2
Recreational Fishery Value (millions)	$3,011.8
Commercial Fishery Harvest (lbs.)	157,256
2016 Commercial Navigation (million tons)	4.66

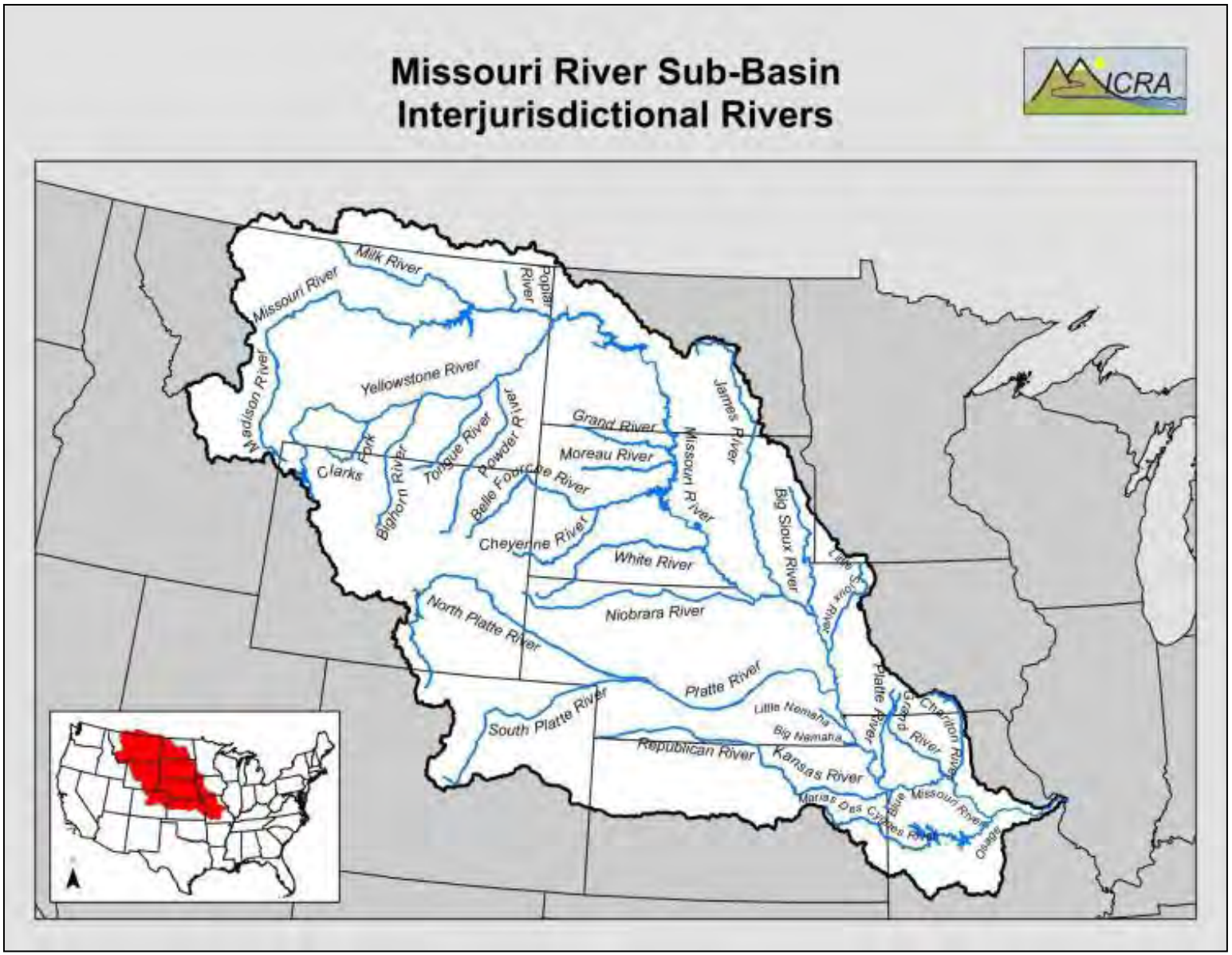

Figure 12. Select 6th order and larger interjurisdictional rivers of the Missouri River Sub-basin.

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Ohio River Sub-Basin

Mississippi Interstate Cooperative Resource Association

Geography

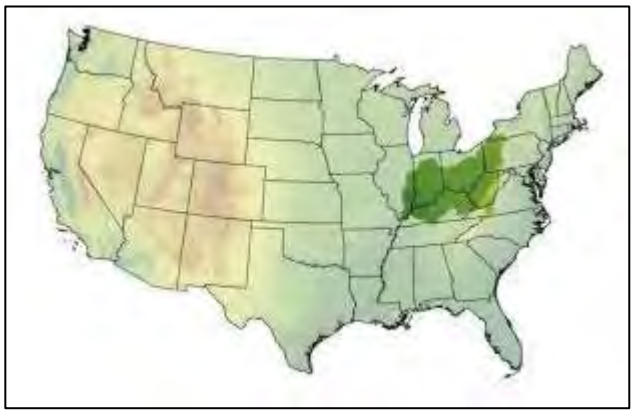

Figure 13. The Ohio River Sub-Basin, or watershed, includes rivers and lakes from 7 states.

The Ohio River sub-basin is a 145,000 square-mile basin that is shared by 7 states in four regions. Aquatic habitats range from cascading Appalachian headwater streams to lowland meandering rivers of the Jackson Purchase region. These unique habitats coalesce to form mainstem Ohio River; the second largest river in the United States as measured by mean annual discharge. The Ohio River is 981 miles (1582 km) long, starting at the confluence of the Allegheny and the Monongahela Rivers in Pittsburgh, Pennsylvania, and ending in Cairo, Illinois, where it flows into the Mississippi River. Average depth is 24 feet, with the widest point at 1 mile near Smithland, Kentucky. Many states share borders with the Ohio River, including West Virginia, Kentucky, Ohio, Indiana, and Illinois (ORSANCO 2014).

Economics

Due to its westwardly flow and confluence with the Mississippi River, the Ohio River has always been a major transportation route. Early pioneers used the river for westward expansion and exploration. Currently, 20 lock-and-dams span the 981 miles of the mainstem Ohio River, providing a vital means of transporting goods throughout the entire eastern U.S. This infrastructure provides an estimated 230 million tons of cargo to be shipped annually, with the majority consisting of coal, oil, and petroleum. 49 power generating facilities are located within the basin providing a clean source of electricity. Over 35,000 people are employed by over 600 businesses that are directly tied to the Ohio River. Including major tributaries, there are approximately 358,000 jobs linked to river commerce. These businesses include barge operation and maintenance, marinas, power generating facilities, loading/unloading facilities, and commercial and recreational fishing (ORSANCO 1995).

The Ohio River sub-basin is not only home to at least 350 fish species and over 120 mussel species, but also home to more than 31.5 million U.S. citizens. An estimated 5 million people rely on the Ohio River as a source of drinking water. Of the 350 fish species in the entire basin, 140 fish species utilize the habitat of the Ohio River (Burr and Warren 1986, ORSANCO 2014). Therefore, numerous fish species play an important economic role, both through sport and commercial fisheries.

Problem Statement/Greatest Needs

The convenience of the Ohio River for transporting goods has influenced the loss of habitat quality and natural resources throughout the entire basin. Impacts to the river include agriculture, industrialization, urbanization, water pollution, mining, impoundments, and invasive species. Of the 800 permitted discharges into the Ohio River, 49 come from power-generating facilities, 180 from municipal wastewater discharges, and over 300 from industry (ORSANCO 2014). However, with recent environmental regulations and facility upgrades, water quality has improved in the Ohio River over the past 50 years. Even with recent improvements, aquatic habitats remain in need of protection and restoration. Forested riparian zones and island acreages have been reduced or converted by 65% and 45%, respectively (USACE 2000). With the numerous dams throughout the basin, riffle/pool complexes have been eliminated. These impacts have reduced the available habitat for a multitude of aquatic and terrestrial species that rely on the Ohio River for survival. The protection and restoration of riparian zones, islands, and wetlands of the Ohio River is crucial for the survival of the diverse aquatic resources throughout the basin.

Existing Partnerships/Plans

Ohio River Basin Alliance (ORBA)

The ORBA is made up of over 200 representatives from over 80 state, local, and federal agencies, industry, academia, and not-for-profit organizations. Their mission is to form a successful collaboration that will recommend strategies and coordinate actions to address complex water resource challenges and priorities with a unified voice. The Alliance is voluntarily led by a Steering Committee and has four Working Groups that address specific basin issues. The ORBA is conducting a pilot study on how climate change will impact the Ohio River Basin.

Ohio River Ecosystem Restoration Program (ORERP)

The ORERP was developed in 2000 as part of the Corp of Engineers Ohio River Mainstem System Study. The goal of this program is to prioritize restoration efforts of the mainstem Ohio River, and ultimately restore ecosystem functions to a more natural and self-regulating system. Specifically, the ORERP has the opportunity to restore 25,000 acres of bottomland hardwood forest, 1,250 acres of aquatic habitat, 40 islands, 100 miles of riparian habitat, and 25,000acres of wetlands along the Ohio River floodplain. Authorization of this program would provide around 200 million dollars for these restoration projects, however funding has yet to be appropriated for the implementation of the ORERP.

Ohio River Basin Fish Habitat Partnership (ORBFHP)

In 2009, the ORBFHP was recognized by the National Fish Habitat Partnership. The OHBFHP's mission is to protect, restore, and enhance priority habitat for fish and mussels in the watersheds of the Ohio River basin (excluding the Tennessee River sub-basin to avoid overlap with the Southeast Aquatic Resources Partnership, SARP) for the benefit of the public. The ORBFHP collaborated with SARP to complete a basin- wide stream habitat assessment in 2012 to help identify priority areas and select priority projects for funding. This assessment was used to determine threats to aquatic ecosystems in separate watersheds within the Ohio River sub-

basin. The ORBFHP developed a list of specific actions designed to ultimately reverse declines in the quality and quantity of aquatic habitats and improve the overall health of fish and other aquatic organisms. Again, funding is the limiting factor; securing grants will be necessary for implementing proposed habitat restoration projects.

Ohio River Foundation (ORF)

The ORF is a 501(c)(3) non-profit organization founded in 2000 by a group of citizens concerned about the need for increased response to the degradation of the Ohio River. ORF's mission is to protect and restore the water quality and ecology of the Ohio River and its tributaries for the health and enjoyment of present and future generations. The ORF works with scientists, businesses, and governmental agencies to protect and improve water quality within the Ohio River watershed. In addition, they increase public involvement in development activities and initiatives affecting the Ohio River.

Examples of Completed Habitat Restoration

Gravel Bed Installation

Gravel beds were established at selected locations in Bryant Creek embayment in an attempt to create fish habitat. Selection criteria for gravel bed placement were locations with water depths 0.6-1.2 m and bottom substrate conditions sufficient to support the addition of gravel beds. Two locations were chosen within the embayment, and beds were constructed using 19.1 m^3 of a combination of 10.2-20.3 cm limestone riprap and 3.8 cm smooth river rock placed using boats with modified manual dumping platforms. This yielded mixed gravel beds approximately 30.5 m long by 3.1 m wide by 0.2 m thick.

Establishment of Aquatic Macrophytes

Three aquatic macrophyte species were used to establish founder colonies to enhance habitat in the study area, including Broadleaf Arrowhead, American Water Willow, and American Pondweed. An initial bathymetry assessment was conducted to identify suitable locations for establishing macrophyte founder colonies. Of the identified locations, two were selected and planted with founder colonies in the embayment. Mature Broadleaf Arrowhead and American Water Willow plants were obtained from Spence Restoration Nursery (Muncie, IN). Approximately 150 individuals of each species were planted at each of the two selected locations. American Pondweed clippings were collected from sources of healthy, established colonies near West Lafayette, IN, and grown outside in 1,135 L tanks at the Aquaculture Research Laboratory at Purdue University. Clippings were cultivated in containers containing locally collected sediment for approximately 6-8 wk or until suitable size for field planting. A total of 66 pots containing American Pondweed were planted at each of the two locations.

Implementation Needs

During the development of the Ohio River Ecosystem Restoration Program, participants identified the greatest issues affecting natural resources of the Ohio River. Based on this information, goals were established to guide future conservation efforts. These goals included:

1. Protection and restoration of wetlands and bottomland hardwood forests,
2. Protection and restoration of islands, and
3. Improvement of aquatic, shoreline, and riparian habitat.

These broad goals were selected to benefit a wide variety of species, in addition to restoring impaired aquatic functions of the Ohio River (USACE 2000). Funding for the implementation of aquatic habitat enhancement projects on the Ohio River seems to be the limiting factor. In addition, match requirements for non-federal entities may limit the overall scale and type of projects completed. Continued coordination between federal agencies, state agencies, and private organizations is an important component to ensure that assessments and conservation goals remain current.

Table 8. Interjurisdictional rivers (6th order and larger) of the Ohio River Sub-basin.

Rivers	Stream Order	States	Tribal
Ohio	**9**	**OH, PA, WV, KY, IN, IL**	
Allegheny	**8**	**NY, PA**	
Monongahela	**7**	**PA, WV**	
Cheat	**6**	**WV, PA**	
Youghiogheny	**6**	**PA, MD**	
Beaver[1]	**7**	**PA**	
Mahoning	**6**	**OH, PA**	
Little Beaver Creek	**6**	**OH, PA**	
Kanawha[1]	**6**	**WV**	
New	**6**	**WV, VA, NC**	
Big Sandy	**7**	**WV, KY**	
Tug Fork	**6**	**KY, WV, VA**	
Levisa Fork	**6**	**VA, KY**	
Russell Fork	**6**	**KY, VA**	
Wabash	**6**	**IN, IL, OH**	
Vermillion	**6**	**IL, IN**	
Cumberland	**7**	**KY, TN**	
Tennessee	**8**	**KY, TN, MS, AL**	

[1] The Beaver and Kanawha rivers are not interjurisdictional rivers but both are formed by interjurisdictional tributaries.

Table 9. Select ecological and economic statistics for the Ohio River Sub-basin.

Ohio River Sub-basin	
Watershed (square miles)	145,000
Number of Interjurisdictional Rivers	11
Number of States in sub-basin	7
Number of Fish/Mussel Species	161/80
Number of Endangered Fish/Mussels	0/10
Recreational Fishery Value (millions)	$2,509.3
Annual Commercial Fishery Harvest (lbs.)	1,303,664
2011 Commercial Navigation (tons)	279,000

Figure 14. Select 6th order and larger interjurisdictional rivers of the Ohio River Sub-basin.

