HATCHIE/LOOSAHATCHIE MISSISSIPPI RIVER MILE 775-736, TN AND AR ECOSYSTEM RESTORATION STUDY

Public Scoping Meeting

Mike Thron
USACE Biologist and NEPA Coordinator

26 Sept. 2022

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PURPOSE OF SCOPING MEETING

- National Environmental Policy Act (NEPA)

- Inform the Public
  - Provide Overview and background on study

- Solicit Input
  - Determine scope of significant issues and concerns
  - Eliminate issues that are not significant
  - Development of alternatives

  The USACE encourages full participation to promote open communication on the issues surrounding the study.

AGENDA

- Background/Authority
- Study Area
- Proposed Measures
- We Want to Hear From You

BACKGROUND - LMRRA

Data Science and Communications Program				
	Recommendation	**Lead Organization**	**Cost**	**Value**
DISC 1	Science Technology Information Center	USGS	$2 million/year	Promote interagency cooperation, encourage research, foster public interest, and support other recommendations.
DISC 2	Sediment Study	USACE	$4 million/year	Support management plans, better manage dredging and coastal restoration.
DISC 3	Water Quality Monitoring Program	USGS & EPA	$2 million/ year	Provide clean water for people, industry, and habitat.
DISC 4	Tributary Watershed Studies	USACE	9 @ $1-$5 million each	Develop plans to manage tributaries for habitat, water quality, sediment, water supply, navigation and recreation.
DISC 5	Ecological Inventory	USACE & USFWS	$1.7 million	Provide information to support restoration.
Habitat Restoration and Management Program				
	Recommendation	**Lead Organization**	**Cost**	**Value**
HRMP 1	Conservation Reach Studies	USACE	8 @ $3 million each	Restore aquatic (side channel, oxbow, main channel, islands, and sandbars) and terrestrial (wetlands, bottomland hardwoods, and floodplain) habitats for native species and especially federally listed species.
HRMP 2	Aquatic Habitat Restoration Studies	USACE & USFWS	125 @ $200,000 to $ 15 million (maximum)	Restore individual sites for native species.
HRMP 3	Terrestrial Habitat Program	USDA & LMVJV	$18,000,000	Restore floodplain habitat.
HRMP 4	Invasive Species Program	MICRA & ANSTF	Part of larger effort	Promote and protect native species.
Recreation Program				
	Recommendation	**Lead Organization**	**Cost**	**Value**
RP 1	Boat Ramps	LMRCC and others	$50,000 - $750,000 each	Increase safety and meet recreation demand.
RP 2	Bicycle Trails	NGOs	variable	Increase safety and meet recreation demand.
RP 3	Riverfront Parks	Local Communities	variable	Promote community cohesiveness and meet demand.
RP 4	Riverboat Landings	Local Communities	variable	Provide safe, accessible opportunities and support local economic development.
RP 5	Marketing	NPS, MRPC, NGOs	$2 million	Promote river use and encourage economic development.
RP 6	Lodging and Dining	Private Enterprise	variable	Meet demand and support economic development.
RP 7	Outfitters and Guides	Private Enterprise	variable	Increase safety, meet demand and support economic development.

Eight reaches were identified as priorities:

Wolf Island to Island 8 Reach
RM 946 – 910 (36 mi.)

Hatchie/Loosahatchie Reach
RM 775 – 736 (39 mi) (TN/AR)

Islands 62/63 Reach
RM 650 - 618 (32 mi.)

Arkansas River Reach
RM 599 – 556 (43 mi.)

Possum (Worthington-Pittman) Reach
RM 524 – 490 (34 mi.)

Palmyra River Reach
RM 431 – 398 (33 mi.)

Lake Mary Reach
RM 360 -322 (38 mi.)

Raccourci Cutoff Reach
RM 300 -265 (35 mi.)

AUTHORIZATION

2017: LMRCC et al. submitted proposal through WRDA 7001 process to get a study authority for the Conservation Reach studies recommended in LMRRA.

