



# **Operational Framework and Procedures**

of the

## **Mississippi Interstate Cooperative Resource Association**

**(With Notes on Accomplishments and Remaining Identified Needs)**

**December 2002**

### **Background**

The Mississippi River and its tributaries comprise one of the largest and most valuable ecosystems in the world. Fish stocks in these waters are increasingly important to recreational fishing. Yet habitat degradation and the multiplicity of aquatic management authorities complicate and threaten the supply and utilization of these stocks. Fish species that move between management jurisdictions create complex resource management problems related to regulation development, licensing, enforcement, and establishment of management objectives. Fishery management must be able to respond to these problems, including increasing demand. Increased demand will be met only if fishery management agencies work together to perpetuate and enhance these important interstate aquatic resources and habitats.

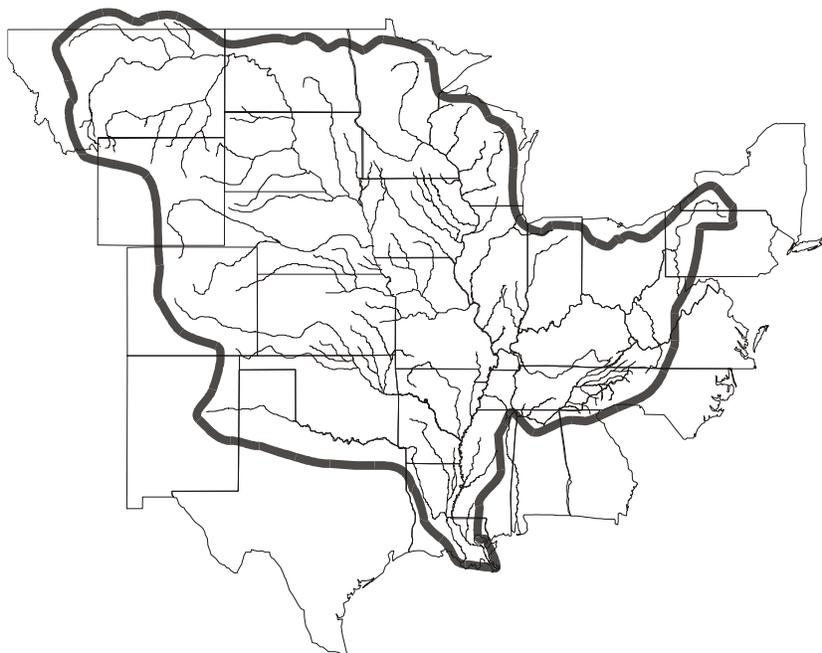
Twenty-eight of the 29 State conservation departments having fisheries management jurisdiction in the Mississippi River Drainage System (MRDS) have responded to this critical situation (Appendix A). They agreed to band together under the Mississippi Interstate Cooperative Resource Agreement (MICRA) and share resources, facilities and funding for preparation and implementation of Long-Range Strategic Plans, which will address the management needs of interjurisdictional fisheries.

The Mandate of MICRA is "To assess the Mississippi River drainage fishery resources and habitat requirements to protect, maintain, and enhance interstate fisheries in the basin." The American Fisheries Society and the U.S. Fish & Wildlife Service have agreed to assist the States in this endeavor.

MICRA has defined interjurisdictional fisheries resources as "those fishery resources that cross or are common to two or more state boundaries and come under the shared jurisdiction of two or more governmental entities." The States identified more than 90 rivers (Appendix B) and more than 80 fish species (Appendix C) that are of great concern. It is recognized, however, that the MRDS includes many thousands of smaller streams and hundreds of fish species as well as a great many other important forms of aquatic life.

In addition to the Mississippi River, the MRDS includes the Missouri, Ohio, Tennessee, Arkansas and Red rivers, and their tributaries (Figure 1). The System drains portions of Alabama, Arkansas, Colorado, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas, Virginia, West Virginia, Wisconsin, and Wyoming.