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Tennessee-Cumberland Rivers Sub-Basin

Mississippi Interstate Cooperative Resource Association

Geography

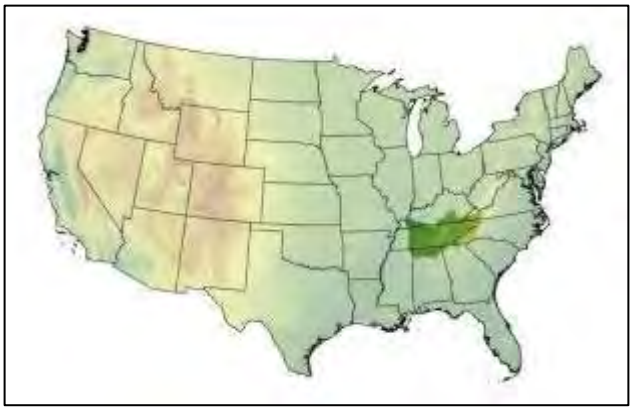

Figure 15. The Tennessee/Cumberland Rivers Sub-Basin, or watershed, includes rivers and lakes from 7 states.

Tennessee River is the largest Ohio River tributary, being approximately 652 miles (1,049 km) long, with a watershed of approximately 40,000 square miles. The watershed includes parts of eight states: Alabama, Georgia, Kentucky, Mississippi, North Carolina, Tennessee, West Virginia, and Virginia. Tennessee River is impounded by 9 mainstem dams and 23 tributary dams lie in the drainage. Cumberland River is another large tributary that discharges into the Ohio River just 10 miles upstream of the Tennessee River mouth. Length of the Cumberland River is 652 miles (1,107 km) and its watershed is over 18,000 square miles. The entire Cumberland watershed lies within the states of Kentucky and Tennessee. There are five mainstem dams on the Cumberland River and six tributary dams lie within the drainage.

Tennessee and Cumberland rivers share many faunal elements, and the region has long been recognized as a center of aquatic biodiversity on a global scale. Combined, the two drainages are home to approximately 250 fish species, just over 100 freshwater mussel species, almost 100 aquatic snail species and approximately 60 crayfish species. Within this fauna are some of the most imperiled animals in the world. Federally endangered or threatened species that occur, or historically occurred in these drainages number 56, and include fish, mussels, snails, and crustaceans. The fauna of this region has also suffered many extinctions, including 2 fish, 14 mussels, and 6 snails.

Economics

Tennessee and Cumberland River impounded mainstem reaches serve as major navigational waterways and sources of hydroelectric power, with the added benefits of flood control and aquatic recreation. Smaller tributary reservoirs are primarily for flood control and recreation. As navigational corridors, these rivers are responsible for 57,000 tons of goods annually. The major commodities transported on these rivers are coal and aggregates (sand and gravel), but other products include grain, petroleum products, metals, and chemicals. These have helped keep the region competitive in manufacturing and is also greatly supportive of its agriculture.

Commercial fisheries in these watersheds are economically significant in the Tennessee and Cumberland watersheds. Fish brought to market average > 1.3 million pounds annually. North

American freshwater mussel shells provide the base raw material for worldwide cultured pearl production and the majority of annual exports originate from the Tennessee River. Commercial mussel harvest is cyclic in nature and has ebbed over the past two decades, but exports have exceeded $40 million annually in the recent past. Commercial fisheries in these watersheds are economically significant, but recreational angling provides an even greater economic benefit to the states and adjacent communities. According to the American Sportfishing Association, this recreational activity directly generated over $1.2 billion in 2011 in the state of Tennessee alone. Total value of the recreational fishery in the Tennessee River Sub-basin has been estimated to provide an annual economic boost in excess of $4,192 million (USFWS 2016 unpublished data).

Problem Statement/Greatest Needs

The Tennessee and Cumberland River basins are two of the most biologically diverse systems in the world and elements of these faunas serve as the basis of significant commercial and recreational fisheries, yet their natural habitats have been greatly altered for navigation, hydroelectric energy, flood control, and aquatic recreation. Attending to the needs of these delicate and generally imperiled faunas while maintaining or even increasing the economic importance of these rivers will be an immense challenge. These rivers and their faunas are in great need of routine monitoring to observe changes to both habitat and populations, in order to make more informed conservation decisions. Some of the more important areas for both fisheries and imperiled species lie in reaches just downstream of dams on these rivers. Maintaining or improving water quality in these reaches should be a priority.

Existing Partnerships/Plans

The Tennessee and Cumberland River drainages fall under the influence of a number of conservation partnerships and agencies, many of which have developed plans on their behalf. The National Fish Habitat Partnership focuses on conservation of fish and their habitats throughout the United States. Additionally, A Tennessee River Basin Watershed Management Plan is in place to improve, protect, and maintain the river for multiple beneficial uses and water quality. The Cumberland River Compact is likewise focused on water quality improvement in that basin. All eight states that encompass parts of the Tennessee and Cumberland drainages have State Wildlife Plans with components that address the needs of aquatic habitats and species. These plans are specific to each state but share concern for numerous species and recognize many common needs. Freshwater mollusks have been documented as one of the most critically imperiled groups of organisms on earth and an interagency committee produced the “Plan for the Population Restoration and Conservation of Imperiled Freshwater Mollusks of the Cumberlandian Region” in 2010 and the document is regularly updated.

Most states that encompass the Tennessee and Cumberland basins have made major commitments to conservation of imperiled aquatic species and have facilities dedicated to captive propagation and husbandry, with at least one located in most of the states involved. These facilities and their respective agencies cooperate closely and extensively among themselves, sharing brood stock as well as progeny for population reintroductions and augmentations, as well as for studies on life history.

One unique program aimed at protection of significant aquatic habitats and their faunas is the Alabama Rivers and Streams Network, which now includes drainages that it shares with surrounding states, including the Tennessee drainage. This network is comprised of private companies, nonprofit organizations, state and federal agencies, and concerned citizens with focus on habitat protection and improvement in remaining reaches that still have significant biological resources. The focus areas are termed Strategic Habitat Units for smaller subdrainages and Strategic River Reach Units for significant reaches of mainstem habitat. Since clean water and functional habitats are beneficial to all stakeholders, a key aspect of the group is to demonstrate direct and immediate cost benefits related to such conservation efforts.

Examples of Completed Habitat Restoration

Habitat restoration efforts in the Tennessee and Cumberland river basins have been partnership driven with most of these projects focused on increasing aquatic connectivity and improving riparian habitat. These partnerships have resulted in dam removal projects within both the Tennessee River and Cumberland River basins, land purchases, and cooperative riparian habitat initiatives. Additional small-scale aquatic habitat improvement projects have been conducted by state, federal, and non-governmental organization programs on streams, rivers, and reservoirs.

Cumberland River Basin

Roaring River Watershed

The Roaring River State Scenic River is tributary to the Cumberland River located outside of Gainesboro, Tennessee. On-going efforts have worked to protect and restore this valuable watershed. The Tennessee Wildlife Resources Agency manages three Wildlife Management Areas along the Roaring River and its major tributary Blackburn Fork. These Wildlife Management Areas collectively protect 15-miles of shoreline within the watershed and provides hunting, fishing, and recreational access. In 2017, the Tennessee Wildlife Resources Agency, Southeast Aquatic Resources Partnership, U.S. Fish & Wildlife Service, Nature Conservancy, Army Corps of Engineers, and the Tennessee Department of

Figure 16. Roaring River, TN – Roaring River Dam Removal Project. Roaring River Dam (left) was removed in 2017. Removal of the dam increased aquatic connectivity and improved instream habitat (right).

Environment & Protection partnered to restore stream habitat and increase aquatic connectivity along the Roaring River which resulted in the largest dam removal project for stream restoration purposes in Tennessee. Removal of the dam restored approximately 1-mile of stream habitat that was previously impounded and connected nearly 5-miles of the lower river to its headwaters. Additional riparian restoration and shoreline stabilization projects have been completed within the watershed.

Tennessee River Basin

Duck and Elk River Watershed Forest and Buffer Initiative

The Duck and Elk rivers are two of the highest priority watersheds in the Tennessee River basin due to their aquatic biodiversity and high number of "species of concern." In 2020, the Tennessee Division of Forestry, American Forest Foundation, National Fish & Wildlife Federation, Tennessee Forestry Association and other partners created the Elk and Duck River Watershed Forest and Buffer Initiative to promote, maintain, and improve habitat within these priority sub-basins. The grant funded initiative engages local landowners within these two watersheds (encompassing 13 counties) and enables them to maintain healthy forests and water and improve habitat for at-risk and other species. To date, $48,000 has been approved for cost share on 424 acres for 9 landowners and adds 5.4-miles of linear riparian habitat under improved management.

Implementation Needs

Assessment of Tennessee and Cumberland River habitat and populations has been carried out by an assortment of state and federal agencies, generally on a small geographic scale or with a particular subject or population as the focus, and often within single agencies without cooperation with other entities. Likewise, these have been funded by a variety of state and federal monies. A unified effort to periodically assess habitats, as well as imperiled and economically significant populations, should be carried out across these two basins. Funding necessary for such an endeavor will be substantial.

Table 10. Interjurisdictional rivers (6th order and larger) of the Tennessee-Cumberland Rivers Sub-basin.

Rivers	Stream Order	States	Tribal
Tennessee (including Kentucky Lake, Pickwick Lake, and Guntersville Lake)	**8**	**KY, TN, MS, AL**	
Holston[1]	**6**	**TN**	
South Fork Holston	**6**	**TN, VA**	
Wautaga (including Wautaga Reservoir)	**6**	**TN, NC**	
French Broad	**7**	**TN, NC**	
Nolichucky	**6**	**TN, NC**	
Little Tennessee (including Tellico and Calderwood Reservoirs)	**6**	**TN, NC, GA**	
Clinch	**6**	**VA, TN**	
Hiwassee (including Chatuge and Nottely Reservoirs)	**6**	**TN, AL**	
Elk	**7**	**TN, AL**	
Tennessee-Tombigbee Waterway[2]	**N/A**	**TN, MS, AL**	
Cumberland (including Cordell Hull Lake and Dale Hollow Lake)	**7**	**KY, TN**	
Red	**6**	**KY, TN**	

[1] The Holston River is not an interjurisdictional river, but it is formed by interjurisdictional tributaries.

[2] The Tennessee-Tombigbee Waterway is an interjurisdictional waterway that connects the Tennessee River to the Tombigbee River in the Mobile Drainage. The manmade divide cut that connects these two rivers is not in the USGS NHD flowline database and therefore no stream order is provided in the table.

Table 11. Select ecological and economic statistics for the Tennessee-Cumberland Rivers Sub-basin.

Tennessee/Cumberland Rivers Sub-basin	
Watershed (square miles)	58,800
Number of Interjurisdictional Rivers	17
Number of States in sub-basin	7
Number of Fish/Mussel Species	164/50
Number of Endangered Fish/Mussels	10/5
Recreational Fishery Value (millions)	$4,192.4
Annual Commercial Fishery Harvest (lbs.)	1,324,084
2011 Commercial Navigation (tons)	57,000

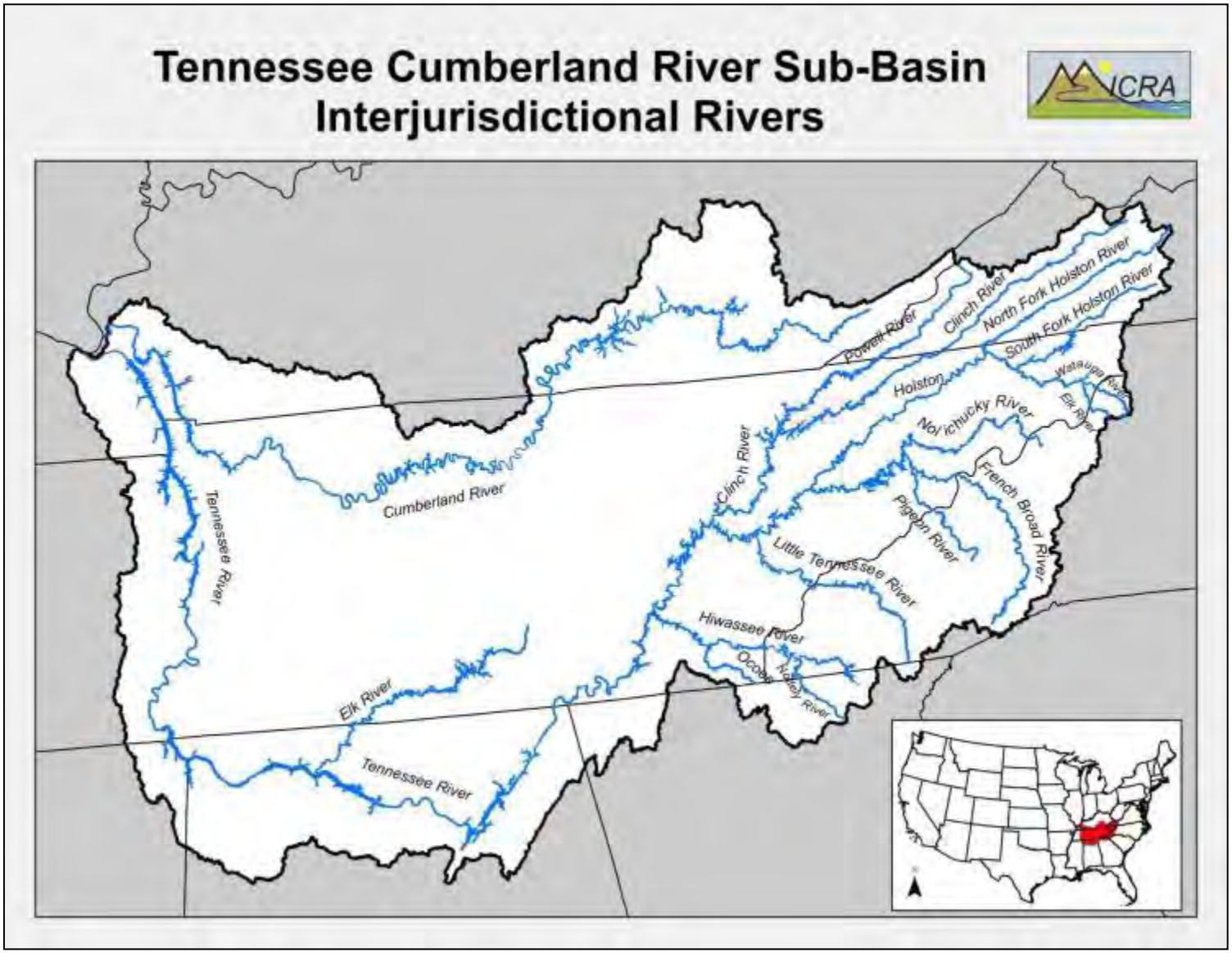

Figure 17. Select 6th order and larger interjurisdictional rivers of the Tennessee-Cumberland Rivers Sub-basin.