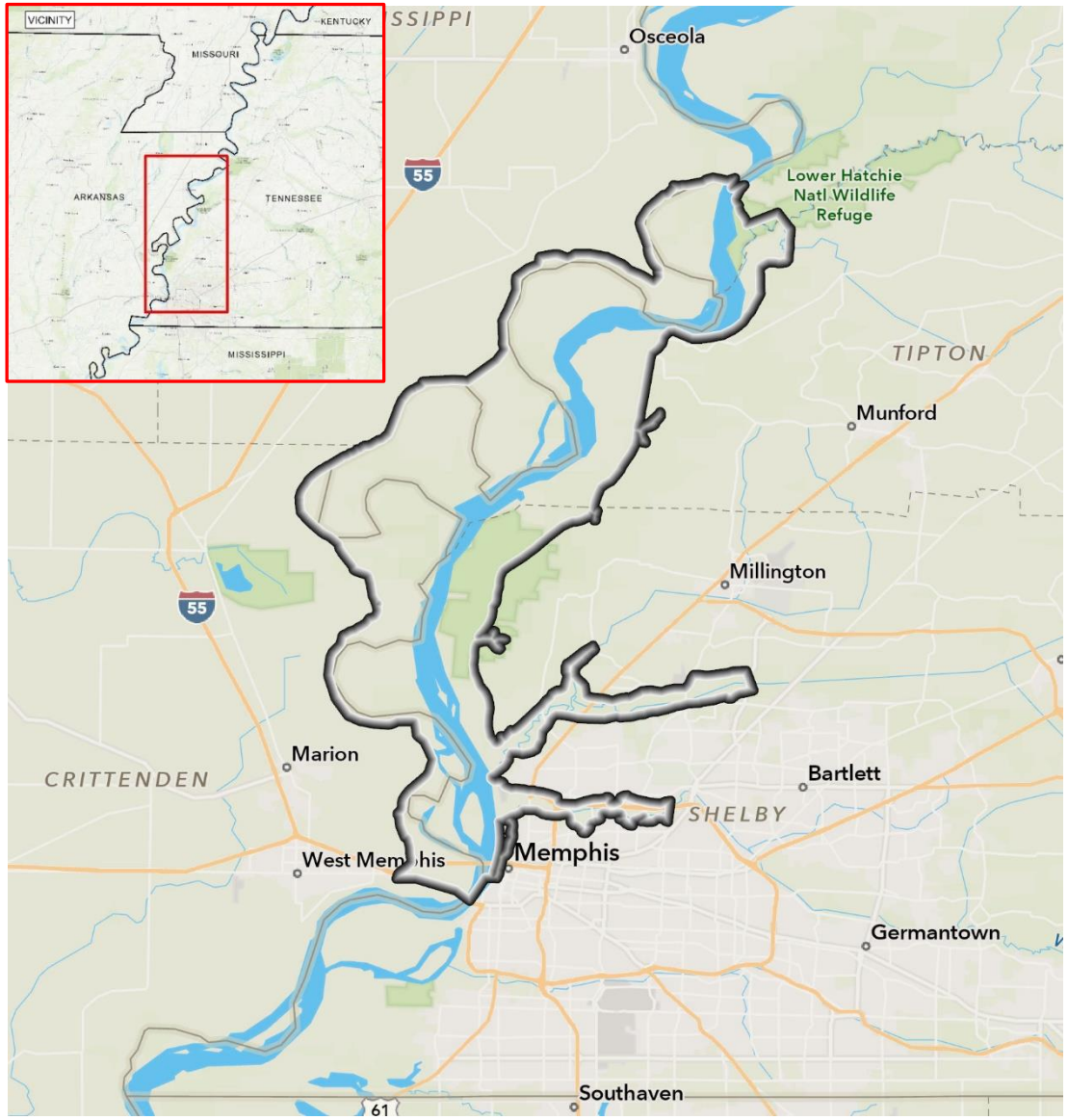
2018: WRDA 2018 SEC. 1202. *ADDITIONAL STUDIES. (a) LOWER MISSISSIPPI RIVER; MISSOURI, KENTUCKY, TENNESSEE, ARKANSAS, MISSISSIPPI, AND LOUISIANA.— (1) IN GENERAL.—The Secretary is authorized to carry out studies to determine the feasibility of habitat restoration for each of the eight reaches identified as priorities in the report prepared by the Secretary pursuant to section 402 of the Water Resources Development Act of 2000, titled "Lower Mississippi River Resource Assessment; Final Assessment In Response to Section 402 of WRDA 2000" and dated July 2015. (2) CONSULTATION.—The Secretary shall consult with the Lower Mississippi River Conservation Committee during each feasibility study carried out under paragraph (1).*

2019: LMRCC submits Letter of Intent to Sponsor the Hatchie/Loosahatchie Feasibility Study beginning in the FY 2021 Budget.

2021: Received Funding to begin the HATCHIE/LOOSAHATCHIE, MISSISSIPPI RIVER MILE 775-736 HABITAT RESTORATION, TN & AR Feasibility Study.

STUDY AREA

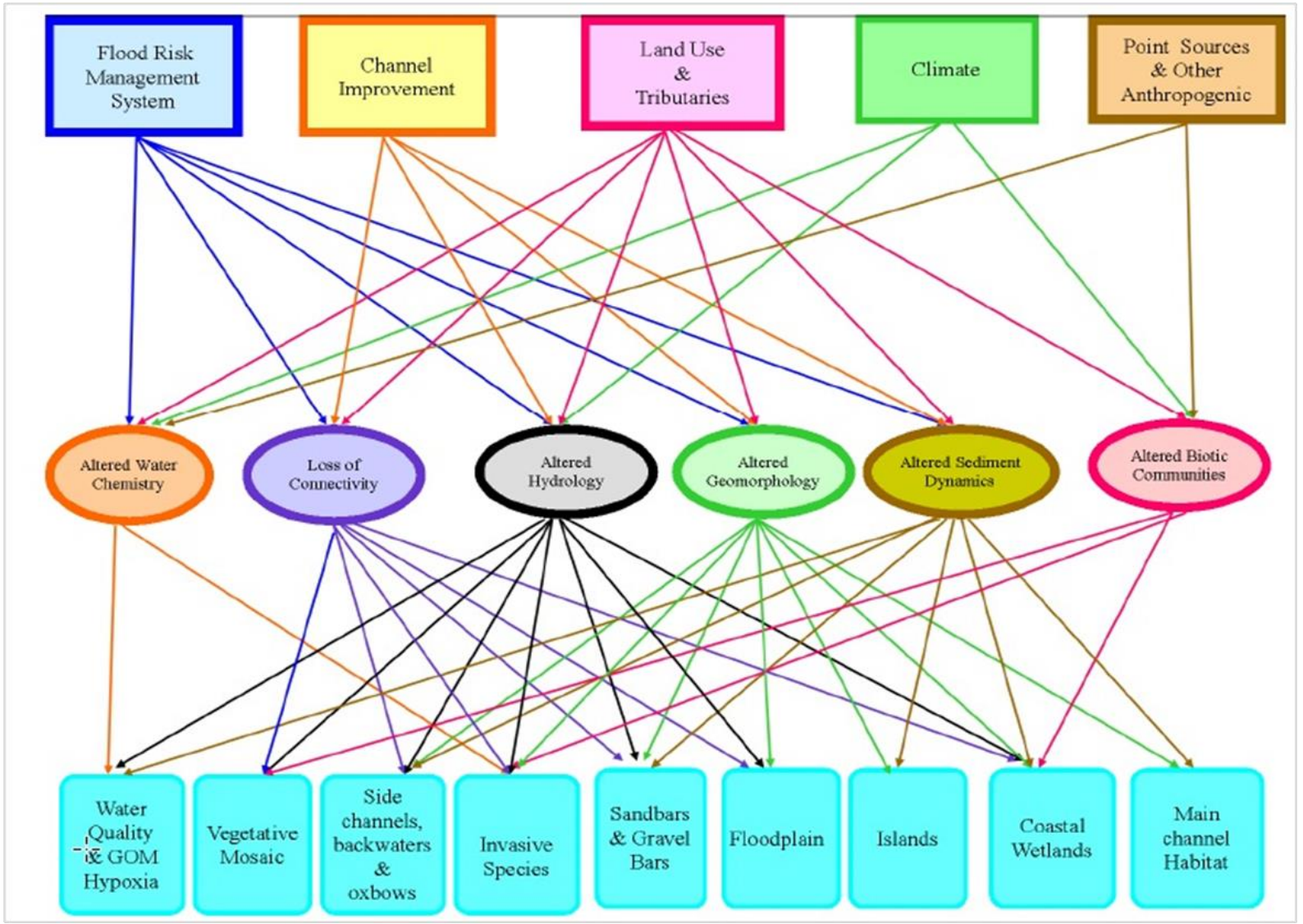
- 39-mile reach (RM 775-736)
- Beginning at the mouth of the Hatchie River and extending south to the mouth of the Wolf River Harbor.
- Three tributary mouths in the reach (Hatchie, Loosahatchie, and Wolf Rivers).
- Meeman Shelby Forest State Park, Eagle Lake Refuge WMA, and Lower Hatchie NWR within this reach.