The MRDS is host to many fish species that move among different habitats in the 29 states. These habitats have been increasingly altered by dredging and spoil placement, construction of navigation facilities, hydroelectric plants, flood control dams and the resultant changed water and sediment transport regimes, and by man's shoreline development activities. At present, information is insufficient to assess how much these alterations have affected the health of fish populations.



**Figure 1. Interjurisdictional rivers of the Mississippi River Basin.**

Consequently, MICRA has invited other federal, non-federal and private entities, including the U.S. Fish and Wildlife Service (FWS), USGS Biological Resources Division (USGS/BRD), U.S. Bureau of Reclamation (BOR), U.S. Army Corps of Engineers (COE), U.S. Forest Service (USFS), National Marine Fisheries Service (NMFS), Tennessee Valley Authority (TVA), utility companies, resource user groups, and several Indian tribes having resource management jurisdiction within the basin to join in the effort. MICRA also recognizes and embraces the existence of numerous MRDS compacts, committees, commissions, and councils, and honors their long standing status and missions, attempting to join all entities having management jurisdiction and responsibility for MRDS fisheries resources into a cooperative program. In fact, some of the those groups (i.e. Upper Mississippi River Conservation Committee, Missouri River Natural Resources Committee and Ohio River Fish Management Group) sit as members on MICRA's Executive Board. Through cooperation between entities, MICRA's plans and actions will consider the needs of both commerce and fisheries management on a system-wide basis

### **Mission Statement**

“Improve the conservation, development, management and utilization of interjurisdictional fishery resources in the Mississippi River Basin through improved coordination and communication among the responsible management entities.”

MICRA strives to improve information bases and data management, communication and coordination, and species and habitat management, while eliminating duplication of effort and achieving overall cost savings to taxpayers and user groups.

### **Goals, Accomplishments and Identified Remaining Needs**

**GOAL A: Develop a formal framework and secure funding for basin-wide monitoring, assessment, research, networking and coordinating mechanisms that complement existing and emerging**

administrative entities.

### Accomplishments

- Membership requirements and a dues structure were established by MICRA at the outset. Dues are modified by vote of the membership as needed to meet MICRA's financial commitments.
- A formal operational framework has been established and maintained through (1) periodic election of executive officers and committee chairpersons, (2) appointment of Executive Board members by participating sub basin organizations, (3) appointment of committee members by participating states and agencies and (4) establishment of a constitution and bylaws.
- Sub basin groups have been encouraged to join MICRA and to serve as full Executive Board members in order to strengthen communications and coordination between the geographic and political interests of the major watershed groups in the Basin.
- A full time Coordinator for Large River activities was initially appointed by the U.S. Fish and Wildlife Service, and most recently, is being provided under authority of the Intergovernmental Personnel Act as a special assistant to the MICRA Chairman.
- Various MICRA projects have been completed and a variety of funding sources and mechanisms (e.g. grants, multi-agency projects, multi-state projects, matching funds projects, single state/agency multi-year projects, etc.) have been tried and tested to efficiently complete shared or multi-year projects which individual members states or agencies would otherwise find difficult to complete.
- As needed, the MICRA Constitution and By Laws are amended by the membership to meet MICRA's ever evolving and changing needs.

### Remaining Identified Needs

- Establishment of reliable, long-term funding sources and mechanisms.
- Establishment of a mechanism to influence basinwide resource management decisions.
- Establishment of 501c3 (tax exempt) status.

**GOAL B: Develop public information and education programs to disseminate information that supports fishery resource management in the Mississippi River Basin.**

### Accomplishments

- Established, published and circulated a bi-monthly newsletter to a wide range of state and federal agency representatives, NGOs, private interests, politicians, and interested individuals nationwide and internationally.
- Establishment of an "Interjurisdictional Rivers of the Mississippi River Basin" Web Site for display and dissemination of a wide array of resource information.
- Participated in the development of videos on dam removal and paddlefish and sturgeon life histories.

### Remaining Identified Needs

- Development of outreach materials, information brochures and short publications on issues of concern to fishery resource management in the Mississippi River Basin.

- Development of information for use in various television applications.