Upper Mississippi River Sub-Basin

Mississippi Interstate Cooperative Resource Association

Geography

The Upper Mississippi River (UMR) sub-basin drains approximately 189,000 square miles from eight states. The basin's namesake begins at Lake Itasca in northern Minnesota. The southern end of the sub-basin is the confluence of the Ohio River at the southern tip of Illinois, roughly 1,300 miles and over half of the length of the entire Mississippi River.

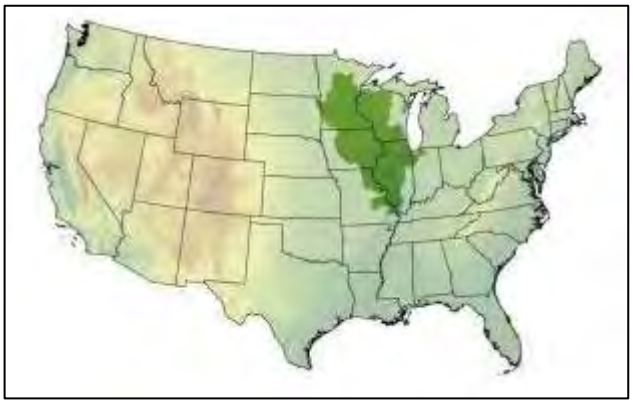

Figure 18. The Upper Mississippi River Sub-Basin, or watershed, includes rivers and lakes from 8 states.

A series of 29 commercially navigable locks and dams, most built in the 1930's, extend about 690 miles on the Mississippi River from Minneapolis, MN to St. Louis, MO. Locks and dams are also located on the Illinois River. Collectively, commercial navigation exists on > 1,200 miles of the UMR interjurisdictional rivers, carrying in excess of 201,000 tons of cargo annually (University of Kentucky and University of Tennessee, 2014).

The UMR also supports > 285,000 acres of federal refuges within its floodplain. Partner states manage another 140,000 acres of land along the river. These public lands contribute to a UMR visitation exceeding 10 million trips annually, more than most national parks, including Yellowstone. This dual commercial navigation and environmental land base contributed to Congress recognizing the Upper Mississippi River as a "nationally significant ecosystem and a nationally significant commercial navigation system" (WRDA 1986).

Economics

Commercial harvest of fish within the UMR sub-basin has averaged over 8.5 million pounds, resulting in an estimated value of > $2.049 million annually. The Mississippi River alone supports over 6.2 million recreational fishing trips annually within counties bordering the UMR generating over $448.6 million in estimated 2011 retail sales and $723.2 million in estimated 2011 industrial output (U.S. Fish and Wildlife Service: Division of Economics 2015).

Figure 19. Congress has designated the UMR as, "a nationally significant ecosystem and a nationally significant commercial navigation system." (WRDA 1986).

Problem Statement/Greatest Needs

The UMR is a large and dynamic ecosystem that has been greatly altered by commercial navigation, flood control, and land use throughout its watershed. The ecosystem remains under considerable stress and still faces many challenges, including sedimentation, nutrient loading, invasive species, altered hydrology and floodplain isolation. The UMR sub-basin's connection to the Great Lake via the Chicago Sanitary and Ship Canal poses a vector for inter-basin transfer of a variety of invasive species the poses a risk to the entire Mississippi River basin.

Habitat quality of the large rivers in the UMR sub-basin have been degraded due to commercial navigation, levee construction, urban development, and sedimentation from agricultural runoff. The impacts are not uniform throughout the sub-basin. For example, agricultural levees, which have reduced fishery access to critical floodplain habitats, are most pronounced in the states of IA, IL, and MO. However, sedimentation and impacts from commercial navigation and its maintenance are issues in all the states.

Figure 20. Sediment from the Root River, MN, entering the Mississippi River.

Existing Partnerships/Plans

Planning to protect and restore native fish species of the UMR sub-basin's interjurisdictional rivers has a long history involving many state and federal agencies and the public. The first comprehensive plans were recommendations developed by the forts Great River Environmental Action Team (GREAT) (GREAT 1980) which resulted in more environmentally acceptable dredging practices that protected fish and wildlife habitat. Many more plans have followed, some of which are briefly described under the accomplishments of the various UMR partnerships. All the planning efforts have built upon the experience and knowledge gained over even a relatively short time frame in what is often referred to as an adaptive management approach.
Several inter-agency partnerships exist within the UMR. The most notable partnerships are those established for coordinated management of the Mississippi River's ecosystem restoration and commercial navigation.

Upper Mississippi River Conservation Committee (UMRCC)

The UMRCC was established in 1943 with the purpose of conducting a 3-year fish survey. However, once the survey was completed, the biologists recognized the need for continuance of the organization to collectively address conservation issues. The UMRCC is comprised of UMR managers, biologists and scientists with several technical sections. In 2002, the UMRCC prepared a 50-year estimate of ecosystem restoration costs for the UMR and Illinois River (UMRCC 2002). This estimate was based on floodplain habitat needs presented in the Corps of Engineers Habitat Needs Assessment (USACE 2000) supplemented with needs identified in Environmental Pools Plans (River Resources Forum 2004) and used costs from completed projects to estimate future funding needs. The UMRCC Fisheries Technical Section developed a fisheries plan in 2010 (UMRCC 2010) to identify the needs and priorities for a healthy UMR fishery.

Upper Mississippi River Basin Association (UMRBA)

The UMRBA has been designated by Congress as the “caretaker of the master plan” (WRDA 1986). The master plan referred to is the Upper Mississippi River System Master Plan (Upper Mississippi River Basin Commission 1982), which provided justification that led to the authorization of the UMRR. The UMRBA is a regional interstate organization formed by the Governors of Illinois, Iowa, Minnesota, Missouri, and Wisconsin to coordinate the states' river-related programs and policies and work with federal agencies that have river responsibilities. UMRBA is involved with programs related to commercial navigation, ecosystem restoration, water quality, aquatic nuisance species, hazardous spills, flood risk management, water supply, and other water resource issues. The purpose of the Upper Mississippi River Basin Association is to facilitate dialogue and cooperative action regarding water and related land resource issues.

Upper Mississippi River Restoration (UMRR)

The Upper Mississippi River System Master Plan led to legislation authorizing the Upper Mississippi River System Environmental Management Program in WRDA 1986. EMP was initially authorized at $19.3 million for a period of 15 years. In 1999, EMP was reauthorized as a continuing authority with an appropriation limit of $33 million, however, since reauthorization, appropriations have averaged about $20 million per year. One third of the funding is allocated for Long Term Resource Monitoring with 2/3 allocated for Habitat Rehabilitation and Enhancement Projects on the Upper Mississippi River and Illinois Rivers. Restoration projects implemented under EMP where, and continue to be, selected by interagency teams of river managers who identify, nominate and sequence projects for implementation. Project planning and construction is led by the Corps of Engineers. Habitat projects are identified by resource managers throughout the system. The projects are sequenced through a hierarchy of interagency river teams geographically defined by the 3 Corps of Engineer Districts. The UMRR completed a Habitat Needs Assessment in 2000 to identify existing quality habitat and identify systemic needs for a variety of species (USACE 2000). An update of the Habitat Needs Assessment was initiated in 2016.

Corps of Engineer’s Regional Coordination

The UMR sub-basin lies within the boundaries of several Corps of Engineer Districts. Three of the districts, St. Paul, Rock Island and St. Louis, manage commercial navigation and environmental restoration on the Mississippi, Illinois, St. Croix, Kaskaskia, and Minnesota Rivers. Each of these districts has regional coordination teams established to solicit partnership expertise and input on a variety of issues.

Examples of Completed Habitat Restoration

The UMR Sub-basin partnership programs have led to the development and implementation of large river fisheries habitat restoration actions on the Mississippi and Illinois Rivers. The UMRR authorization has implemented 55 Habitat Rehabilitation and Enhancement Projects since 1986, accounting for the majority of fisheries related habitat work within the UMR sub-basin. Over half of the UMRR habitat projects have directly benefited interjusridictional fish. Additional improvements in habitat have been accomplished through other federal or state programs, but

to a much smaller scale and overall impact. However, even these restoration measures are not keeping up with the continued loss of habitat due to impacts of managing the UMR system for commercial navigation and impacts of sedimentation from upland sources.

The variety of techniques implemented under UMRR HREPs, and successful outcomes, provide examples of what can be done elsewhere within interjurisdictional rivers of the Mississippi River basin.

Figure 21: Restoration of habitat at Spring Lake, near Buffalo City, WI, is one example of the type of management actions implemented under authority of the Upper Mississippi River Restoration Program. Impoundment of the Mississippi River in the 1930's created many islands within the floodplain (1954). Over time, the islands eroded away, resulting in a loss of habitat quality for a variety of fish species (1991). Islands were constructed in 2005-2006 with sediments dredged from within a 600-acre backwater to restore habitat for a variety of fish species (2015).

Implementation Needs

Implementation mechanisms are in place for habitat management of aquatic resources. However, funding levels have often fallen below authorization amounts. Implementation needs for the UMR sub-basin include:

1. Full funding of the UMRR and COE channel maintenance programs would provide the ability to implement successful restoration projects at multiple scales.
2. Full funding of NRCS watershed initiatives to reduce sediment delivery to the Mississippi River and its tributaries would slow the loss of habitat and prolong the life of habitat projects under other authorities.

Partnerships that exist on the Mississippi River in this sub-basin do not have counterpart groups collectively working on the other rivers. Establishment of similar partnerships would promote greater coordination.

Table 10. Interjurisdictional rivers (6th order and larger) of the Upper Mississippi River Sub-basin.

Rivers	Stream Order	States	Tribal
Mississippi River	**10**	**MN, WI, IA, IL, MO**	
Minnesota (including Big Stone Lake)	**8**	**MN, SD**	
Whetstone	**6**	**SD, MN**	
St. Croix	**6**	**MN, WI**	
Chippewa[1]	**7**	**WI**	**x**
Black[1]	**6**	**WI**	**x**
Wisconsin[1]	**6**	**WI**	**x**
Rock	**7**	**IL, WI**	
Pecatonica	**7**	**IL, WI**	
Sugar	**6**	**IL, WI**	
Iowa[1]	**7**	**IA**	**x**
Des Moines	**7**	**IA, MN, MO**	
Illinois[2]	**8**	**IL**	
Kankakee	**6**	**IN, IL**	
Iroquois	**6**	**IN, IL**	
Fox	**6**	**WI, IL**	
Missouri	**9**	**MO, NE, SD, ND, MT, IA, KS**	**x**

[1] The Chippewa, Black, Wisconsin, and Iowa rivers flow through tribal lands.

[2] The Illinois River is not an interjurisdictional river, but it is formed by interjurisdictional tributaries.

Table 11. Select ecological and economic statistics for the Upper Mississippi River Sub-basin.

Upper Mississippi River Sub-basin	
Watershed (square miles)	189,000
Number of Interjurisdictional Rivers	16
Number of States within Sub-basin	8
Number of Fish/Mussel Species	150/38
Number of Endangered Fish/Mussels	1/4
Value of Recreational Fishery (millions)	$5,690.1
Value of Commercial Fisheries (millions)	$2.049
Commercial Fisheries Harvest (lbs.)	8,491,925
2011 Commercial Navigation (tons)	201,000

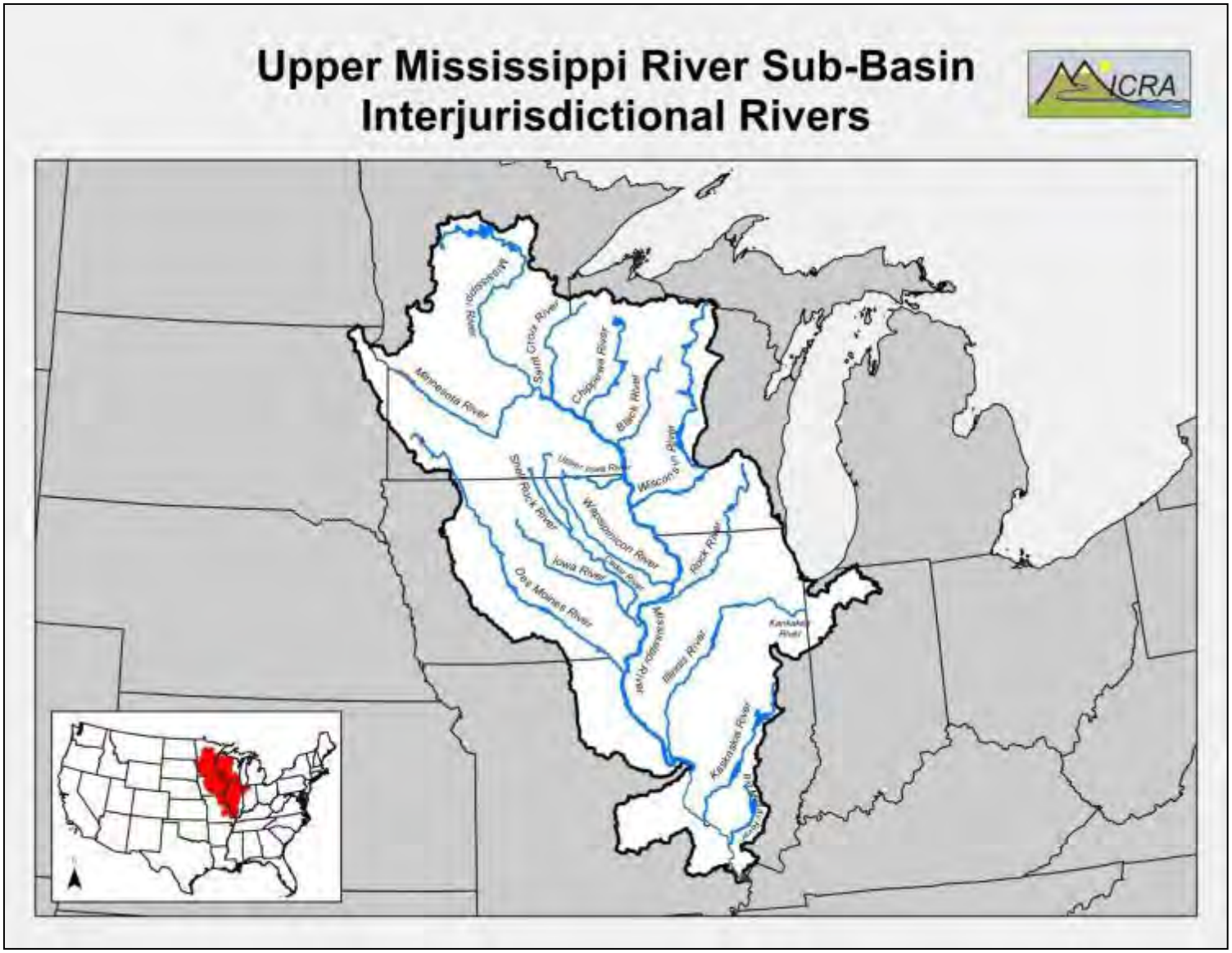

Figure 22. Select 6th order and larger interjurisdictional rivers of the Upper Mississippi River Sub-basin.