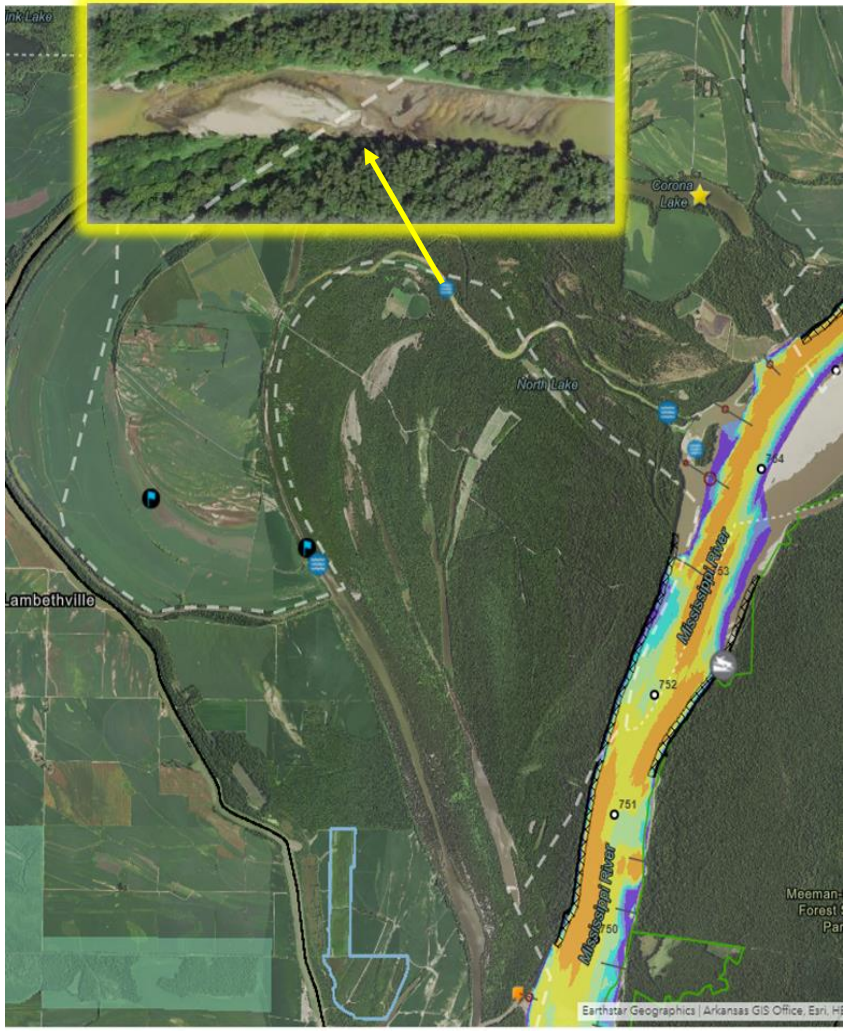


Tennessee
GOV. Bill Lee (R)
SEN Marsha Blackburn (R)
SEN Bill Hagerty (R)
REP David Kustoff (R TN-8)
REP Steve Cohen (D TN-9)

Arkansas
GOV Asa Hutchinson (R)
SEN Tom Cotton (R)
SEN John Boozman (R)
REP Eric “Rick” Crawford (R AR-1)