**GOAL C: Develop an information management program based on standardized methods for collecting and reporting fishery resource data, basin-wide.**

**Accomplishments**

- Implementation of a basinwide paddlefish stock assessment using standardized methods and on-going publication of the results.
- Computerization of paddlefish a paddlefish information data base.

**Remaining Identified Needs**

- Development and implementation of standardized methods (between states and nationally) for documenting and reporting harvest data for the Basin's commercial fishery and mussel resources.
- Development of guidelines and procedures for use in future multi-state resource management and research efforts.

**GOAL D: Determine and document the socio-economic value of fishery resources and related recreation**

**Remaining Identified Needs**

- Work with the U.S. Fish and Wildlife Service (FWS) to develop methods of extracting use and socio-economic value information for fishery resources and related recreation in the Basin and its sub basins units (i.e. Upper Mississippi, Lower Mississippi, Ohio, Missouri, Tennessee and Arkansas/Red river basins) from the FWS 5-year national survey of fishing, hunting and recreational use.
- Prepare and publish information packets for the Basin and sub basins on the "Value of Fisheries in the Mississippi River Basin".

**GOAL E: Improve communication and coordination among entities involved in fisheries resource management in the Mississippi River Basin.**

**Accomplishments**

- Communications between entities responsible for fishery resource management have been improved through periodic meetings, shared projects, and publication of the MICRA newsletter (*River Crossings*).
- A Paddlefish/Sturgeon Committee has been established and periodically meets to address issues related to the management of paddlefish, shovelnose sturgeon, lake sturgeon and pallid sturgeon. A major basinwide paddlefish stock assessment is underway. Committee members participate on the Pallid Sturgeon Recovery Team and in Convention on the International Trade in Threatened and Endangered Species (CITES) evaluations.
- A Gamefish Committee has been established and periodically meets to address gamefish issues. Several gamefish projects are underway or have been completed.
- A Freshwater Mussel Committee has been established and periodically meets to address freshwater mussel issues. The committee regularly addresses issues related to the harvest and conservation of freshwater mussels species. This committee provided the catalyst for formation

of the North American Freshwater Mollusk Conservation Society.

- An Aquatic Nuisance Species Committee has been established and periodically
- meets to address invasive species issues. The Committee Chairman has regularly participated in the National Aquatic Nuisance Species Task Force.
- MICRA has been recognized nationally and has been approached by the National Aquatic Nuisance Species Task Force to host a Mississippi River Basin Panel on Aquatic Nuisance Species.

### **Remaining Identified Needs**

- Improved information exchange and coordination is needed between members and entities involved in the introduction of new species to the Basin and in the transfer of genetic strains of existing species within the Basin and between sub basin watersheds.
- Develop fishery habitat enhancement plans and implement joint ventures for habitat improvement.
- Host a large river management conference to improve information exchange, communication, and coordination between entities responsible for fish habitat management in the Basin.

**GOAL F: Periodically identify and prioritize issues of concern in the Mississippi River Basin for coordinated research that supports cooperative resource management.**

### **Accomplishments**

- An Activity Prioritization Document was developed in 1992 through full participation of the membership.
- Tasks are annually prioritized through membership participation in budget decisions at annual and periodic meetings.

### **Remaining Identified Needs**

- Periodically formalize the task prioritization process through review of the Operational Framework and Procedures, progress made, remaining resource needs, and changing needs as they develop.

**GOAL G: Identify and coordinate fishery management programs to address species and habitat concerns from an ecosystem perspective.**

### **Accomplishments**

- MICRA has influenced paddlefish management changes through organization of the Paddlefish/Sturgeon Committee and implementation of the basinwide paddlefish assessment project.
- MICRA took a strong position on the use of black carp by fish farmers to control a trematode parasite in catfish. The black carp was seen as a significant threat to the Basin's threatened and endangered mollusk resources, so a petition was filed with the U.S. Fish and Wildlife Service to list the black carp as a species of injurious wildlife under jurisdiction of the Lacey Act. Such a listing would limit use of black carp by prohibiting interstate shipment of the species.