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Appendix – Potential Management Actions and Example Projects for Implementation by MICRA Sub-basin

Restoration Objective	Recommended Management Strategies	Potential Management Actions	Arkansas-Red-White Example Projects	Lower Mississippi River Example Projects	Missouri River Example Projects	Ohio River Example Projects	Tennessee-Cumberland Example Projects	Upper Mississippi River Example Projects
Maintain and enhance high quality habitats and habitat diversity	• Avoid and minimize degradation of aquatic habitats through best management practices for watershed management, shoreline stabilization, channel training structure modifications, and acquisition of land/easements from willing private landowners • Enhance and restore secondary channels, off-channel aquatic areas, and other critical habitats (e.g., cross- overs; riffle pools; mussel beds; isolated wetlands; spawning, nursery, and over-winter habitat; etc.) requiring special protection or acquisition to increase habitat diversity	• Acquisition/Easements from willing landowners • Aeration channels/culverts • Aquatic vegetation/trees • Avoid and minimize impacts of dikes on sedimentation over gravel bars • Avoid closure dikes in secondary channels • Avoid impacts to tributary mouths • Bank stabilization • Closing structures • Construct chevrons • Construct hardpoints • Construct isolated wetlands • Construct/restore gravel bars • Construct/restore islands • Dechannelization • Dredging • Embankment modifications • Fluctuation zone seeding • Forest management • Improve littoral zone habitat • Levee setbacks • LUNKER structures • Modification/removal of channel training	• ***AR**: Restore five oxbow lakes (Clark Creek, Tubbs Creek, Hicks, Deep Bank, and Horseshoe) in the lower White River using low- crest weirs* • ***LA**: Utilize selective herbicides to treat invasive aquatic vegetation in Red River Raft lakes to enhance fish and mussel habitat* • ***LA**: Reforest bottomland hardwoods and restore native plant communities in the Red River National Wildlife Refuge* • ***AR**: Conduct habitat enhancement projects throughout the range of the Ouachita rock pocketbook and Rabbitsfoot mussels* • ***AR**: Perform 200 dikes notches identified during the Arkansas River navigation study* • ***CO**: Improve trout habitat on Grape Creek in the Arkansas River sub-basin within 1 mile both above and below DeWeese Reservoir using boulder and log structures* • ***OK**: Notch dikes along Arkansas River Navigation System identified during the*	• ***AR**: Perform 200 dikes notches identified during the Arkansas River navigation study* • ***AR**: Island 25 Bend; Increase flow through Bend of Island 25 point bar to increase depth diversity and water quality (AR03)* • ***KY**: Wolf Island Secondary Channel, Restore connectivity and flow to Wolf Island secondary Channel (KY07)* • ***LA**: Wilson Point Dikes; Improve habitat diversity within the Wilson Point dikes. (LA04)* • ***MO**: Donaldson Point; Enhance flow through the dikes in the area east of Donaldson Point. (MO11)* • ***MS**: Old White River Chute; Restore flow into Old White River Chute to improve habitat diversity. (MS31)* • ***TN**: Armstrong Bar Hydrology; Restore the secondary channel behind Armstrong Bar dikes and reconnect the channel to the river. (TN27)*	• ***NE, IA, KS, MO:** Evaluate current side channel habitat entrance/exit structures for larval drift capture.* • ***NE, IA, KS, MO:** Modification of existing training structures to enhance larval drift and fish passage.* • ***MT**: Continuation of Channel Migration Easement program to pay landowners to preclude bank hardening in order to allow natural channel migration in the lower Yellowstone River. First agreement about to be signed with a landowner near Sidney, MT.* • ***NE, IA, KS, MO:** Renewed emphasis on 100,000 acres of mitigation habitat authorized by WRDA still owed to Missouri River Basin states.* • ***IA, NE:** Continuation of Revetment lowering projects such as at Lower Decatur (Missouri River Mile 687) and Three Rivers (Missouri River Mile 670)* • ***IA:** Continuation of channel widening projects such as Deer Island (Missouri River*	• ***OH**: ORM 373.2-372, 358.3-357, 226.2-225.5 T Dikes* • ***PA**: ORM 1.6-2.4 Brunot Island Backchannel Habitat Restoration* • ***PA**: ORM 20.0-22.0 Ohio River shallow water creation and enhancement* • ***PA**: ORM 20.0-21.0 Deepwater pool habitat enhancement* • ***WV**: ORM 288.2-287.8 Greenbottom revetments* • ***WV**: ORM 126.9 Hannibal Dam Tailwaters revetments* • ***IL**: ORM 902.3 Lusk Creek Embayment* • ***IL**: ORM 911 Barren Creek Embayment* • ***IN**: ORM 840.7 Hovey Lake restoration* • ***IN**: ORM 494.8 Tanners Creek Embayment* • ***KY**: ORM 530.3 Craigs Creek Embayment* • ***WV**: ORM 147.8 Bens Run Embayment 1 and 2*	• ***TN**: Highest priority sub- basins projects to maintain quality freshwater mollusk habitats are: Upper Duck, Upper Elk, Collins, South Fork Cumberland, Emory, Obey, Sequatchie, Stones, Holston, and Lower French Broad rivers* • ***TN**: Highest priority sub- basins projects to restore freshwater mollusk habitats from altered hydrological impacts are: Upper Clinch, Powell, North Fork Holston, Upper Duck, Upper Elk, South Fork Cumberland, Lower Tennessee, Lower Clinch, and Holston rivers* • ***TN**: Be proactive in establishing watershed organizations to foster appropriate land use and other human interaction on the landscape* • ***TN**: Design in-stream flow prescriptions for tributaries at risk of excessive water withdrawal*	• ***MN**: RM 747: Weaver Bottoms, Pool 5: restore/enhance bathymetric diversity by dredging an historic backwater lake* • ***MN**: RM 827: Grey Cloud Slough Reconnection, Pool 2: restore water flow into Grey Cloud Slough by installing a bridge to replace plugged culverts* • ***MN**: RM 798: Lower Vermillion River Water Quality and Aquatic Habitat Enhancement Project, Pool 4: improve water quality and aquatic vegetation abundance and diversity by restricting common carp access to backwater lakes through restoration of floodplain levees* • ***IA**: RM 667: Conway Lake HREP, Pool 9: restore and enhance fisheries and waterfowl habitat by enhancing bathymetric diversity by dredging.* • ***IL**: RM568: Pool 12 Overwintering HREP: restore and enhance fisheries and waterfowl habitat by enhancing bathymetric diversity by dredging.* • ***WI**: St. Croix River: installation of 200 fish*

Restoration Objective	Recommended Management Strategies	Potential Management Actions	Arkansas-Red-White Example Projects	Lower Mississippi River Example Projects	Missouri River Example Projects	Ohio River Example Projects	Tennessee-Cumberland Example Projects	Upper Mississippi River Example Projects
		structures • Modification of dam operations • Partial closing structures • Restore secondary channels • Riffle/pool structures • Sediment traps • Seed Islands • Shoreline stabilization • Substrate modification (i.e., convert from silt to gravel) • Tree drops/woody structure • Wing dam notching	*navigation study. Primarily those areas identified above L&D 17* • ***OK**: Application of specific herbicide or other treatments to eradicate alligator weed in the Arkansas River system* • ***TX:** Utilize herbicides and biological control to treat invasive aquatic vegetation.* • ***TX:** Deploy artificial fish habitat structures to improve available fish habitat in reservoirs.*		*Mile 672).* • ***NE**: Renewed emphasis on increasing floodplain connectivity such as Highway 2 setback near Nebraska City, NE.* • ***NE:** reconnect chute behind Islands #4* • ***Basin Wide:** Educate the public on the economic benefits of a healthy Missouri River ecosystem which can return more ecosystem goods and services than the present management model and reduce repetitive federal bailouts by the U.S. taxpayer which have been running in the billions.* • ***NE, IA, KS, MO:** Educate the public on the outdoor recreational opportunities provided by 61,000 aces of mitigation lands open to the public in the four lower states.*			*cribs per year placed in colonies in Lake St. Croix*

Appendix – Potential Management Actions and Example Projects for Implementation by MICRA Sub-basin

Restoration Objective	Recommended Management Strategies	Potential Management Actions	Arkansas-Red-White Example Projects	Lower Mississippi River Example Projects	Missouri River Example Projects	Ohio River Example Projects	Tennessee-Cumberland Example Projects	Upper Mississippi River Example Projects
Manage sediment transport	• Support watershed initiatives to reduce/eliminate watershed induced degradation of aquatic habitats and ecosystem functions • Promote restoration of a sediment transport regime such that transport, deposition, and erosion rates are within acceptable limits	• BMPs • Acquisition/easements • Buffer strips • Islands • Breakwaters • Sediment traps • Dechannelization • Restore tributary mouth • Minimize gravel dredging permits	• ***AR**: Restore the Rector Brake backwater of the Arkansas River* • ***AR**: NER Alternative F, Sediment control at the mouth of the Cache River* • ***AR**: Conduct stream bank restoration projects along the Red River near Spring Bank Ferry*	• ***AR**: Restore the Rector Brake backwater of the Arkansas River* • ***AR**: Island 88; Deepen the mouth of the oxbow channel behind Island 88 unless it will drain water from the lake. (AR57)* • ***KY**: Putney Bend Dikes; Increase flow through two Putney Bend dikes at the head of the sandbar to maintain depth diversity. (KY05)* • ***LA**: Browns Field Dikes; Increase flow through* • *Brown's Field dikes that would maintain the slack water habitat along the main channel. (LA24)* • ***MO**: Old and New #7 Chutes; Increase depth diversity of Old #7 Chute. Reduce sedimentation into the chutes. (MO08)* • ***MS**: Rodney Lake Assessment; Restore hydrology in the lake. Reduce sedimentation and enhance depth diversity. Protect the population of Potamilus capax in the chute. (MS65)*	• ***NE, SD**: Lewis and Clark Lake Study* • ***Basin Wide:** Missouri River Recovery Program efforts* • ***SD**: Support projects identified through WRDA 2000 Title IX Sedimentation Task Force. Directs and develops projects reducing or addressing sedimentation issues on the Missouri River.* • ***ND**: Support projects identified through WRDA 2000 Title VII Sedimentation Task Force. Directs and develops projects reducing or addressing sedimentation issues on the Missouri River.* • ***KS, MO:** Bed degradation study in the Kansas City Reach of the Missouri River.* • ***NE, SD**: Sedimentation study in the 39 mile and 59 mile reaches of the Missouri National Rec River, especially at the mouth of the Niobrara River.* • ***MT, ND, SD, NE:** Study Hydro-Peaking along the dams in the Missouri River to look for alternatives for more natural sediment*		• ***TN**: Highest priority sub- basins projects to restore freshwater mollusk habitats from sediment related impacts are: Upper Clinch, Powell, North Fork Holston, Upper Duck, Upper Elk, South Fork Cumberland, Lower Tennessee, Lower Clinch, and Holston rivers* • ***TN**: Riparian restoration projects in tributaries* • ***TN**: Work with NRCS to identify and promote participation in private land conservation programs*	

Appendix – Potential Management Actions and Example Projects for Implementation by MICRA Sub-basin

Restoration Objective	Recommended Management Strategies	Potential Management Actions	Arkansas-Red-White Example Projects	Lower Mississippi River Example Projects	Missouri River Example Projects	Ohio River Example Projects	Tennessee-Cumberland Example Projects	Upper Mississippi River Example Projects
				• ***TN**: Island 35/Densford Bar Acquisition; Acquire Island 35. Restore habitat diversity in several disjunct channel between the river and levee on the AR bank. (TN20)*	*transport.*			

Appendix – Potential Management Actions and Example Projects for Implementation by MICRA Sub-basin

Restoration Objective	Recommended Management Strategies	Potential Management Actions	Arkansas-Red-White Example Projects	Lower Mississippi River Example Projects	Missouri River Example Projects	Ohio River Example Projects	Tennessee-Cumberland Example Projects	Upper Mississippi River Example Projects
Restore main stem and tributary hydrology	• Implement changes to dam operating procedures and water level management techniques that facilitate more natural hydrographs and temperature regimes (i.e., reduced daily fluctuations) • Develop and implement watershed management actions to facilitate more natural hydrographs	• Pool-wide water level management • More frequent operation of gates • Tributary wetland restoration • Urban runoff retention ponds • Buffer strips • Reduction in hydro- power peaking • Minimize severe fluctuations during spawning periods • Modification of intake structures and water release regimes at coldwater tailrace releases	• ***LA**: Operate Lock and Dams 1 through 5 on the Red River to derive maximum full pool benefits* • ***AR**: Develop an instream flow agreement on the Fourche La Fave River, a tributary of the Arkansas River, to enhance alligator gar spawning habitat* • ***OK**: Treatment of phosphorous discharge from Lake Francis into Illinois River designed to reduce limits to within acceptable state standards* • ***OK**: Modification of existing water release regimes at coldwater tailraces, including the Lower Illinois River, to improve downstream water quality conditions*	• ***AR**: Basket Bar; Enhance habitat diversity below dikes. Enhance flow to side channel. (AR18)* • ***KY**: Mayfield Creek; Improve access to Mayfield Creek by removing sediment plug near the mouth of the creek. (KY01)* • ***LA**: Natchez Island Dikes; Increase flow through dike field. (LA30)* • ***MO**: Birds Point Sandbar; Enhance flow through a series of dikes near the mainland to isolate the sandbar from the mainland to benefit least tern nesting. Increase flow through a secondary channel. (MO01)* • ***MS**: Black Bayou; Assess the need to restore habitat diversity in Back Bayou Drainage Ditch. (MS36)* • ***TN**: Mouth of Hatchie River Acquisition; Install grade control structures to control headcutting that is occurring in the Hatchie River. (TN18)*	• ***MT**: Ft. Peck warm-water release studies* • ***MT, ND, SD, NE:** Study Hydro-Peaking along the dams in the Missouri River to look for alternatives for more natural sediment transport and flows.* • ***NE**: Protect instream flows on the lower Platte River and Niobrara River in Nebraska for the fish communities to include pallid sturgeon, least tern, and piping plover. Protect flows for whooping crane on the lower Niobrara. Both rivers are important tributaries to the Missouri River.* • ***NE**: Enhance connectivity of the floodplain to the river, especially on mitigation projects and increase wetlands to help absorb excessive nutrients in the river (Highway 2 setback at Nebraska City, NE).* • ***SD**: Study Hydro-Peaking below Fort Randall Dam where flows frequently go to zero in the Missouri National Recreation River 39-mile reach.*		• ***TN**: Highest priority sub-basins projects to restore freshwater mollusk habitats from altered hydrological impacts are: Upper Clinch, Powell, North Fork Holston, Upper Duck, Upper Elk, South Fork Cumberland, Lower Tennessee, Lower Clinch, and Holston rivers* • ***TN**: Identify and fund TNSMP projects*	***IA**: RM 432: Blackhawk Bottoms, Pool 19: restore/increase habitat diversity (aquatic and terrestrial) through capturing the flow of a small creek for moist soil management, increasing topographic diversity and water level management within the Blackhawk Bottoms. The area will inundate from the Mississippi and the small creek to provide fish spawning areas*