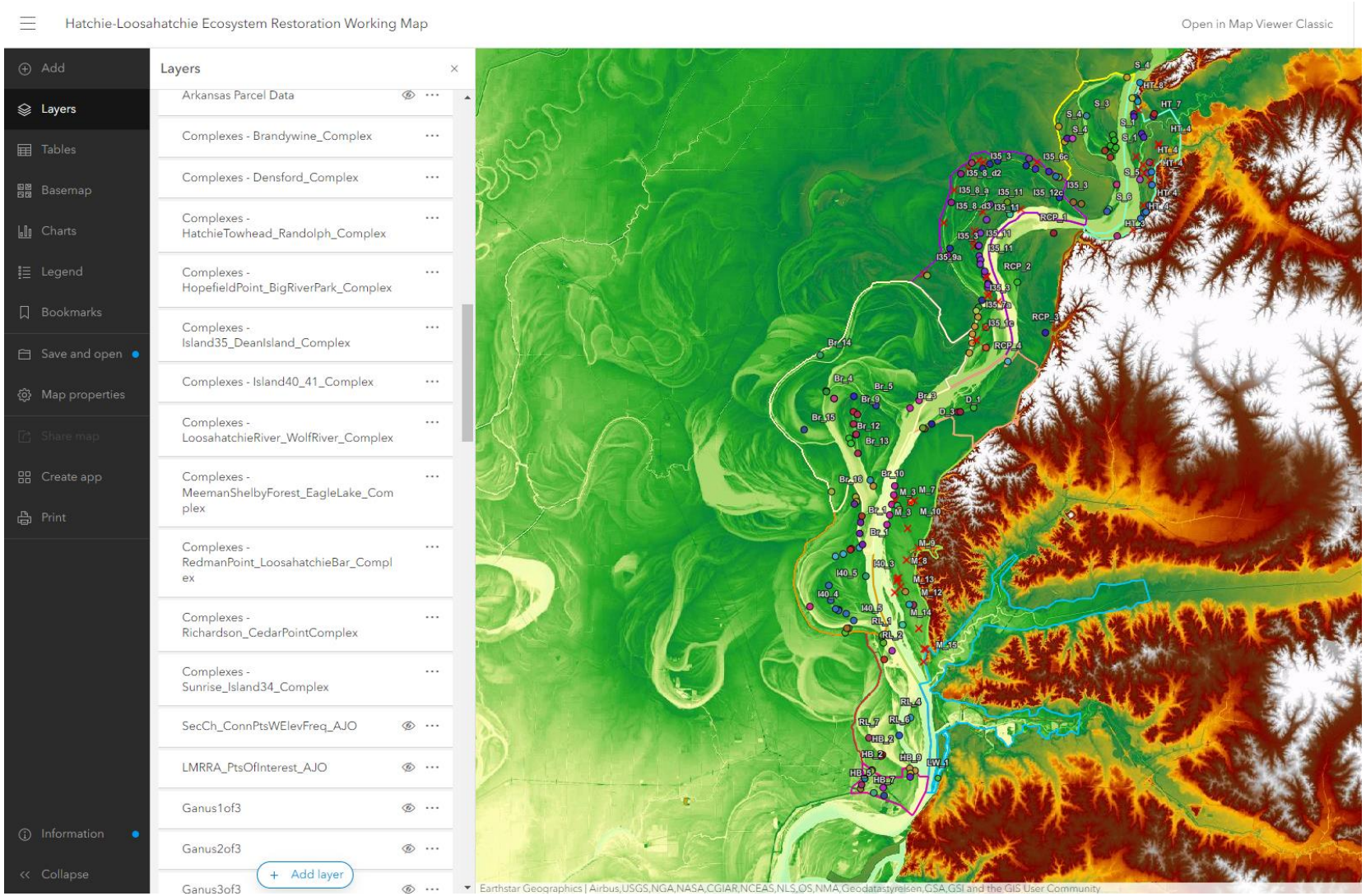
PROBLEMS AND OPPORTUNITIES





ArcGIS Online (AGOL) for Alternative Development

- Study Area
- River Miles
- Boat Ramps
- LMRCC RAGR Projects
- Bathymetry
- Dikes
- Notches
- Revetment
- Dredging Locations
- Gravel Bars
- Least Tern Nesting Sites
- Landcover
- Public Lands
- 2yr-5yr Flood Frequency
- USFWS Alligator Gar HSI
- LMVJV Bird Priority Areas
- NRCS Easements
- Hydric Soils
- Low Water Imagery
- Historic River Maps
- Elevation Data
- Floodplain Waterbodies
- Habitat Complexes



GOAL and OBJECTIVES

GOAL: To restore ecological structure and function to the mosaic of habitats along the Mississippi River including secondary channels and other aquatic habitat; floodplain forests; and several scarce vegetative communities such as wetlands, rivercane, riverfront forests, and BLH forests.

OBJECTIVE 1: Increase quantity and/or quality of vegetated habitats and maintain a diverse **vegetative mosaic** in the floodplain to benefit native fish and wildlife resources (e.g., migratory birds and species of conservation concern) focusing on habitat such as: emergent, floating, and submersed aquatic vegetation; rivercane; BLH.

Priority species: Indiana Bat, NLEB, Little Brown Bat, Prothonotary Warbler, Rusty Blackbird, - (BLH); King rail - (herbaceous wetlands), Swainson's Warbler - (rivercane), waterfowl, etc.

OBJECTIVE 2: Improve quantity and/or quality of diverse **large river habitats** (sandbars, gravel bars, secondary channels, etc.) to support critical life history requirements of priority species.

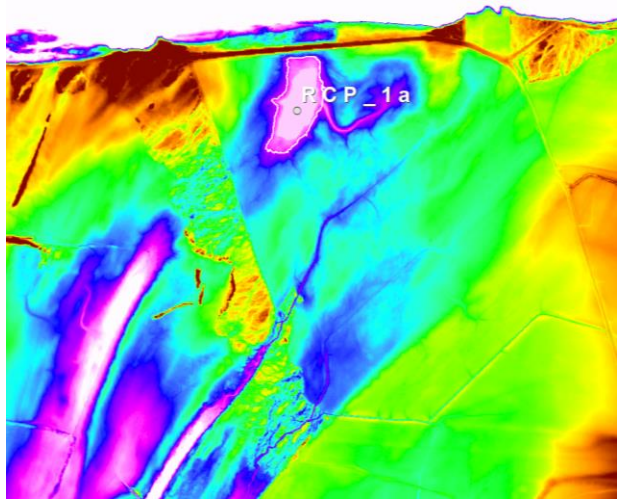
Priority species: Pallid Sturgeon, Blue Sucker, Lake Sturgeon, Sicklefin Chub, Stonecat, American Eel (secondary channels, gravel bars, point bars); Interior Least Tern (sandbars).

OBJECTIVE 3: Increase quality of the diverse mosaic of **floodplain waterbodies** (including but not limited to meander scarps, sloughs, crevasses, and borrow areas) and optimize their **aquatic connectivity** with the Mississippi River to support critical life history requirements of priority species.

Priority species: Alligator Gar, Paddlefish, Alligator Snapping Turtles (floodplain waterbodies, floodplain spawning habitat, etc.).