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**Remaining Identified Needs**

- Facilitate research and collection of information on species of concern.
- Promote compilation of information on pallid sturgeon and paddlefish life history requirements, especially as related to spawning needs.

**GOAL H: Develop compatible regulations and policies for fishery management to achieve interstate consensus on allocation of fishery resources.**

**Accomplishments**

- Petitioned to list the black carp as a species of injurious wildlife under the Lacey Act.
- Influenced paddlefish management changes through organization of the Paddlefish/ Sturgeon Committee and implementation of the basinwide paddlefish assessment project.
- Developed financial mechanisms to share resources and jointly finance multi-state projects.

**Remaining Identified Needs**

- Develop standardized methods for managing and reporting of sturgeon and paddlefish harvests.
- Support improvement in and implementation of conservation elements of the various Farm Bills.

**GOAL I: Develop protocols, policies and regulations for disease control, introduction of exotics, maintenance of genetic integrity, and maintenance and enhancement of indigenous species.**

**Accomplishments**

- An Aquatic Nuisance Species Committee has been established and periodically meets to address this issue.
- Positions have been taken on the spread of aquatic nuisance species via the Cal-Sag and Chicago Sanitary and Ship Canal from the Great Lakes to the Mississippi River Basin.
- Petitioned the U.S. Fish and Wildlife Service to list the black carp as a “species of injurious wildlife” under the Lacey Act, thus limiting its interstate shipment and spread to the wild.

**Remaining Identified Needs**

- Address MICRA’s interest in serving as a lead entity in establishment of an Aquatic Nuisance Species Panel for the Mississippi River Basin under the National Aquatic Nuisance Species Task Force.
- Establish a clearing house, contact points, or communication network/procedure for the control of fish diseases within the Mississippi River Basin.
- Establish a clearing house, contact points, or communication network/procedure for the control, protection, enhancement of the genetic integrity of fish populations and strains within the Mississippi River Basin.
- Consolidate and combine the maintenance and enhancement of indigenous species component of this Goal with Goal E.

**GOAL J: Preserve, protect and restore fishery habitats basin-wide.**

**Remaining Identified Needs**

- Convene a basinwide fishery habitat management conference creating a forum for the exchange of information and focus for interagency/interstate interest in rehabilitation of the Basin's large river ecosystems.
- Promote and support authorization, appropriation and implementation of the Fishable Waters Act.
- Establish a procedure (in the image of the North American Waterfowl Management Plan) for implementation of joint venture fishery habitat improvement projects.
- Promote, support, and assist in development, funding and implementation of a North American Fishery Habitat Management Plan with basin and sub basin components.
- Endorse the habitat management activities of the sub basin groups.

# **APPENDIX A**

## **Mississippi Interstate Cooperative Resource Agreement**

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## MISSISSIPPI INTERSTATE COOPERATIVE RESOURCE AGREEMENT (MICRA)

This agreement entered into by and between the States through which the Mississippi River and its tributaries flow and the various Federal agencies and Federally chartered entities which manage and regulate Mississippi River resources on an interstate basis, this 1st day of September, 1989.

### RECITALS

1. The Mississippi River, including but not limited to its tributaries, the Missouri, Ohio, and Tennessee rivers, drains a twenty-nine state area of the contiguous United States and is recognized as one of the largest and most valuable ecosystems in the world.
2. The Corps of Engineers (COE), the Tennessee Valley Authority (TVA), the United States Forest Service (USFS), the National Marine Fisheries Service (NMFS), and the Fish and Wildlife Service (FWS), are authorized by the Federal Government together with various other agencies and Federally chartered entities to regulate commerce upon and manage interstate water and fish resources or have responsibility for management of habitat important to fish resources of the Mississippi River Drainage System (MRDS).
3. In recognition of the several existing "compacts" committees, commissions, and councils on the Mississippi River and its tributaries, it shall be the goal of this Agreement to recognize and embrace these existing "compacts" in a manner that will honor their long standing status and missions while at the same time, striving to join together all those entities that have jurisdiction and responsibilities for the fisheries resources of the Mississippi River Drainage System.
4. In recognition of the need to develop a comprehensive and cooperative plan which will provide for the competing needs of both commerce and fisheries management on a system-wide basis, the states comprising the MRDS and the various Federal agencies or entities that regulate or utilize its resources, have agreed in principal, to enter into discussions, leading to the development of cooperative fisheries research programs or cooperative fisheries management programs which will provide for cooperative resource management of the MRDS. This agreement is hereinafter referred to as the Mississippi Interstate Cooperative Resource Agreement (MICRA).