Appendix – Potential Management Actions and Example Projects for Implementation by MICRA Sub-basin

Restoration Objective	Recommended Management Strategies	Potential Management Actions	Arkansas-Red-White Example Projects	Lower Mississippi River Example Projects	Missouri River Example Projects	Ohio River Example Projects	Tennessee-Cumberland Example Projects	Upper Mississippi River Example Projects
Restore hydraulic and habitat connectivity	• Enhance lateral connectivity to the current and historic floodplain using a variety of techniques on publicly owned properties and willing private ownerships • Increase longitudinal migration opportunities for fish through changes in dam operations and fish passage structures at dams and other human induced barriers	• Fish passage structures/measures • Levee modification • Levee removal • Dechannelization • Dredging • Aeration channels/culverts • Channel formation • Change in moist soil operating plans • Modify water intake structures to reduce or eliminate entrainment and impingement	• ***AR**: Re-establish connectivity to the Coal Pile backwater, Arkansas River* • ***AR**: Install fish ladders for American eel on Dam 2 of the Arkansas River, Montgomery Point Lock and Dam on the White River, and the Huxtable pumping plant* • ***AR**: NER Alternative G, Restoring connectivity in lower portion of the Cache River* • ***AR**: Install large box culverts at road crossings along the Sulphur River, a tributary of the Red River, to improve connectivity to upstream alligator gar spawning habitat* • ***CO**: Restore connectivity of the Arkansas River in the lower Arkansas River between Pueblo and John Martin Reservoir where diversion structures create barriers to native fish movements and reproductive strategies, with a focus on Plains Minnow recovery. Prioritize barriers, and develop strategies for removal or retrofitting with fish passages*	• ***AR**: Re-establish connectivity to the Coal Pile backwater, Arkansas River* • ***AR**: Install fish ladders for American eel on Dam 2 of the Arkansas River, Montgomery Point Lock and Dam on the White River, and the Huxtable pumping plant* • ***AR**: Corona Lake; Install a weir at lower end of the lake to maintain water level. (AR10)* • ***LA**: Old River RM503; Restore hydrology and connectivity to maintain seasonal connection at Old River. (LA03)* • ***MO/KY**: Channel Behind Wolf Island; Restore flow through the small secondary channel on the MO/KY state line. (MO05/KY08)* • ***MS/LA**: Bunch's Cutoff; Restore hydrology and connectivity to maintain seasonal river connection. Protect a least tern nesting area at RM 503. (MS44/LA02)* • ***TN**: Robert E. Everett Lake. Reconnect the lake to the river. (TN06)*	• ***IA**: Continuation of top width widening and levee setbacks such as at Deer Island and Copeland Bend* • ***MO**: Removal of Lock and Dam 1 on Osage River* • ***MO:** Notch Island 1 dikes for backwater flow* • ***MO**: Lake of the Ozarks barrier net* • ***MT**: Modification of Yellowstone River Intake Diversion structure* • ***IA, KS, MO, NE**: Acquire an additional 200,000 acres of high risk, flood prone meander belt/floodplain habitat to facilitate floodwater conveyance and connectivity in areas that are pinch points for flow, especially between Sioux City and Kansas City.* • ***IA, KS, MO, NE**: Identify pinch points by river mile between Sioux City, IA and Saint Louis, Mo. Educate the public on the advantages of the federal levee setback at Copeland Bend in western Iowa near Nebraska*	• ***IN**: ORM 813.1 Logsden-Stroud Branch Embayment / Frenchmans Slough*	• ***TN**: Highest priority sub-basins projects to restore freshwater mollusk habitats from altered hydrological impacts are: Upper Clinch, Powell, North Fork Holston, Upper Duck, Upper Elk, South Fork Cumberland, Lower Tennessee, Lower Clinch, and Holston rivers* • ***TN**: Low head dam inventory and prioritization for removal*	***IA**: Rock Creek: remove two low head dams to allow upstream fish passage in the Little Cedar River watershed; a tributary to the Cedar River*

Appendix – Potential Management Actions and Example Projects for Implementation by MICRA Sub-basin

Restoration Objective	Recommended Management Strategies	Potential Management Actions	Arkansas-Red-White Example Projects	Lower Mississippi River Example Projects	Missouri River Example Projects	Ohio River Example Projects	Tennessee-Cumberland Example Projects	Upper Mississippi River Example Projects
			structures • ***KS**: Improve fish passage over the 21st dam in the City of Wichita, reconnecting over 150 miles of the Arkansas River upstream of Wichita to Great Bend* • ***KS**: Utilize small stream culvert passage in much of the Arkansas Basin similar to projects previously completed in the Red Hills near Medicine Lodge* • ***OK**: Study to implement methods to prevent fish stranding below dams. (Grand River below Fort Gibson, tributary to Arkansas River)*		*City, Nebraska.*			

Appendix – Potential Management Actions and Example Projects for Implementation by MICRA Sub-basin

Restoration Objective	Recommended Management Strategies	Potential Management Actions	Arkansas-Red-White Example Projects	Lower Mississippi River Example Projects	Missouri River Example Projects	Ohio River Example Projects	Tennessee-Cumberland Example Projects	Upper Mississippi River Example Projects
Restore floodplain geomorphology/landforms	• Restore or construct floodplain landforms (e.g., islands, seed islands, chevrons, reefs, etc.) in locations where floodplain structural diversity is needed to increase variability in flow patterns, sediment composition, bathymetry, and reductions in wind fetch • Increase the area of naturally functioning floodplain through acquisition and restoration of bottomland hardwoods, wetlands, and other floodplain habitats	• Acquisitions/easements from willing sellers • Bank protection • Bottomland forestry management • Bottomland vegetation management • Dredging • Island restoration/construction • Modification/removal of channel training structures • Procure batture land • Restore borrow pits • Restore lakes and backwaters • Seed islands		• ***AR****: Swan, Deep and Ozark Lakes; Rehabilitate habitat in the lakes. (AR39)* • ***KY****: Upper Island 1 Dikes (Backwater); Increase flow through Island 1 dikes and into a backwater. (KY02)* • ***LA****: Red River WMA Borrow Pits; Install gates/culverts in borrow pits on the Union Point Field property on the Red River to maintain water levels. (LA34)* • ***MO****: Near Little Cypress Bend; Deepen and diversify habitat in Twin Borrow Pits. Reduce siltation into the water bodies. Located on MDC property. (MO18)* • ***MS****: Yucatan Lake; Restore access to the lake from the river. Remove woody debris at the entrance, Project could include Middle Ground Island. (MS61)* • ***TN****: Shelby Forest Lakes; Opportunities near Corona Lake Complex, Island 37, and Centennial Island. Enhance a wetland complex encompassing Corona Lake and*	• ***IA, KS, MO, NE****: Modify or remove training structures within the channel to facilitate sand bar island deposition and other lost in-channel habitats.* • ***IA, KS, MO, NE****: Construct lost wetland and backwater habitats through the WRDA authorized 100,000 Mitigation acres still owed to the basin states.* • ***IA, KS, MO, NE****: Increase flow conveyance on the floodplain between large cities to assist with flood risk reduction and the extremes of anticipated climate change such as changes in runoff patterns and more frequent flooding.* • ***Basin Wide****: The Flood of 2011 satellite photo footprint should be studied to identify high risk, flood prone lands which could be acquired through the mitigation program under existing authorities and a willing seller basis.*	• ***IL****: ORM 928.0 Cottonwood Bar least tern habitat restoration* • ***KY****: ORM 784-780 Scuffletown Bottomland Hardwood restoration* • ***KY****: ORM 396 Lewis County Bottomland restoration* • ***OH****: ORM 356.5 Scioto River Floodplain* • ***OH****: ORM 223-225 Big Bend Floodplain*	• **TN**: Highest priority sub-basins projects to restore freshwater mollusk habitats from altered hydrological impacts are: Upper Clinch, Powell, North Fork Holston, Upper Duck, Upper Elk, South Fork Cumberland, Lower Tennessee, Lower Clinch, and Holston rivers • **TN**: River channel restoration • **TN**: TSMNP projects	• ***MN****: RM 695: Lower Root River Delta Restoration Project, Pool 8: restore/enhance floodplain habitat in the Root River delta by removing levees and restoring floodplain forests and wetlands.* • ***MN****: RM 797-807: North/Sturgeon Lake HREP, Pool 3: improve habitat diversity and quality by conducting a drawdown, building islands and dredging.* • ***IA****: RM 671: Upper Iowa River re-meandering, Pool 9: restore the meander to increase habitat diversity (aquatic and terrestrial) on the lower 4 miles of the channelized part of the Upper Iowa River and improve the river delta.* • ***IA****: RM 653: Harpers Slough HREP, Pool 9: restore and enhance fisheries and waterfowl habitat by enhancing bathymetric diversity by dredging and reestablishing islands that have eroded away. This project should affect a minimum of 1,877 acres*

Restoration Objective	Recommended Management Strategies	Potential Management Actions	Arkansas-Red-White Example Projects	Lower Mississippi River Example Projects	Missouri River Example Projects	Ohio River Example Projects	Tennessee-Cumberland Example Projects	Upper Mississippi River Example Projects
				Brandywine Chute, and reconnect Brandywine Chute to the river. (TN22; see AR10 and AR11)				

CONSTITUTION and BY-LAWS
of the
MISSISSIPPI INTERSTATE COOPERATIVE RESOURCE ASSOCIATION

(Adopted 11/7/03; Revised April 2010)

CONSTITUTION

Preamble

The conservation agencies of twenty-eight (28) states; encompassing the waters and drainages of the Mississippi River and its tributaries, the U.S. Fish and Wildlife Service, Tennessee Valley Authority, Chippewa Cree Tribe, Chickasaw Nation Agency, Bureau of Reclamation, and the U.S. Geological Survey; have entered into an agreement, the Mississippi Interstate Cooperative Resource Agreement (Agreement), to facilitate cooperative management of these resources. Parties to the Agreement formed an Association (i.e., partnership organization) that meets periodically to facilitate discussion, establishment of cooperative projects, and policy development between the states or between the states and the federal agencies and other entities. The Association is operated and controlled by representatives of state and federal government agencies acting in their official capacities.

The following Articles of this Constitution describe, define, and delineate the Association's organizational structure and functions, as well as the roles of agencies and entities signatory to the Agreement.

Article I - Name

The agencies and entities signatory to the Agreement shall be called the Mississippi Interstate Cooperative Resource Association, hereafter referred to as MICRA.

Article II - Mission and Goals

The MICRA Mission shall be to improve the conservation, development, management, productivity and utilization of interjurisdictional fishery resources (including freshwater mussels) in the Mississippi River Basin.

Article III - Relationship to Others

In recognition of the several existing compacts, committees, commissions, and councils coordinating activities on the Mississippi River and its tributaries, MICRA shall recognize and embrace these existing groups in a manner that will honor their long standing status and missions while at the same time, striving to join together all those agencies and entities that have jurisdiction and responsibilities for the Mississippi River Basin's fishery resources.

Article IV - Membership, Meetings, and Dues

1) Membership shall consist of voting and non-voting delegates.

    a. Each state and federal agency who is a signed party to the Agreement will be represented on MICRA by one voting delegate.

    b. Parties to the Agreement that are not associated with a state or federal government agency will be represented on MICRA by one non-voting delegate.

    c. New association members may be added with the approval of a 3/4 majority of MICRA voting delegates.

2) Delegates appointed by members will have a knowledge of and interest in riverine resources and authority to make decisions on behalf of the represented member agency or entity within the constraints of policies and financial limitations of the respective agency or entity.

3) Annual MICRA meetings may be held at a time and place determined by the Chairperson in consultation with the Executive Board. Special meetings may be called at the request of a majority of the members, or by the Chairperson.

4) Funding for MICRA's administration, coordination activities, and cooperative projects will be sought from a variety of sources, including voluntary membership dues. Payment of dues will not, however, be a condition of membership. An annual contribution of $1,500 by each State agency and $5,000 by each Federal agency is, however, recommended.

5) If the Association is dissolved, its assets will be distributed among the state and federal agency members who contributed annual dues. The distribution of assets will be in proportion with the members' level and frequency of contributions to the Association.

Article V - Officers, Executive Board, Committees and Sub Committees

1) MICRA officers shall include a Chairperson and a Chairperson-Elect.

    Officers shall be elected from among state and federal agency members to serve two-year terms by a simple majority of vote of MICRA delegates. A candidate for Chairperson-Elect will be nominated during odd numbered years by one of the sub-basin organizations comprising the Executive Board, or anytime the position is vacated. Responsibility for nominating a candidate for Chairperson-Elect will be rotated among the sub-basin organizations comprising the Executive Board. Two-year terms of office for the incoming Chairperson and Chair-Elect shall begin on

January 1 of even years (e.g., January 1, 2010 through December 31, 2011). The Chairperson-Elect will automatically accede to the office of Chairperson upon completion of his/her term or to fill an unexpired vacant term of the Chairperson.