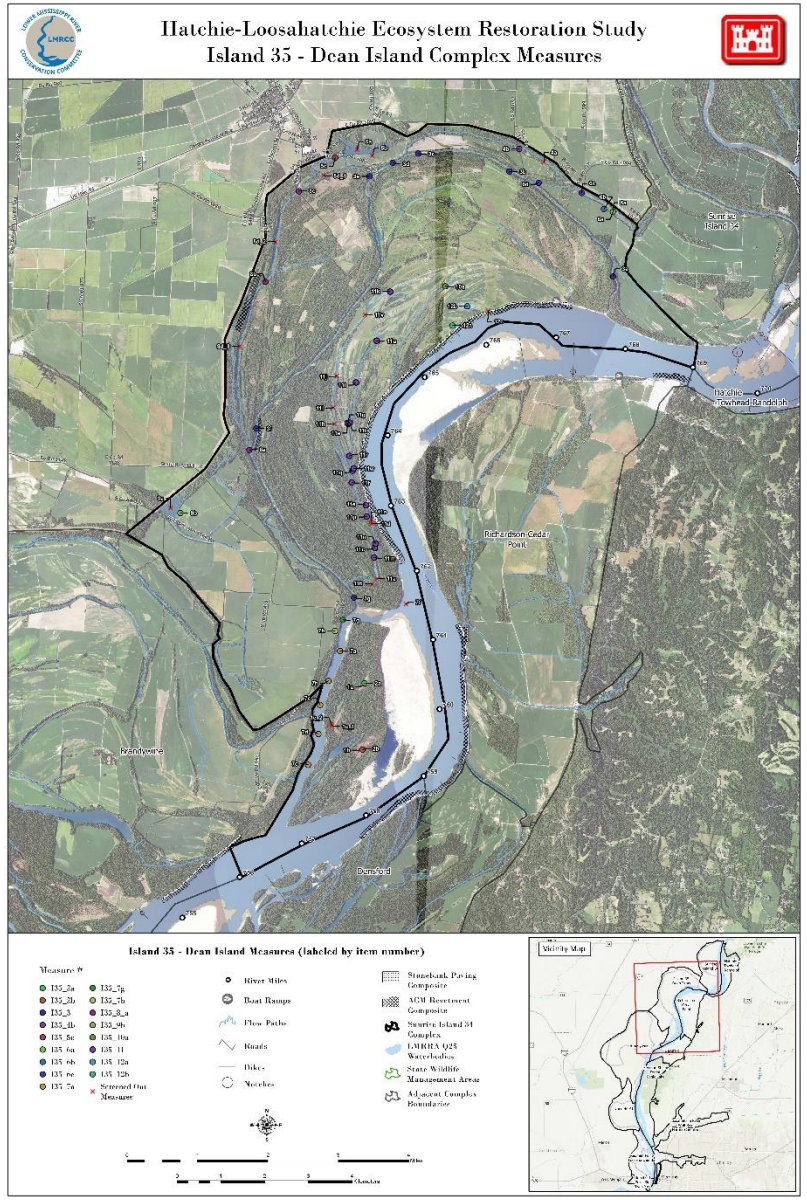
OBJECTIVE 4: Improve **recreational** opportunities and access to public spaces in study area.

Example Vegetative Measures



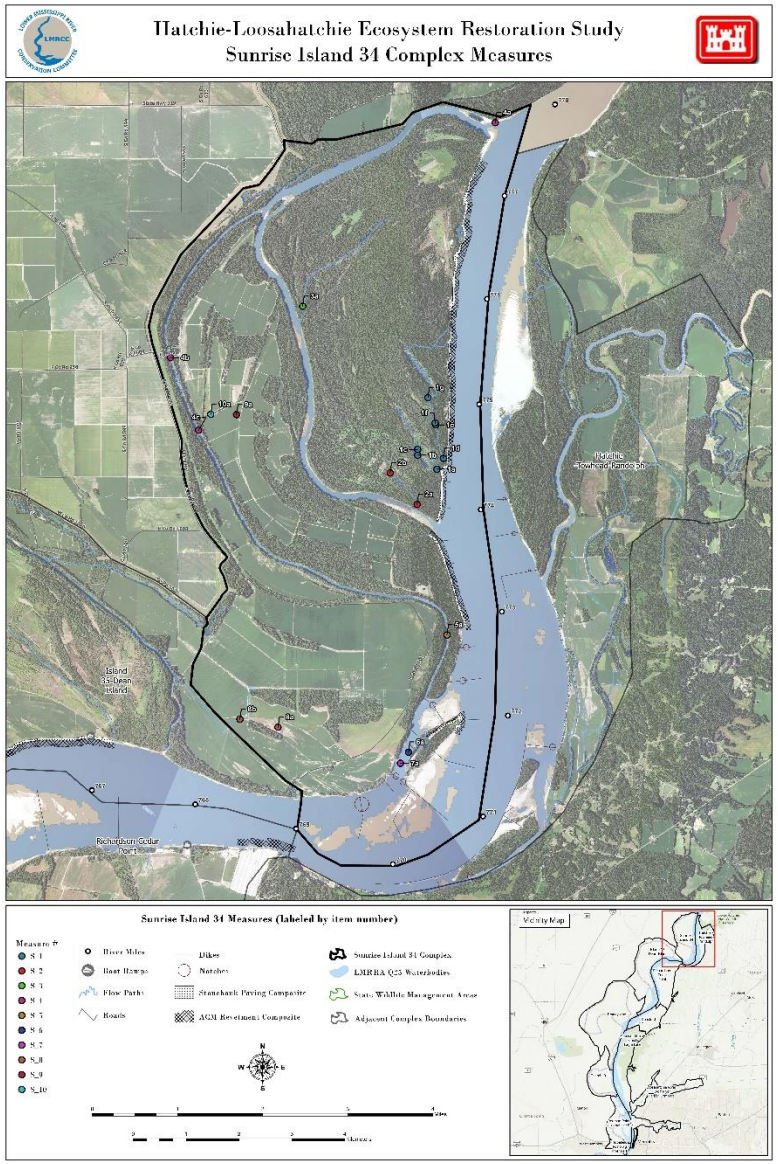
- Cypress-Tupelo establishment
- BLH – promotion of Oak/Hard Mast species
- Seasonal herbaceous wetlands
- Riparian buffers
- Rivercane