Now therefore it is agreed as follows:

- a. AGREEMENT: The states of Alabama, Arkansas, Colorado, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas, Virginia, West Virginia, Wisconsin, and Wyoming, hereinafter "States" and Federal Agencies, National Marine Fisheries Service, United States Fish and Wildlife Service, United States Forest Service, United States Army Corps of Engineers, Bureau of Land Management, and/or Charter entities, Tennessee Valley Authority, and Indian Tribes, hereinafter

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"entities", agree in principal to the establishment of a Committee which will meet periodically to facilitate the establishment of cooperative projects between the States or between the States and the Entities to provide for the cooperative resource management of the MRDS.

b. STEERING COMMITTEE: Each member state and entity signatory will have one voting member on the Steering Committee. The Steering Committee shall elect by majority vote from among its members, a chairperson who will coordinate meetings and take on other duties as established from time to time by the Steering Committee.

c. PROCEDURES AND SUBCOMMITTEES: The business of the Steering Committee shall be managed by a policy subcommittee, hereinafter PSC, of seven members under the direction of the chairperson, popularly elected with due regard to geographical and entity representation according to procedures established at the first meeting of the Steering Committee. The PSC will meet from time to time at the call of the chair and shall have such duties, in addition to coordinating MICRA activities for approval of the membership, as the Steering Committee may prescribe. The Steering Committee shall at its initial meeting establish such other subcommittees (scientific and technical) and procedures as are necessary and appropriate to the conduct of its business.

d. REPORTS AND MEETINGS: Each member of the Steering Committee, at intervals determined appropriate at the initial meeting, shall be entitled to receive reports detailing the activities and progress of the subcommittees.

e. ADMISSION AND WITHDRAWAL: The Steering Committee and its sub-committees, as the case may be, shall provide for admission and withdrawal of members according to procedures adopted at the initial meeting.

In witness whereof, the States and Entities have executed this Agreement as of the date first written.

Signatories:

Entity Signatories:

## APPENDIX B

Mississippi River Drainage Basin

Rivers of Immediate Concern

to

MICRA

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## **MISSISSIPPI RIVER DRAINAGE BASIN RIVERS OF IMMEDIATE CONCERN TO MICRA \***

### **GULF TRIBUTARIES**

Mississippi (Minnesota, Wisconsin, Iowa, Illinois, Missouri, Kentucky, Tennessee, Arkansas, Mississippi, Louisiana)  
Atchafalaya (Louisiana)  
Tennessee-Tombigbee Waterway (Tennessee, Mississippi, Alabama)

### **MISSISSIPPI TRIBUTARIES**

Amite (Louisiana, Mississippi)  
Red (Texas, Oklahoma, Arkansas, Louisiana)  
Big Black (Mississippi)  
Yazoo (Mississippi, Louisiana)  
Arkansas (Colorado, Kansas, Oklahoma, Arkansas)  
St. Francis (Missouri, Arkansas)  
Hatchie (Tennessee, Mississippi)  
Ohio (Pennsylvania, West Virginia, Ohio, Kentucky, Indiana, Illinois)  
Big Muddy (Illinois)  
Kaskaskia (Illinois)  
Missouri (Montana, North Dakota, South Dakota, Nebraska, Iowa, Kansas, Missouri)  
Illinois (Illinois)  
Des Moines (Minnesota, Iowa, Missouri)  
Iowa (Iowa)  
Rock (Wisconsin, Illinois)  
Wapsipinicon (Iowa, Minnesota)  
Wisconsin (Wisconsin)  
Upper Iowa (Iowa, Minnesota)  
Black (Wisconsin)  
Chippewa (Wisconsin)  
St. Croix (Wisconsin, Minnesota)  
Minnesota and Big Stone Lake (South Dakota, Minnesota)