2) The Executive Board shall consist of:

   a. One State agency member from each of the following sub-basin groups:

      - Upper Mississippi River Conservation Committee (UMRCC),
      - Lower Mississippi River Conservation Committee (LMRCC),
      - Missouri River Natural Resources Committee (MRNRC),
      - Ohio River Fish Management Team (ORFMT),
      - Arkansas River Conservation Committee (ARCC),
      - Tennessee River Fish Management Group (TRFMG),

      Sub-basin representatives shall be appointed by their six respective sub-basin groups. In the absence of a sub-basin group appointment, the respective MICRA sub-basin delegates will appoint a sub-basin representative. The Chairperson-Elect may also serve as a sub-basin representative on the Executive Board if appointed to serve in that capacity by the respective sub-basin.

   b. Two members representing different Federal agencies.

      MICRA delegates shall elect by a simple majority vote, two federal agencies to serve on the Executive Board for concurrent 5-year terms. Federal agencies may be elected to serve consecutive terms on the Executive Board. The elected agencies will be asked to appoint a representative to the Executive Board.

   c. The MICRA Chairperson and Coordinator will serve as non-voting Executive Board members.

3) The Executive Board will advise the Chairperson and oversee MICRA's general business. The Chairperson and Chairperson-Elect shall serve the needs of the Executive Board.

4) The Executive Board will meet at least once annually at a time and place selected by the Chairman in consultation with Executive Board members.

5) The U.S. Fish and Wildlife Service will appoint a Coordinator/Executive Secretary, with approval of the Executive Board, to assist in forwarding MICRA's goals and objectives.

6) Technical Committees may be established by a simple majority vote of MICRA delegates or by consensus of the Executive Board to carry out specific continuing

assignments. Technical Committees will be terminated or considered inactive by consensus of the Executive Board.

7) The Chairperson is authorized to appoint Ad Hoc Subcommittees to carry out specific short-term assignments. The Chairperson will terminate the sub-committee upon completion of the assigned task.

Article VI - Procedures

1) Roberts Rules of Order shall guide the conduct of all MICRA and Executive Board meetings.

2) Motions and seconds may be made only by Delegates.

3) The presence of seventeen Delegates shall constitute a quorum at the MICRA meetings. Votes may be conducted through mail ballot, e-mail, or teleconference. Seventeen actively voting members will constitute a quorum for conducting MICRA business through mail ballot, e-mail, or teleconference. A simple majority is required for approval of general business matters. A supporting 3/4 majority of the voting members is required on resolutions, policy or position statements.

4) A quorum of an Executive Board meeting will be six (6) voting Executive Board members. The Executive Board may pass resolutions or adopt policy and position statements for MICRA only through a consensus vote of the Executive Board. The Executive Board may elevate any action item, position statement or policy position deemed appropriate to the full MICRA membership for a vote.

5) The MICRA Constitution and By-Laws may be amended by a 3/4 majority vote of all MICRA members.

6) Delegates may assign their vote to alternates by informing the Chairperson prior to any meeting of their intention to do so.

7) Resolutions, policy, and position statements must be distributed to the Executive Board and/or MICRA members at least 30 days prior to a vote.

Article VII - Support of State Positions and Consensus Decisions

MICRA will be supportive of State positions, or at least neutral to issues that could significantly affect a member State. MICRA will strive to operate under consensus in undertaking projects affecting resources under the jurisdiction of any member State or entity.

BY-LAWS

1. Duties and Responsibilities of Officers

a. Chairperson - The MICRA Chairperson speaks for and is responsible for MICRA business, makes appointments to MICRA Committees, and exercises such other functions as may be determined from time to time by member actions. The Chairperson shall preside at Executive Board and MICRA meetings. Upon taking office, the Chairperson shall appoint individuals to serve concurrent terms as Chairperson of each of MICRA's Technical Committees, or as needed to fill a vacancy during the term of office. Technical Committee chairs can be re-appointed to serve concurrent terms.

b. Chairperson-Elect - The MICRA Chairperson-Elect shall assume the duties of the Chairperson in the Chairperson's absence or inability to act. The Chairperson-Elect shall be prepared to take over duties of the Chairperson when acceding to that office, or in the Chairperson's absence, including appointments to Ad-Hoc Subcommittees.

c. Coordinator/Executive Secretary - The Coordinator/ Executive Secretary shall assist the Chairperson and other officers and members in furthering MICRA goals and objectives, coordinating activities among members and with other agencies, entities and the public, as directed. The Coordinator/Executive Secretary's responsibilities shall include:

- serving as MICRA administrative secretary and conducting MICRA's day to day business;
- maintaining permanent administrative records of all MICRA activities and other publications;
- preparing a newsletter containing current information about MICRA activities and other matters of importance in furthering MICRA goals and objectives;
- facilitating development and maintenance of a comprehensive strategic plan for management of interjurisdictional fishery resources of the Mississippi River Basin, and other plans as deemed important by MICRA;
- preparing minutes of MICRA meetings;
- preparing an annual budget;
- maintaining a membership roster;
- hiring and supervising other staff, as directed by the Executive Board; and
- serving as the Chairperson's representative at meetings, conferences, hearings, and other appearances to further MICRA's purposes. Statements presented at legislative hearings must have been approved by the Executive Board or MICRA membership.

2. Responsibilities of Delegates, the Executive Board, and Subcommittees

a. Delegates - Delegates or their designates are expected to meet at least once annually to conduct MICRA business.

b. Executive Board - The Executive Board shall oversee MICRA operations. Meetings will be called on an "as needed" basis. A full report of Executive Board actions will be made available to MICRA by the Chairperson. The Executive Board shall be responsible for supervising activities of the Coordinator/Executive Secretary, in cooperation with the U.S. Fish and Wildlife Service.

c. Technical Committees - Technical committees shall develop technical information, develop management strategies and plans, develop research proposals, and assist in coordination and implementation of cooperative research and management projects at the direction and approval of the Executive Board. Committee chairpersons shall be responsible for guiding technical committee work and activity, including the appointment of ad hoc or subcommittees assigned to address various technical committee issues. Technical Committee chairs may be requested to attend periodic Executive Board meetings.

3. Order of Business

The order of business at Annual MICRA Meetings shall include, but shall not be limited to:

a. Call to order by the Chairperson
b. Roll call and determination of quorum
c. Approval of minutes of previous meeting
d. Report of Chairperson on MICRA actions
e. Report of the Coordinator/Executive Secretary
f. Reports of Technical committees and AdHoc Subcommittees
g. Other old business
h. New business
I. Nominations for new officers and Executive Board members
i. Installation of new officers
j. Appointment of committees, as appropriate
k. Adjournment

4. Audit of Financial Accounts and Records

The Chairperson, acting on behalf of the Association, will conduct an audit of MICRA's financial accounts and records at a minimum of every five (5) years, or at the discretion of the Association.

5. Adoption of the Constitution and By-Laws

We the undersigned delegates of the Mississippi Interstate Cooperative Resource Association, do hereby agree to and adopt this Constitution and By-Laws (votes were tabulated via email):

Stan Cook, Alabama Department of Conservation & Natural Resources
Mark Oliver, Arkansas Game and Fish Commission
* Greg Gerlich, Colorado Division of Wildlife
* Wayne Probst, Georgia Department of Natural Resources
Steve Pallo, Illinois Department of Natural Resources
Bill James, Indiana Department of Natural Resources
Joe Larscheid, Iowa Department of Natural Resources
Doug Nygren, Kansas Department of Wildlife & Parks
Ron Brooks, Kentucky Department of Fish & Wildlife Resources
Gary Tilyou, Louisiana Department of Wildlife & Fish
Dirk Peterson, Minnesota Department of Natural Resources
* Ron Garavelli, Mississippi Department of Wildlife, Fisheries, and Parks
Bill Turner, Missouri Department of Conservation
* Bruce Rich, Montana Department of Fish, Wildlife, and Parks
Don Gabelhouse, Nebraska Game & Parks Commission
Doug Stang, New York Department of Environmental Conservation
Bob Curry, North Carolina Wildlife Resources Commission
Greg Power, North Dakota Game & Fish Department
Ray Petering, Ohio Department of Natural Resources
Barry Bolton, Oklahoma Department of Wildlife Conservation
Sue Thompson, Pennsylvania Fish and Boat Commission
John Lott, South Dakota Game, Fish & Parks Department
Bill Reeves, Tennessee Wildlife Resources Agency
Bob Betsill, Texas Parks and Wildlife Department
* Gary Martel, Virginia Department of Game & Inland Fisheries
Chris O'Bara, West Virginia Division of Natural Resources
Mike Staggs, Wisconsin Department of Natural Resources
Mike Stone, Wyoming Game and Fish Department
Mike Jawson, U.S. Geological Survey, Biological Resources Division
Mike Weimer, U.S. Fish and Wildlife Service, Region 3 Fisheries Program

* Did not vote on the revised By-Laws

MICRA's Priorities and Accomplishments 2019-2023

Goals and Objectives

GOALS

I. Coordinate basin-wide management of interjurisdictional fishery resources and aquatic habitats among the responsible management entities. *[INTERNAL COMMUNICATION]*

II. Increase awareness, support, and funding for basin-wide management of interjurisdictional fishery resources and aquatic habitats. *[EXTERNAL COMMUNICATION]*

OBJECTIVES

1. Coordinate implementation of interjurisdictional fishery and aquatic resource management programs throughout the basin. *[IJ FISH]*
2. Identify priority habitat restoration needs for the Mississippi River Basin, coordinate with national and regional aquatic habitat initiatives, and provide a forum for information and technical exchange. *[AQUATIC HABITAT]*
3. Coordinate prevention and control measures for Aquatic Invasive Species (AIS) to ensure sustainable native aquatic ecosystems within the basin. *[AIS]*
4. Develop and implement a communication plan for disseminating information to target audiences. *[COMMUNICATION]*
5. Secure funding for long-term operational needs and implementation of basin-wide programs. *[FUNDING]*

Progress on addressing MICRA's 2019-2023 priorities to address these goals and objectives is tracked on the following pages. Accomplishments during the operational period are noted under each priority in blue font. On-going actions and notes on priorities not addressed during the operational period are indicated in red font.

Priorities

Objective 1: Coordinate implementation of interjurisdictional fishery and aquatic resource management programs.

Priorities:

1. Identify and prioritize basin-wide resource management issues of concern in the Mississippi River Basin.

   a) MICRA delegates meet every 3-5 years to review priorities and discuss emerging issues of concern within the basin.

   - An in-person MICRA Delegate meeting was planned for January 2020 but had to be cancelled due to the Covid-19 pandemic.
   - A virtual MICRA Delegate meeting was held in October 2020. The focus of the meeting was the draft Joint Strategic Plan, Mississippi River Basin Fishery Commission Proposal, and Congressional outreach.
   - *On-going*: An in-person MICRA Delegate meeting is planned for August 2023. The agenda includes a discussion of MICRA's draft 2024-2028 priorities document and emerging issues of concern within the basin.

   b) Standing committees review priorities and discuss emerging issues of concern within the basin every 3-5 years. Committees will report to the Executive Board at least once annually on progress of priorities identified in this document.

   - This did not occur until 2022 due to the board's focus on the Joint Strategic Plan and Mississippi River Basin Fishery Commission initiative.
   - The Executive Board reviewed MICRA's 2018-2023 priorities with the committee chairs in August 2022. The Committee chairs were charged with addressing the current priorities and reporting back on progress and new priorities.

   c) Executive Board updates MICRA's priorities document every 5 years.

   - *On-going*: The Executive Board has initiated work on a new priorities document for 2024-2028 that will be finalized by the end of 2023.

2. Use standing technical committees and temporary working groups as needed to provide for the development of coordinated strategies to address priority issues and identify basin-wide research needs to support conservation, management, and utilization of native interjurisdictional fishes and aquatic resources.

    - The Executive Committee considered the status of all standing committees, and their alignment with the Joint Strategic Plan and Priorities Document. The Gamefish and Native Mussel committees were sunset in May 2021. The Habitat committee was sunset in August 2021.
    - The Invasive Carp Advisory Committee was revised in 2021 and is now a standing committee that reports to the Executive Committee.
    - A MICRA Aquatic Invasive Committee was reformed and held its first meeting in September 2022.

    a) Support continued efforts for coordinated basin-wide management of paddlefish and sturgeon species.

        - The Paddlefish Sturgeon Committee met annually 2018 through 2023. The committee was able to meet in person each year except 2021.
        - Supported a Paddlefish Commercial Harvest States Workgroup. The workgroup provided a report to the Executive Board in 2023 that includes a suite of recommendations for advancing cooperative interagency management of Paddlefish in the Mississippi and Ohio rivers.

    b) The Paddlefish and Sturgeon Committee will develop a basin-wide management plan for paddlefish.

        - MICRA funded a contractor to facilitate the development of a basinwide Paddlefish management framework. A workgroup was formed and began working on this project in late 2022. The Framework is expected to be completed in 2 years.

    c) The Paddlefish and Sturgeon Committee will continue to coordinate and manage (e.g., regional tag coordinators) a basin-wide coded-wire tag database for paddlefish.

        - The committee continues to maintain the database. The

basinwide framework will inform the future management of this database.

d) The Paddlefish and Sturgeon Committee will provide recommendations to the Executive Board for standardized methods for documenting and reporting harvest data for paddlefish.

- The committee will address this charge once the basinwide framework document is complete.

e) The Paddlefish and Sturgeon Committee will provide recommendations to the Executive Board for basin-wide commercial harvest databases for paddlefish and sturgeon, including roe harvest and roe buyers.

- The committee will address this charge once the basinwide framework document is complete.

f) Conserve native freshwater mussels through continued support of the Freshwater Mollusk Conservation Society (FMCS).

- MICRA provided $1,000 to sponsor the FMCS's 2019 Symposium. MICRA was not requested for financial assistance in 2020-2023.
- The MICRA Executive Board met with the President of the FMCS in August 2022. The FMCS and MICRA will continue to support each other's native mussel conservation needs.
- *On-going*: The Board and FMCS President agreed that formal recognition that explicitly identifies the partnership between the two organizations in their governance documents would be beneficial. For example, language to clarify that the FMCS will function in the place of a Native Mussel Committee for MICRA and provide recommendations to the Executive Board as needed. Similarly, the FMCS should refer to MICRA in their guidance documents and providing an annual update to the Executive Board.

g) Native Mussel Committee will provide recommendations to the Executive Board for standardized methods for documenting conservation strategies employed in mussel conservation.