Example Measure: Dike Notching



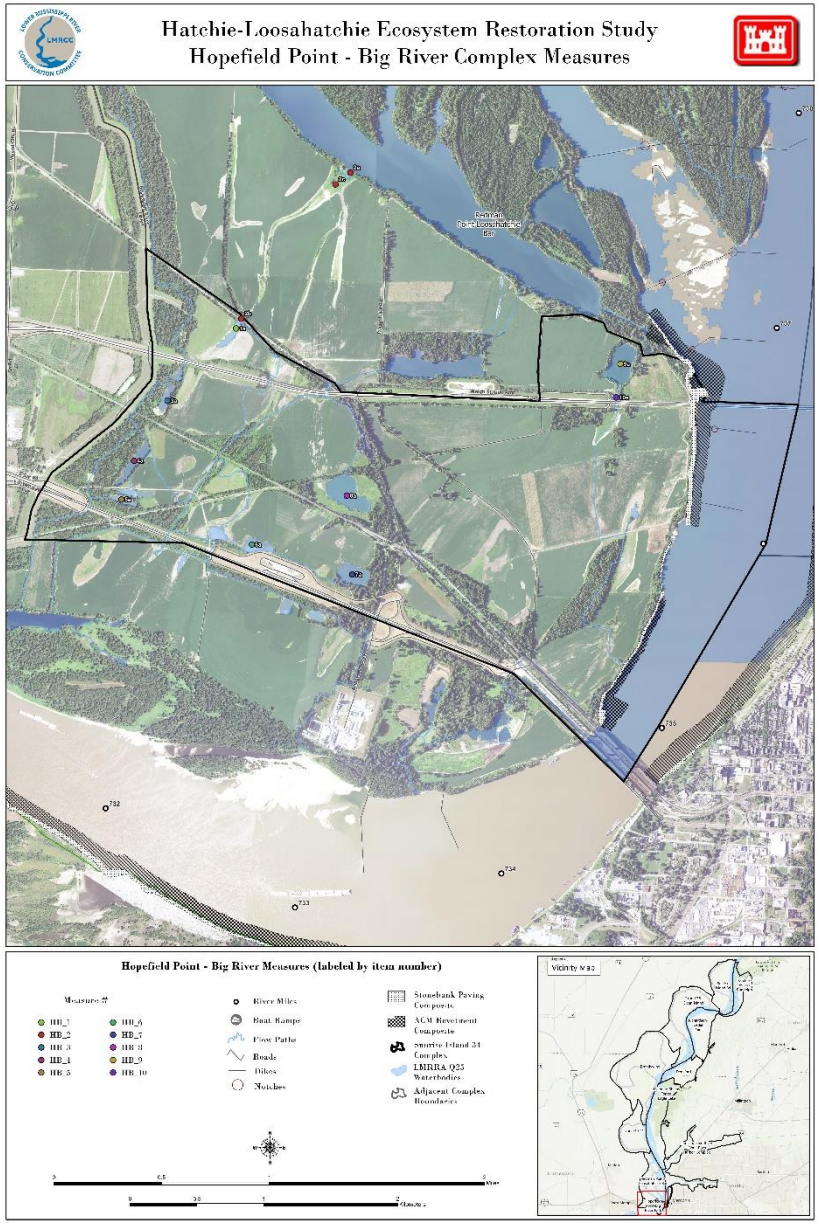
Example Measure: Increase Connectivity to Meander Scarp

- Install River Training Structure to divert water
- Remove accumulated sediment
- Notch old pile dike
- Interested in feedback



Example Measure: Borrow Area/Floodplain Lake Restoration

- Restoring Habitat Complexity in Borrow Areas (floodplain lakes)