### **RED TRIBUTARIES**

Ouachita (Arkansas, Louisiana)

### **OUACHITA TRIBUTARIES**

Boeuf (Louisiana Arkansas)

### **BOEUF TRIBUTARIES**

Bayou LaFourche (Louisiana)

### **ARKANSAS TRIBUTARIES**

White, including Bull Shoals, Norfolk and Table Rock reservoirs (Missouri,

Arkansas)  
Neosho (Kansas, Oklahoma)  
Verdigris (Kansas, Oklahoma)  
Cimarron (Colorado, Kansas, Oklahoma)  
Medicine Lodge (Kansas, Oklahoma)

**NEOSHO TRIBUTARIES**

Spring (Kansas, Missouri)

**VERDIGRIS TRIBUTARIES**

Caney (Kansas, Oklahoma)

**MEDICINE LODGE TRIBUTARIES**

Chikaskia (Kansas, Oklahoma)

**OHIO TRIBUTARIES**

Tennessee, including Kentucky Lake, Pickwick Lake and Guntersville Lake  
(Tennessee, Alabama, Mississippi, Kentucky)  
Cumberland, including Dale Hollow Lake, Cordell Hull Lake (Kentucky,  
Tennessee)  
Wabash (Indiana, Illinois)  
Big Sandy (West Virginia, Kentucky)  
Kanawha (West Virginia)  
Allegheny (New York, Pennsylvania)  
Monongahela (West Virginia, Pennsylvania)

**TENNESSEE TRIBUTARIES**

Tennessee-Tombigbee Waterway (Tennessee, Mississippi, Alabama)  
Shoal Creek (Tennessee, Alabama)  
Elk (Tennessee, Alabama)  
Hiwassee, including Chatuge and Nottely Reservoirs (Tennessee, Georgia,  
North Carolina)  
Powell (Virginia, Tennessee)  
Little Tennessee, including Tellico and Calderwood reservoirs (Tennessee,  
North Carolina, Georgia)  
French Broad (North Carolina, Tennessee)  
North Fork Holston (Virginia, Tennessee)  
South Fork Holston River and Reservoir (Virginia, Tennessee)

**POWELL TRIBUTARIES**

Clinch (Virginia, Tennessee)

**SOUTH FORK HOLSTON TRIBUTARIES**

Wautaga including Wautaga Reservoir (Tennessee and North Carolina)

**FRENCH BROAD TRIBUTARIES**

Pigeon (North Carolina, Tennessee)  
Nolichucky (North Carolina, Tennessee)

**HIWASSEE TRIBUTARIES**

Ocoee (Georgia, Tennessee)

**WABASH TRIBUTARIES**

Little Wabash (Illinois)

Embarrass (Illinois)

**BIG SANDY TRIBUTARIES**

Levisa Fork (Virginia, Kentucky)

**LEVISA FORK TRIBUTARIES**

Russell Fork (Virginia, Kentucky)

**KANAWHA TRIBUTARIES**

New (North Carolina, Virginia, West Virginia)

**MISSOURI TRIBUTARIES**

Osage (Kansas, Missouri)

Chariton (Iowa, Missouri)

Grand (Iowa, Missouri) Kansas (Kansas)

Kansas (Kansas)

Big Nemaha (Nebraska Kansas)

Little Nemaha (Nebraska)

Platte (Wyoming, Nebraska)

Little Sioux (Minnesota, Iowa)

Big Sioux (South Dakota, Iowa)

James (North Dakota, South Dakota)

Niobrara (Wyoming, Nebraska)

White (Nebraska, South Dakota)

Cheyenne (Wyoming, South Dakota)

Grand (North Dakota, South Dakota)

Yellowstone (Wyoming, Montana)