- This priority was discussed with the FMCS President in August 2022. The board was informed that this priority is

being addressed in other ways. It was recommended that MICRA defer to the FMCS to identify native mussel conservation priorities and then support the society as needed.

h) Native Mussel Committee will develop and maintain a Basin wide list of propagation facilities and species that are being produced at each location.

- This priority was discussed with the FMCS President in August 2022. The FMCS has a committee that has been working to develop and maintain a list of mussel propagation facilities in the U.S., including information on the species and production numbers. The list is available on request of the Conservation and Restoration Technical Committee chair.

3. Build consensus for compatible regulations and policies for priority interjurisdictional fishery and aquatic resources issues.

a) Executive Board will work with the MICRA delegates to develop a Joint Strategic Plan for Management of Mississippi River Basin fisheries.

- The Joint Strategic Plan was finalized in February 2021.
- Agency directors from 26 of 28 MICRA member states have signed on to the Joint Strategic Plan through a Memorandum of Agreement. (Only Montana and Wyoming have not signed.)

4. Determine the socio-economic value of fishery resources and related recreation in the Mississippi River Basin.

a) Work with USFWS to provide a written economic value report for the Mississippi River Basin, including an analysis by MICRA sub-basin boundaries, using 2016 National Survey of Fishing, Hunting, and Wildlife Associated Recreation data.

- The Executive Board met with USFWS in February 2022 to discuss the possibility of developing a new report. USFWS informed MICRA that it would not be possible to use the 2016 data and that there would be limitations with the 2021 data due to limited participation by the states.
- USFWS agreed to work with MICRA to complete a new report once the information from the most survey is received

in 2023.

b) Work with USFWS to develop a report that includes an estimated return on dollars invested to manage fishery resources in the Mississippi River Basin based on 2016 National Survey of Fishing, Hunting, and Wildlife Associated Recreation data. (Report similar to the USFWS 2011 publication 'Net Worth: The Economic Value of Fisheries Conservation' that focuses on contributions to the U.S. economy in terms of jobs created and conservation stimulated commerce.)

- This was not addressed due to limited participation by the states in the surveys in 2016 and 2021.

c) Work with USFWS to develop methods of extracting use and socio-economic value information for fishery resources and related recreation for the MICRA sub-basin units (reported for the basin as a whole) from the USFWS 5-year national survey of fishing, hunting, and recreational use. (Similar to how information for the Great Lakes is broken out and reported now.)

- This was not addressed due to limited participation by the states in the surveys in 2016 and 2021.

Objective 2: Identify priority habitat restoration needs for the Mississippi River Basin, coordinate with national and regional aquatic habitat initiatives, and provide a forum for information and technical exchange.

Priorities:

1. The Executive Board will finalize the draft MICRA Aquatic Habitat Action Plan prepared by the Aquatic Habitat Committee.

- *Ongoing*: Work continues on developing an updated list of interjurisdictional rivers in the basin. The Action Plan is expected to be finalized by the end of 2023.

2. Support Aquatic Habitat Committee efforts to establish regular information exchange, communication, and coordination between entities responsible for aquatic habitat management in the basin.

- The Aquatic Habitat Committee was sunset in August 2021 following the development of the draft Aquatic Habitat Action Plan.
- *On-going*: MICRA will host a large rivers habitat symposium at the 2023 AFS annual meeting in Grand Rapids, MI, in August 2023.

3. The Aquatic Habitat Committee will identify and make recommendations to the Executive Board for engaging with the National Fish Habitat Partnerships and coordinating priorities in the MICRA Aquatic Habitat Action Plan.
    - The Aquatic Habitat Committee was sunset in August 2021 following development of the Aquatic Habitat Action Plan. No action is planned for this priority.
4. Create awareness of the needs and opportunities to increase and direct funding to implement priority habitat projects identified in the MICRA Aquatic Habitat Action Plan.
    - The *Joint Strategic Plan for Management of Mississippi River Basin Fisheries* completed in February 2021 identifies and discusses 'Habitat Loss and Degradation' as one of four key problem areas that must be addressed to comprehensively manage self-sustaining interjurisdictional fishery resources in the basin.
    - *On-going*: The Aquatic Habitat Action Plan will be posted on the MICRA website after it is finalized in 2023.
    - *On-going*: Relevant talking points can be included in Congressional briefings and field visits tentatively planned for 2023 to discuss the proposed Mississippi River Basin Fishery Commission.

Objective 3: Coordinate prevention and control measures for Aquatic Invasive Species (AIS) to ensure sustainable aquatic ecosystems within the basin.

Priorities:

1. Host the Mississippi River Basin Panel (MRBP) on Aquatic Nuisance Species for coordination of basin-wide efforts to prevent introductions of AIS and manage introduced AIS populations.
    - MICRA continued to host the MRBP from 2019-2023.
2. Prevent, manage, and control AIS in the Mississippi River Basin by supporting the Aquatic Invasive Species Committee.
    - The MICRA AIS Committee was reformed to address MICRA priorities that the MRBP is not able to address as a FACA-regulated advisory panel to the ANS Task Force.
    - The AIS Committee held its first meeting in September 2022.
3. Promote strengthening of Injurious Wildlife provisions of the Lacey Act.

- Discussed with AFWA on multiple occasions, no specific opportunities were identified. The Executive Board will continue to seek opportunities to advance this priority.

4. Aquatic Invasive Species committee will identify needs and provide recommendations to the Executive Board for promoting streamlining of the Lacey Act Injurious Wildlife Listing process and for establishing a federal screening process to evaluate risk of non-native species prior to importation.
    - *On-going*: This priority was discussed during the committee's meeting in September 2022. The committee will further consider how to address these needs in 2023.
5. Promote development of consistent basin-wide regulatory approaches for the management of AIS.
    a) Executive Board will facilitate meetings and discussions with the diploid grass carp states, as needed, to establish regulatory consistency for grass carp as recommended in the February 2015 MICRA Grass Carp Report.
        - The Executive Board has not organized a meeting of the diploid grass carp states since 2017.
        - Arkansas, Colorado, and Missouri changed their rules and regulations during the operational period to require triploid grass carp to be stocked.
    b) Aquatic Invasive Species Committee will coordinate efforts to implement recommendations in the February 2015 MICRA Grass Carp Report.
        - *On-going*: This is on the MRBP Prevention and Control Committee's work plan.
        - *On-going*: The newly formed AIS Committee has been requested to consider this priority and to coordinate with the MRBP.
6. MICRA Aquatic Invasive Species Committee will review and make recommendations for revising the MICRA AIS Action Plan so that it remains a relevant outreach tool.
    - *On-going*: The newly formed AIS Committee will consider this priority in 2023.
7. Support efforts to prevent the exchange of AIS between the Great

Lakes and Mississippi River basins.

- MICRA submitted a comment letter in February 2019 to "support USACE's efforts to prevent the transfer of ANS from the Mississippi River Basin to the Great Lakes River Basin when designed and implemented as a part of a comprehensive alternative of control actions and technologies to achieve the overall GLMRIS goal of preventing the transfer of ANS in both directions between the two basins".
- MICRA participated as a member of the Chicago Area Waterway System Aquatic Invasive Species Stakeholder Group until it was dissolved in 2022. This diverse stakeholder group worked to reach consensus on a set of recommendations to elected and appointed local, state, and federal officials and to the public on short and long-term measures to prevent Asian carp and other aquatic invasive species (AIS) from moving between the Mississippi River and Great Lakes basins through the Chicago Area Waterway System.
- DC Fly-in talking points (2019-2023) included a recommendation to "direct and fund USACE ($500k), through appropriations and WRDA, to complete a feasibility study to prevent two-way transfer of ANS, initiated with the Great Lakes and Mississippi River Interbasin Study (GLMRIS)". Specifically, to initiate the scoping phase for a Feasibility Study to prevent downstream transfer of ANS.
- DC Fly-in February 2020 included a meeting with USACE leadership to discuss (among other topics) the Mississippi River Basin states' concern with the continued lack of action to prevent the downstream transfer of ANS from the Great Lakes to the Mississippi River Basin as directed by Congress through the GLMRIS authorization.

8. Coordinate efforts to prevent introductions, stop the continued spread, and control established populations of Asian carp in the basin.

- MICRA and the Great Lakes St. Lawrence Governors and Premiers held an Invasive Carp Summit in January 2020 to discuss regional coordination of regulatory, management, and research programs regarding invasive carp.

a) Promote the need to expand the scope of federal agencies' Asian carp activities to include the entire Mississippi River Basin and the need for federal funding to facilitate implementation of

the Mississippi River Basin Asian Carp Control Strategy Frameworks in support of the national 'Management and Control Plan for Bighead, Black, Grass, and Silver Carps in the United States'.

- This topic was included as a discussion topic with Federal agencies and Congressional offices during MICRA's 2019 Fly-in.
- In coordination with Mississippi Senator Cindy Hyde-Smith, MICRA hosted a Congressional staff briefing in May 2019 to discuss invasive carp management and control in the Mississippi River Basin.
- All six sub-basins were specified in the 2020 WRDA bill and all sis sub-basins have been specified in appropriations bills since FY2020.
- USFWS funding for implementation of the national invasive carp management and control plan in the Mississippi River Basin increased from $7,000,000 for work in the Upper Mississippi River (UMR) and Ohio River (OHR) sub-basins in FY2018 to $31,000,000 for work in all six sub-basins in FY2023. In FY2018, the USFWS provided a total of $2,200,000 in financial assistance to MICRA member states in the UMR and OHR sub-basins to support framework implementation. In FY 2023, the USFWS will provide more than $18,600,000 in financial assistance to MICRA member states in all 6 sub-basins to support framework implementation.

b) Coordinate basinwide efforts to develop sub-basin Asian Carp Control Strategy Frameworks, including Action Plans for implementation.

- Asian Carp Control Strategy Frameworks have been developed for all six sub-basins and are posted on the MICRA website: http://micrarivers.org/invasive-carp-plans-and-reports/.
- Sub-basin partnerships have not developed action plans for implementing their respective sub-basin frameworks.

c) In partnership with USFWS, coordinate the collaborative development of an annual Monitoring and Response Plan to

identify highest priority management actions for Asian Carp in the Mississippi River Basin each year.

- MICRA works with the USFWS sub-basin invasive carp partnership coordinators each year to develop an annual Monitoring and Response Plan for the Mississippi River Basin and posts the document on the MICRA website.

d) Coordinate the collaborative development, prioritization, and submission of annual recommendations to USFWS for federal funding assistance to implement sub-basin Asian Carp Control Strategy Frameworks.

- MICRA works with the USFWS sub-basin invasive carp partnership coordinators each year to compile project proposals from all sub-basin partnerships.
- The compiled project proposals are reviewed by the MICRA Invasive Carp Advisory Committee and a basinwide recommendation is submitted to the USFWS by the MICRA Chairman each year for funding consideration.

e) Aquatic Invasive Species Committee will provide recommendations to the Executive Board for standardized methods for collecting and reporting population data for Asian carp species.

- The AIS Committee was not asked to address this priority as it will be considered by the revised ICAC.

f) Aquatic Invasive Species Committee will provide recommendations to the Executive Board for documenting and reporting harvest data for Asian carp species.

- The AIS Committee was not asked to address this priority as it will be considered by the revised ICAC.

g) Promote consistent outreach materials and messages throughout the Mississippi River Basin.

- MICRA works with the USFWS sub-basin invasive carp partnership coordinators to develop similar documents each year for the Monitoring and Response Plan for basinwide consistency.
- Annual summary reports for projects implemented under the Monitoring and Response Plan are compiled and posted on

the MICRA website.

- Documents are posted on the MICRA website to provide basinwide and national information on implementation of the national management and control plan.

Objective 4: Develop and implement a communication plan for disseminating information to target audiences.

Priorities:

1. Work with outreach specialists from member and entity agencies to draft, finalize, and implement a MICRA communications plan.
   - Development of a MICRA communications plan was postponed while MICRA worked on the Joint Strategic Plan and Mississippi River Basin Fishery Commission initiative.
   - *On-going*: The Executive Board began to discuss the MICRA communications plan again during their February 2023 meeting.
2. Executive Board and committees will maintain current content on the MICRA website.
   - MICRA continues to maintain the MICRArivers.org website.
   - The Executive Board requested all standing committees to review their respective pages on the website and develop content as needed.
3. Engage in efforts to increase awareness and action of Congressional members to improve management of fishery and aquatic resources in the Mississippi River Basin.
   - MICRA contracted for Policy and Government Affairs service annually from 2019-2023.
   - MICRA organized a Fly-in to Capitol Hill annually from 2019-2023. The 2021 Fly-in was conducted remotely due to the COVID-19 pandemic
   - In coordination with Senator Cindy Hyde-Smith, MICRA hosted a Congressional staff briefing on Invasive Carp Management and Control in the Mississippi River Basin in May 2019, in Washington DC.
   - MICRA participated in a Congressional staff briefing July 22, 2019,

hosted by the National Marine Manufacturers Association (NMMA) and the Congressional Boating Caucus, to examine the environmental and economic problems created by aquatic invasive species.

- MICRA hosted a Congressional field visit August 25-26, 2021, at Pickwick Dam on the Tennessee River.
- MICRA partnered with the U.S. Army Corp of Engineers (USACE) and the Upper Mississippi River Basin Association (UMRBA) to host a Congressional field visit in conjunction with a USACE Science Team Open House at Lock and Dam 22 on the Mississippi River October 12, 2022, to discuss the significance of large-scale habitat restoration and connectivity projects; project monitoring and evaluation; and collaborative, multi-agency approaches to interjurisdictional fisheries management.
- *On-going*: MICRA Executive Board is tentatively planning to host Congressional field visits in the upper and lower Mississippi River in August 2023, and a Congressional briefing in Washington, DC.

4. Develop outreach materials, information brochures and short publications on issues of concern to fishery resource management in the Mississippi River Basin as needed.
   - *On-going*: MICRA will finalize the Aquatic Habitat Action Plan in 2023.
5. Develop a 5-year report of activities, accomplishments, and remaining resource needs identified in the MICRA priorities document.
   - *On-going*: This appendix is being developed to provide a summary of activities, accomplishments, and unaddressed priorities for 2019-2023.
6. Host workshops and networking opportunities at national and regional professional meeting (e.g., Midwest Fish & Wildlife Conference, SEAFWA, AFS Parent Society meetings) for MICRA member agency delegates, committee members, and partners.
   - An informal mixer was hosted in conjunction with a joint MICRA and Great Lakes St. Lawrence Governors and Premiers Invasive Carp Summit and MICRA Executive Board meeting in January 2020.
   - *On-going*: The Executive Board is planning a networking opportunity in conjunction with the MICRA Delegates meeting

schedule for August 2023 in conjunction with the AFS annual meeting in Grand Rapids, MI.