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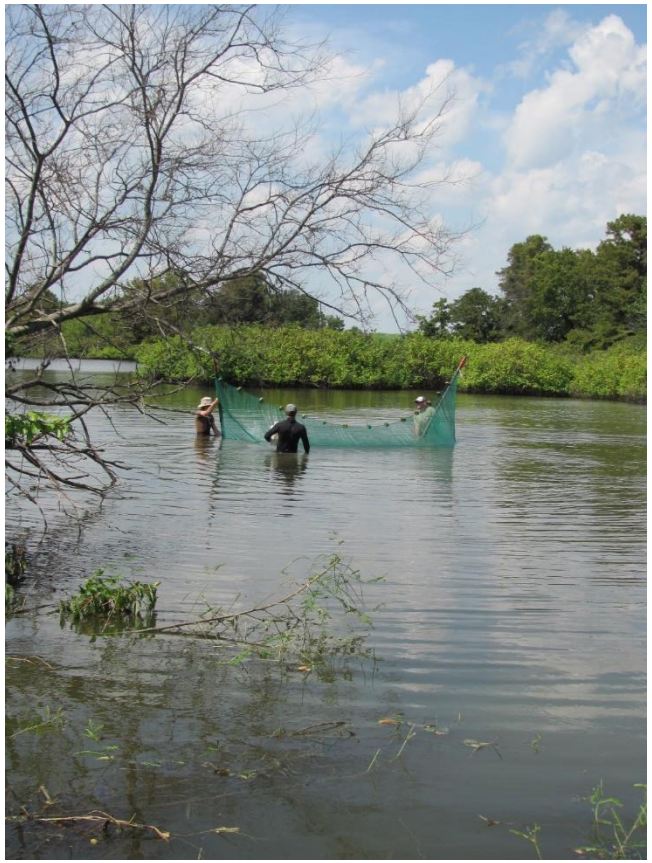
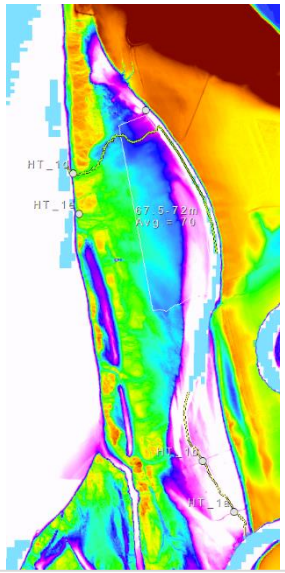
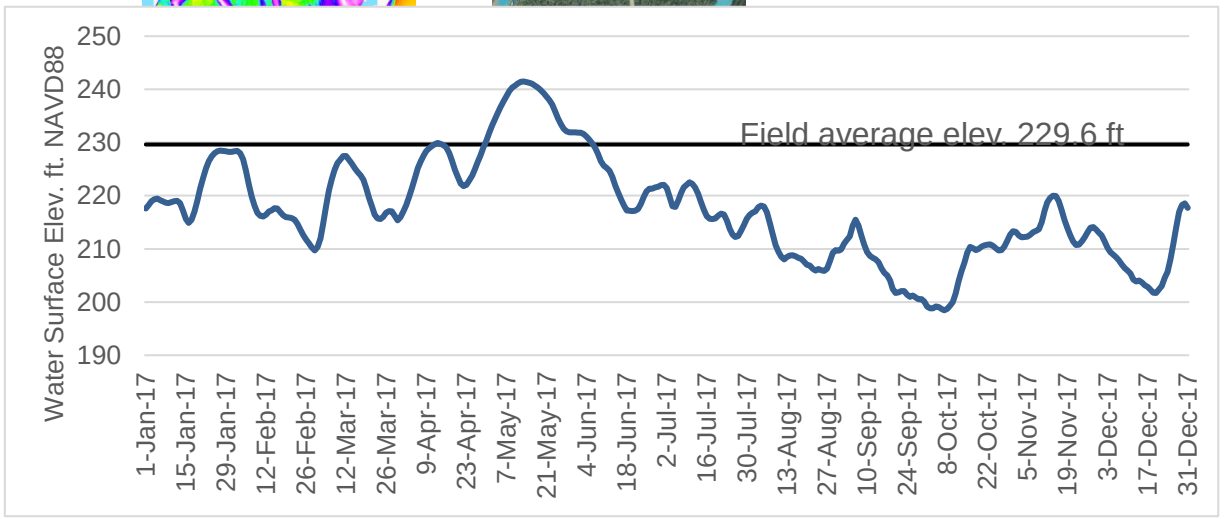
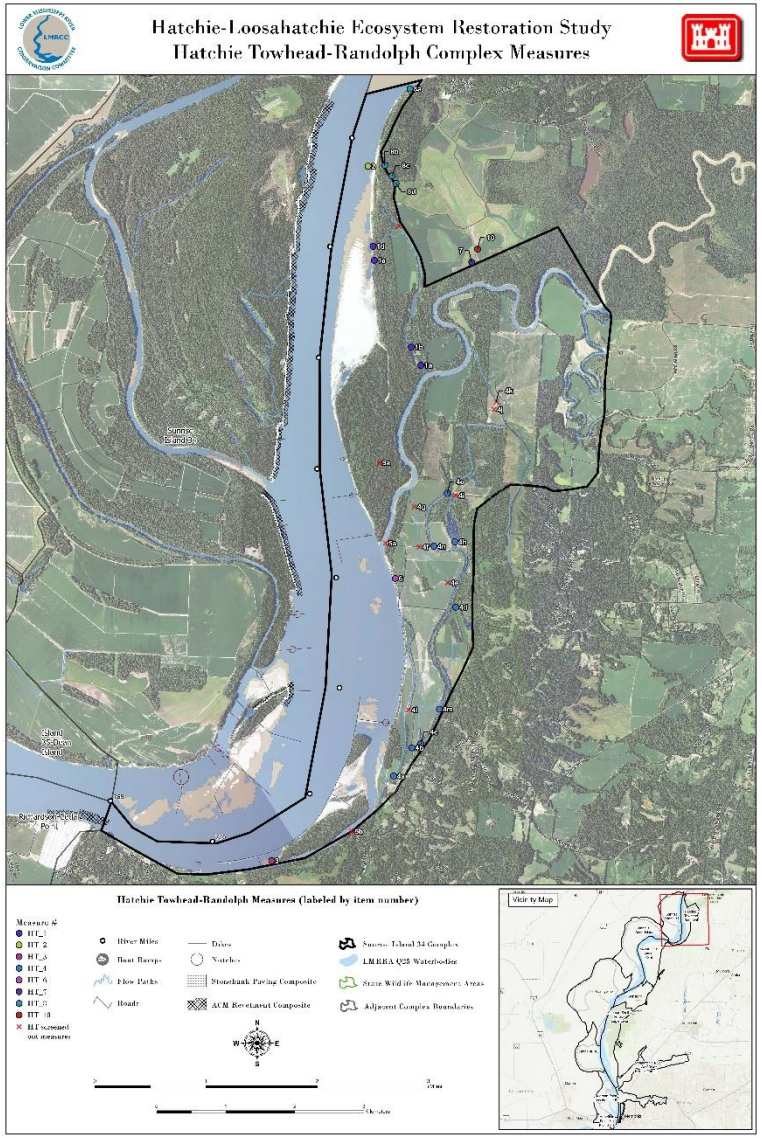