Poplar (Montana, Canada)

Milk (Montana, Canada)

Madison (Wyoming, Montana)

**OSAGE TRIBUTARIES**

Marais des Cygne (Kansas, Missouri)

**KANSAS TRIBUTARIES**

Blue (Nebraska, Kansas)

Republican (Nebraska, Kansas)

**PLATTE TRIBUTARIES**

South Platte (Colorado, Nebraska)

North Platte (Colorado, Wyoming, Nebraska)

**CHEYENNE TRIBUTARIES**

Belle Fourche (Wyoming, South Dakota)

**YELLOWSTONE TRIBUTARIES**

Powder (Wyoming, Montana)  
Tongue (Wyoming, Montana)  
Big Horn (Wyoming, Montana)  
Clarks Fork (Wyoming, Montana)

**ILLINOIS TRIBUTARIES**

Kankakee (Indiana, Illinois)

**IOWA TRIBUTARIES**

Cedar (Minnesota, Iowa)

**CEDAR TRIBUTARIES**

Shell Rock (Minnesota, Iowa)

\* River passes through the States listed in parentheses)

# **APPENDIX C**

## **Mississippi River Drainage Basin Fish Species of Immediate Concern to MICRA**

## MISSISSIPPI RIVER DRAINAGE BASIN FISH SPECIES OF IMMEDIATE CONCERN TO MICRA \*

<b>Petromyzontidae</b>	chestnut lamprey ( <u><i>Ichthyomyzon castaneus</i></u> )
<b>Acipenseridae</b>	lake sturgeon ( <u><i>Acipenser fulvescens</i></u> ) gulf sturgeon ( ) pallid sturgeon ( <u><i>Scaphirhynchus albus</i></u> ) shovelnose sturgeon ( <u><i>Scaphirhynchus platyrhynchus</i></u> )
<b>Polyodontidae</b>	paddlefish ( <u><i>Polyodon spathula</i></u> )
<b>Hiodontidae</b>	goldeye ( <u><i>Hiodon alosoides</i></u> )
<b>Anquillidae</b>	American eel ( <u><i>Anguilla rostrata</i></u> )
<b>Clupeidae</b>	Alabama shad ( <u><i>Alosa alabamae</i></u> ) skipjack herring ( <u><i>Alosa chrysochloris</i></u> ) gizzard shad ( <u><i>Dorosoma cepedianum</i></u> )
<b>Cyprinidae</b>	grass carp ( <u><i>Ctenopharyngodon idella</i></u> ) spotfin shiner ( <u><i>Cyprinella spiloptera</i></u> ) common carp ( <u><i>Cyprinus carpio</i></u> ) gravel chub ( <u><i>Erimystax x-punctatus</i></u> ) western silvery minnow ( <u><i>Hybognathus argyritis</i></u> ) brassy minnow ( <u><i>Hybognathus hankinsoni</i></u> ) plains minnow ( <u><i>Hybognathus placitus</i></u> ) silver carp ( <u><i>Hypophthalmichthys molitrix</i></u> ) bighead carp ( <u><i>Hypophthalmichthys nobilis</i></u> ) black carp ( <u><i>Mylopharyngodon picens</i></u> ) speckled chub ( <u><i>Macrhybopsis aestivalis</i></u> ) sturgeon chub ( <u><i>Macrhybopsis gelida</i></u> ) sicklefin chub ( <u><i>Macrhybopsis meeki</i></u> ) pallid shiner ( <u><i>Notropis amnis</i></u> ) river shiner ( <u><i>Notropis blennius</i></u> ) Arkansas river shiner ( <u><i>Notropis girardi</i></u> ) Ozark minnow ( <u><i>Notropis nubilus</i></u> ) silverband shiner ( <u><i>Notropis shumardi</i></u> ) weed shiner ( <u><i>Notropis texanus</i></u> ) pugnose minnow ( <u><i>Opsopoeodus emiliae</i></u> ) flathead chub ( <u><i>Platygobio gracilis</i></u> )
<b>Catostomidae</b>	river carpsucker ( <u><i>Carpionodes carpio</i></u> ) highfin carpsucker ( <u><i>Carpionodes velifer</i></u> )