- COVID-19 limited opportunities for workshop and networking opportunities during much of this 5-year operational period.

Objective 5: Secure funding for long-term operational needs and implementation of basin-wide programs.

Priorities:

1. Pursue reliable, long-term funding sources and mechanisms for MICRA.
    - MICRA's Mississippi River Basin Fishery Commission initiative is intended to result in an authorization and appropriation of Federal funding to support the states' efforts to collaboratively manage sustainable interjurisdictional fishery resources.
    - MICRA's sustained Congressional outreach efforts have resulted in
        - Increases in U.S. Fish and Wildlife Service (USFWS) grant funding for implementation of ANS Task Force approved state/interstate AIS management plans from $2,000,000 in FY18 to greater than $4,000,000 in FY2023.
        - WRDA 2020 language directing an expansion of the U.S. Fish and Wildlife Service led multi-agency effort from the "Upper Mississippi and Ohio River basins and tributaries" to the "Mississippi River and tributaries, including the 6 sub-basins of the River."
        - Invasive carp funding increases to the USFWS to support states' collaborative efforts to manage and control invasive carp populations in the Mississippi River Basin. Funding to states increased from $2,200,000 in FY2018 to more than $18,600,000 in FY2023.
        - WRDA 2020 authorizations for $25,000,000 for a pilot invasive carp deterrence program in the Tennessee and Cumberland Rivers Sub-basin. WRDA 2022 included direction for at least one deterrence project in the Tennessee-Tombigbee Waterway.
        - WRDA 2020 language authorizing of $4,000,000 for each of fiscal years 2021 through 2025 for a USFWS invasive carp

eradication program to provide financial assistance to states to implement measures necessary to eradicate invasive carp. No funding for this program has been appropriated through FY2023.

2. Work with MICRA member agencies to pursue formation of a congressionally funded Mississippi River Basin Fishery Commission to coordinate fisheries research, control aquatic invasive species (e.g., Asian carps), and facilitate cooperative management of interjurisdictional fishery and aquatic resources among the state, tribal, and federal management agencies.

   - MICRA completed the collaborative development of '*A Joint Strategic Plan for Management of Mississippi River Basin Fisheries*' in February 2021.
   - Agency Directors from 26 of MICRA's 28 member states have signed a Memorandum of Acceptance of the Joint Strategic Plan.
   - MICRA briefed the AFWA Fisheries and Water Resources Policy Committee and the AFWA Invasive Species Committees on the MICRA Joint Strategic Plan and Mississippi River Basin Fishery Commission in September 2019 and March 2023.
   - MICRA has contracted for policy and government affairs services to assist MICRA with the Mississippi River Basin Fishery Commission.

USGS
science for a changing world

FishTracks Acoustic Telemetry Database

Acoustic telemetry has become a popular tool among researchers and natural resource agencies throughout the Mississippi River Basin for investigating broad and fine scale movement behaviors, habitat use, and life history characteristics of native and invasive fishes. The exponential growth in data from the increased number of transmitters and receivers within the Mississippi River Basin necessitates organized and coordinated data management. The FishTracks Acoustic Telemetry Database (**https://umesc-gisdb03.er.usgs.gov/Fishtracks**) was developed and is maintained by the U.S. Geological Survey Upper Midwest Environmental Sciences Center as a web-based repository to access and archive acoustic telemetry data from projects throughout the Mississippi River Basin. Additionally, FishTracks provides a platform for enhancing collaborative efforts by connecting acoustic telemetry researchers across the Mississippi River Basin. Data submissions from new partners across sub-basins (e.g., Arkansas Red-White, Missouri, Lower

August 2022 MICRA Executive Board notes from a discussion about communications with the sub-basin invasive carp coordinators

Communications

A dynamic hub for active communication within and among the sub-basin partnerships would improve efficiency. The coordinators mentioned the idea of developing common sub-basin partnership fact sheets but also identified capacity for communications as a challenge.

There is a substantial amount of resources directed towards communications within the Great Lakes Invasive Carp Regional Coordinating Committee (ICRCC). The invasivecarp.us platform does not seem conducive to hosting a bunch of information from the rest of the nation. It's unclear how much funding goes to support that group's collaborative communications and how the decision was made to provide that level of support. It may be time to consider funding communication needs in the Mississippi River Basin and making information readily available through the MICRA website or another location. There are good alternatives to hosting our own information hub. Research Gates are a potential way to allow collaboration outside the MICRA member agencies.

From a policy perspective, this information has been incredibly helpful. Congressional offices frequently ask specifically how the funding is being used. It would help tremendously to bring some additional specificity to how the USFWS is supporting the states' efforts in the basin, and how they state and federal agencies are collaborating. A coalition could help with some of these invasive carp communication needs in addition to supporting a Mississippi River Basin Fishery Commission. Prior to COVID, MICRA organized informational briefings in DC where state and federal agencies would talk about their collaborative efforts. Federal agencies are not restricted from discussing what they are doing and how they are supporting this effort.

There is likely 25% of a full-time position for someone to focus on the variety of communications needs to support the partnerships and MICRA. There have been discussions within the sub-basin partnerships about communications for years, but these have not developed into anything tangible.

Is there any interest on the Service's part to allocate some base funding to address the communications needs in the Mississippi River Basin? If not, is there any appetite among the states for using a portion of the $14 million provided by the Service to address basinwide communication needs? This is something that the Service can consider and talk through. Does it make sense to continue to use the existing MICRA

structure or should this be developed as a common project? If the states prefer that this type of support comes from the Service, then this is something that would need to be considered internally. All options are on the table. The first step would be to identify specifically what type of support is needed and then developing this into a request. We'll be able to better consider options once we get the need clearly identified. What we want to consider is 'Is the need strong enough to warrant potentially allocating resources towards that effort'?

You might consider working with someone to rough out a communications plan. The first thing they will ask is who are you trying to reach and what information are you trying to communicate. Having a rough communications plan will help identify the amount of resources needed. Similar to the discussion that we have been having about the sub-basin learning from the other experience and not duplicating effort, it would be helpful to start by reviewing the ICRCC's communication plan and adapting it to the Mississippi River Basin's needs.

The ICRCC has a communications workgroup. Perhaps we should consider a communications workgroup under the ICAC. Do the agencies have communications staff that could participate on a communications workgroup and not add to the capacity constraints of the biologists? It is important to get that collaborative messaging piece at that broader scale. Most states and agencies are good at communicating about specific projects, but very few people have a good understanding of what is going on nationally and how one project ties in with or supports other projects in different parts of the basin.

We have had discussions about a rough communications plan with Service External Affairs staff in the past. This discussion has been started a couple of times but continues to stall out. The ICRCC communications workgroup may be able to provide some perspective on what it took to get their workgroup members active.

So far, we have been talking about one-way communication but there are also needs for two-way communications between the sub-basin partnership members or the sub-basin coordinators and the partnership members. For example, providing a workspace for collaborative documents, locating SOPs, or a single location for all things carp. IL DNR has grant supported funding that goes to a subcontractor to do a lot of the heavy lifting within the ICRCC Monitoring and Response Workgroup. Tasks like assembling an annual Action Plan and getting information assembled and posted on the website. These types of tasks are not being handled by the ICRCC's communication workgroup members. There are multiple models depending on need.

A communications workgroup could also help with keeping information current. The state fact sheets that MICRA has used for Capitol Hill briefings were very effective, however, some of the information now dates back to 2014. There was also no information about USFWS projects occurring in the different states. Those projects should be pointed out.

Is MICRA's communications plan still active? MICRA does not have a communications plan. The Executive Board had an initial discussion about audiences and messages in 2014 but delayed developing a communications plan while focusing on the fishery commission initiative.

Is there interest in any action related to a communications workgroup? Do people think there is a deficit in the public's understanding of what the agencies are doing to address invasive carps? Is the general public your main target audience? You might want to focus on elected officials and agency or regulatory officials, then the general public to bolster grassroots support. You want to make sure your directors are fully aware of the importance of the collaborative effort and how all the different pieces fit together. Many people support one particular element but do not have a grasp of the bigger picture.

The revised ICAC could be asked to evaluate the different communications needs for the basin and come up with a plan. Would it save a step to form a workgroup now with the agencies' outreach and communications people and ask them to connect with the ICRCC communications workgroup? We have tried to get the agency people engaged a few times in the Ohio River Basin, but it never seemed to go anywhere. The state agency communications folks are geared more towards getting information on platforms to the general public. A lot of the needs we've discussed this morning are between sub-basins and different audiences than the general public. This may be a deeper dive than asking the state agency communications people to take this on. Would it make sense to put a communications workgroup in place underneath the ICAC rather than requesting the ICAC to take this on directly? We could try to identify co-chairs to get the ICAC and committee started. Do those same needs exist within MICRA itself? Is this larger than invasive carp? Yes, but invasive carp is the paramount need and the likely issue where funding might be available to move this forward. The other layers could be added on if you get a good launch on the invasive carp communications. Two co-chairs for a communications workgroup would be a good way to start.

What is needed to prevent the group from stalling out as it has in the past? It needs to be one of the top priorities for someone to make sure that it has a champion and it is being working on. Communications people generally are not in the fisheries program in some agencies, so they don't have to do the work when they are asked. It may not be a

priority for them even if it is a priority to the fisheries program. It would be interesting to get perspective from the ICRCC communications workgroup about how they are able to get the agencies to regularly participate. It may just come down to money and funding to do the work. The communications workgroup should be tasked with identifying the communication needs and not the communications themselves. We may need to contract the communications work itself out. There will still be a need for people beyond the workgroup to provide the information that needs to be communicated. This will require time and commitment on their part to support communications.

Would there be value in having a core team within the ICAC that consists of members of the ICAC, the technical workgroups, and communications experts to provide communication and coordination of the overall effort? It appears that there is a need to have people responsible for reaching out to the sub-basins and states to pull information back, coordinate and facilitate connections between the sub-basins on projects, provide connections on expertise, and provide tools for outreach to different target audience to help facilitate the overall effort. There is a nexus among those three groups to provide communication and coordination. It may be possible to contract external support or staff time so that all the work isn't falling on those core members. Would MICRA want to recommend that a small portion of the total USFWS funding that is allocated to the individual sub-basins be allocated to the basin as a whole to support basinwide initiatives like this? It's likely there will be more and more of these types of needs. Ideally new funds could be used in this way rather than carving out of the existing funding. This is similar to how USFWS grants are administered in the Great Lakes.

There seems to be competition among some Congressional offices for the individual sub-basins. It would be really helpful to have a basinwide summary of what is needed over the next five years to present a holistic need rather than a sub-basin by sub-basin approach. Even within the sub-basin we don't have an outward looking forecast of where we'd like to be in five years.

Who should comprise a communications workgroup? If the state agency communications people aren't the right group, are we tasking our biologists with this? We could contract for this support. Hired experts are still going to have to ask a lot of questions and require a considerable amount of time from the biologists. It might be worth contracting for additional support and to make sure the information is delivered correctly.

If MICRA had a place at AFWA, then the Directors would have an interest in this which would then require that the IT people care about this. The Invasive Species Committee

at AFWA seems mostly focused on terrestrial issues and there is very little discussion of invasive carp despite how big of an issue this is. We are missing out on that AFWA level director buy-in that could result in more agency support outside of fisheries. Brian Canaday gave a presentation on MICRA and the fishery commission concept at the AFWA meeting in St. Paul, MN, several years back. We might want to consider getting on the agenda for an upcoming AFWA meeting. What about starting with some of the regional AFWA groups – MAFWA, SEAFWA, WAFWA? We could also continue to work with the Invasive Species Committee and the Government Affairs staff. There may not be an opportunity to have time in front of the Directors at SEAFWA.

Does the USFWS contribute monetarily to MICRA more than supporting the coordinator position? Not specifically to MICRA, but they do provide the sub-basin coordinators for invasive carp partnerships. An education, outreach, and policy committee might be an approach that would open funding from outside entities.

Rather than forming a communications workgroup, do we task the ICAC with discussing and defining communications needs and the board will continue to discuss how address those needs? Bandwidth may be a concern for the ICAC. If the ICAC is tasked with this, then they will likely not be able to work on removal or another priority beyond population assessment. If this is broader than invasive carp, is it something that the Executive Board should handle? This is the group that works directly with Ashlee, not the ICAC. MICRA's messaging continues to emphasize that MICRA is more than just invasive carp or AIS. The communications needs are much broader than invasive carp. You might consider a communications committee under the Executive Board rather than the ICAC. This inter-basin coordination need has been brought forward through a discussion about invasive carp, but that doesn't mean it should be addressed within the invasive carp structure. It would be helpful to see the ICRCC communications plan. They have a communications workgroup, but they do not have a communications plan. Concrete examples of barriers from the sub-basin partnerships that the MICRA Executive Board could address would be helpful. We also need to review the notes from the Executive Board's initial discussion about a communications plan.

- Conover will share the communications planning notes from the board's July 2014 meeting with the Executive Board members.
- Conover will add a discussion of a MICRA Communications Plan to the agenda for the board's Winter meeting.
- The sub-basin partnership coordinators and ICAC co-chairs will provide examples of communications needs and barriers to the Executive Board.

- The Executive Board will hold a conference call specifically focused on resuming this discussion about internal and external communication needs, particularly the following considerations.
    - A dynamic hub for active communication within and among the sub-basin partnerships would improve efficiency e.g., a workspace for collaborative documents, housing SOPs, basically a single location for all things carp.
    - Focus communications on elected officials and agency or regulatory officials, then the general public to bolster grassroots support.
    - Make sure your directors are fully aware of the importance of the collaborative effort and how all the different pieces fit together.
    - Is there any interest on the Service's part to allocate some base funding to address the communications needs in the Mississippi River Basin? The first step would be to identify specifically what type of support is needed and then developing this into a request.
    - Would MICRA want to recommend that a small portion of the total USFWS funding that is allocated to the individual sub-basins be allocated to the basin as a whole to support basinwide initiatives like this?
    - It would be helpful to have a basinwide summary of what is needed over the next five years to present a holistic need rather than a sub-basin by sub-basin approach.
    - It might be worth contracting for additional support and to make sure the information is delivered correctly.
    - We might want to consider getting on the agenda for an upcoming AFWA meeting. What about starting with some of the regional AFWA groups – MAFWA, SEAFWA, WAFWA?
    - Consider a communications committee under the Executive Board rather than the ICAC.