Example Measure: Increase Connectivity of Floodplain Waterbodies

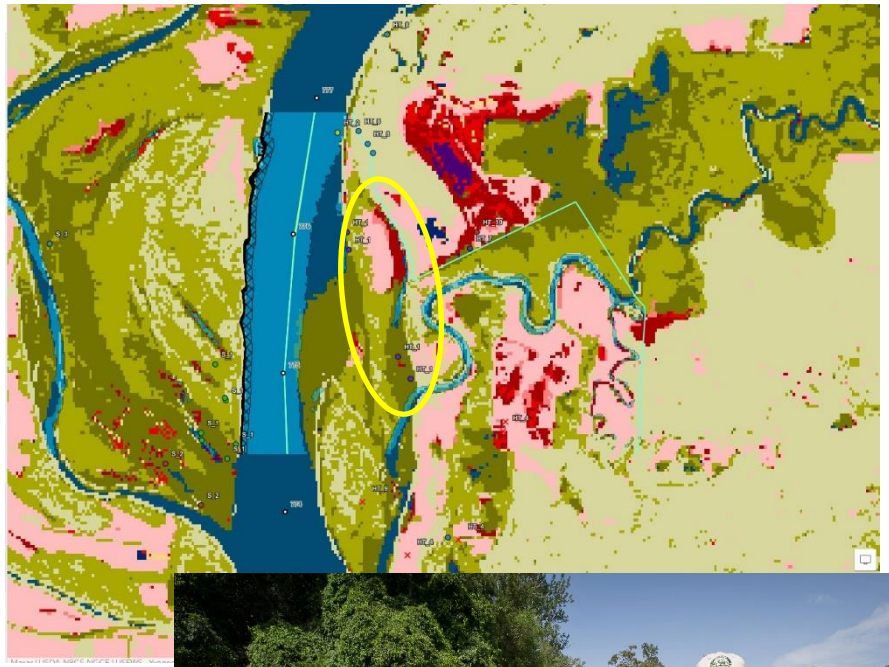


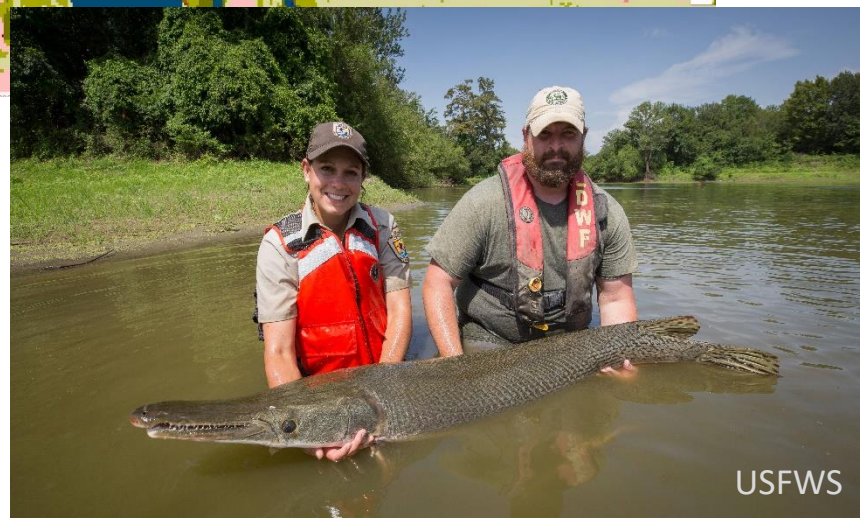
- Obstruction removals (lowering culvert inverts, etc.)
- Benefits to floodplain fish spawners, waterfowl, etc.





Example Measure: Increase Connectivity of Floodplain Waterbodies (cont.)





Lower Mississippi River Basin

Asian Carp Control Strategy Framework

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SPECIAL SECTION: ALLIGATOR GAR

Using Remote Sensing to Assess Alligator Gar Spawning Habitat Suitability in the Lower Mississippi River

Yvonne Allen,* Kayla Kimmel, and Glenn Constant
U.S. Fish and Wildlife Service, Baton Rouge Fish and Wildlife Conservation Office, 243 Parker Coliseum, Louisiana State University, Baton Rouge, Louisiana 70803, USA

Abstract

Floodplains are an important part of large-river ecosystems; the frequency, timing, duration, and spatial extent of inundation drive habitat quality and determine the suitability of these habitats for both aquatic and terrestrial organisms. Managers have traditionally had very limited information with which to evaluate and quantify the dynamics of large-river floodplains. Alligator Gar *Atractosteus spatula* use floodplains in the lower Mississippi River for spawning and have experienced declines in historic range that have been partly attributed to declines in spawning habitat availability. The Alligator Gar has therefore been identified by the American Fisheries Society, the U.S. Fish and Wildlife Service, and many state agencies as a species of concern in the lower Mississippi Alluvial Valley. The goal of this study was to develop landscape-level spatial data to determine the extent and quality of floodplain habitat that may be available for Alligator Gar spawning. Multi-temporal analysis of remote sensing imagery was used to develop spatial data products that defined floodplain inundation extent, inundation frequency, and temperature. These products were combined with existing layers of physical habitat structure to define and quantify spawning habitat suitability throughout the entire area subject to direct inundation by the lower Mississippi River. Habitat suitability categories were defined based on meeting unique combinations of inundation, temperature, and physical structure so that the most suitable conservation measures can be applied to improve local conditions.

Floodplains are an integral part of large-river ecosystems, where high flows that provide connectivity between the floodplain and the main-stem river (Welcomme 1979) drive ecosystem productivity (Junk et al. 1989). Many aquatic species take advantage of inundated floodplains for spawning and nursery habitat (Welcomme 1979; Bayley 1988; Kwak 1988; Agostinho et al. 2004; Balcombe et al. 2005; Farly et al. 2019), where there may be elevated primary productivity, more moderate environmental conditions, and physical structure of vegetation offering refuge from predation (Schramm and Eggleton 2006; Górski et al. 2010). River regulation and other hydrologic alterations, including levee construction, dam building, channel training, and natural patterns of deposition and accretion, have altered flow magnitude, frequency, duration, timing, and rate of change as well as the connectivity of many rivers with their adjacent floodplains. These engineered changes impact the function of the floodplain and in turn impact main-stem river function (Poff et al. 1997). On the lower Mississippi River, extensive levee construction during the last 150 years has separated over 90% of the historical floodplain from the main river channel (Baker et al. 1991). This reduction in habitat is particularly detrimental for species that have evolved to depend on a much larger Mississippi River floodplain. The floodplain on the St. Catherine Creek National Wildlife Refuge (SCCNWR; Figure 1) is one of the few areas of broad, low-relief floodplain that are still directly connected to the lower Mississippi River. The refuge lies on a narrow corridor between the Mississippi River to the west and high

*Corresponding author: yvonne_allen@fws.gov
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ower Mississippi River Sub-basin
rkansas, White, and Red Rivers Sub-basin

WE WANT TO HEAR FROM YOU

- Are there additional problems or opportunities that would improve ecological functions for the benefit of fish and wildlife?
- Are there any other concerns or issues?
- Are there additional measures that would address the problems?
- Are there specific data, modeling, or reports that should be considered?
- Are there specific locations or unique opportunities for consideration?
- Would you be interested in selling a Real Property Interest in support of Ecosystem Restoration? If so, circle all that apply: (a) Fee-simple, (b) Easements.
- Additional Comments:

SUMMARY

Project Website: https://www.mvm.usace.army.mil/Missions/Environmental-Stewardship/Hatchie-Loosahatchie-Mississippi-River-Ecosystem-Restoration-Study/

Written comments may be given to us tonight or sent to:

LMRRA-Hatchie-Loosahatchie@usace.army.mil

or

ATTN: CEMVN-PDC-UDC
U.S. Army Corps of Engineers
Memphis District
167 North Main St., RM B-202
Memphis, TN 38103-1894