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	white sucker ( <u>Catostomus commersoni</u> )
	blue sucker ( <u>Cycleptus elongatus</u> )
	lake chubsucker ( <u>Erimyzon sucetta</u> )
	northern hogsucker ( <u>Hypentelium nigricans</u> )
	smallmouth buffalo ( <u>Ictiobus bubalus</u> )
	bigmouth buffalo ( <u>Ictiobus cyprinellus</u> )
	black buffalo ( <u>Ictiobus niger</u> )
	spotted sucker ( <u>Minytrema melanops</u> )
	silver redhorse ( <u>Moxostoma anisurum</u> )
	river redhorse ( <u>Moxostoma carinatum</u> )
	black redhorse ( <u>Moxostoma duquesnei</u> )
	golden redhorse ( <u>Moxostoma erythrurum</u> )
	shorthead redhorse ( <u>Moxostoma macrolepidotum</u> )
	greater redhorse ( <u>Moxostoma valenciennesi</u> )
<b>Ictaluridae</b>	black bullhead ( <u>Ameiurus melas</u> )
	blue catfish ( <u>Ictalurus furcatus</u> )
	channel catfish ( <u>Ictalurus punctatus</u> )
	tadpole madtom ( <u>Noturus gyrinus</u> )
	Neosho madtom ( <u>Noturus placidus</u> )
	flathead catfish ( <u>Pylodictis olivaris</u> )
<b>Esocidae</b>	northern pike ( <u>Esox lucius</u> )
	muskellunge ( <u>Esox masquinongy</u> )
<b>Salmonidae</b>	cutthroat trout ( <u>Oncorhynchus clarki</u> )
	rainbow trout ( <u>Oncorhynchus mykiss</u> )
	brown trout ( <u>Salmo trutta</u> )
<b>Aphredoderidae</b>	pirate perch ( <u>Aphredoderus sayanus</u> )
<b>Cottidae</b>	banded sculpin ( <u>Cottus carolinae</u> )
<b>Percichthyidae</b>	white bass ( <u>Morone chrysops</u> )
	striped bass ( <u>Morone saxatilis</u> )
	hybrid striped bass X white bass
<b>Centrarchidae</b>	rock bass ( <u>Ambloplites rupestris</u> )
	redbreast sunfish ( <u>Lepomis auritus</u> )
	bluegill ( <u>Lepomis macrochirus</u> )
	longear sunfish ( <u>Lepomis megalotis</u> )
	smallmouth bass ( <u>Micropterus dolomieu</u> )
	spotted bass ( <u>Micropterus punctulatus</u> )
	largemouth bass ( <u>Micropterus salmoides</u> )
	white crappie ( <u>Pomoxis annularis</u> )
	black crappie ( <u>Pomoxis nigromaculatus</u> )
<b>Percidae</b>	crystal darter ( <u>Ammocrypta asprella</u> )
	western sand darter ( <u>Ammocrypta clara</u> )
	mud darter ( <u>Etheostoma asprigene</u> )

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greenside darter (Etheostoma blenniodes)  
bluntnose darter (Etheostoma chlorosomum)  
slough darter (Etheostoma gracile)  
stippled darter (Etheostoma punctulatum)  
banded darter (Etheostoma zonale)  
yellow perch (Perca flavescens)  
gilt darter (Percina evides)  
blackside darter (Percina maculata)  
river darter (Percina shumardi)  
sauger (Stizostedion canadense)  
walleye (Stizostedion vitreum)

**Sciaenidae**                      freshwater drum (Aplodinotus grunniens)

\* Scientific nomenclature according to Robbins, C.R., R.M. Bailey, C.E. Bond, J.R. Brooker, E A. Lachner, R.N. Lea, and W.B. Scott. 1991. Common and scientific names of fishes from the United States and Canada. Fifth Edition. Special Publication No. 20. American Fisheries Society, Bethesda, Maryland. 183 pp.