Public Scoping Report for the Lower Mississippi River Comprehensive Management Study

July 2024



U.S. Army Corps of Engineers Mississippi Valley Division New Orleans District





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1 INTRODUCTION

This public scoping report was prepared by the U.S. Army Corps of Engineers (Corps) to provide a summary of the public scoping comments received during the 2024 scoping period for the Lower Mississippi River Comprehensive Management Study (LMRCMS or "Study"). This report includes a description of the communications and outreach to solicit public participation on the scope of the LMRCMS and a summary of the comments received by topic area.

1.1 Background

The Corps is preparing an integrated Feasibility and National Environmental Policy Act (NEPA) report to investigate ways to address the effects from changes in Lower Mississippi River (LMR) geomorphology and geometry, climate change, and anthropogenic impacts on inland flood risk, costal storm damage, navigation, and the natural environment within the lower alluvial valley of the Mississippi River which extends from Cape Girardeau, Missouri to the Gulf of Mexico and coastal watersheds (Figure 1). Congress directed the Corps to undertake the Study in Section 213 of the Water Resources Development Act of 2020 to conduct such a study:

(1) PURPOSE - The Secretary, in collaboration with the heads of other Federal agencies and pursuant to subsection (d)(1)(A), shall conduct a comprehensive study of the Lower Mississippi River basin from Cape Girardeau, Missouri, to the Gulf of Mexico. The study will identify recommendations of actions to be undertaken by the Secretary, under existing authorities or after congressional authorization, for the comprehensive management of the basin for multiple purposes:

(A) Hurricane and storm damage reduction, flood risk management, structural and nonstructural flood control, and floodplain management strategies;

(B) Navigation;

(C) Ecosystem and environmental restoration;

(D) Water supply;

- (E) Hydropower production;
- (F) Recreation; and
- (G) Other purposes as determined by the Secretary.

In response to the Great Flood of 1927, Congress passed the 1928 Flood Control Act, which authorized a plan of improvement for the lower Mississippi valley. In the decades

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following, the plan was modified and executed under the oversight of the Mississippi River Commission into what is now the Mississippi River & Tributaries (MR&T) Project.



Figure 1. Study Area

1.2 Description of the Federal Action

As outlined in Office of the Assistant Secretary of the Army (OASACW) implementation guidance, the LMRCMS "will consider a broad range of reasonable alternatives across the Lower Mississippi River basin to comprehensively manage the basin and improve the maximum effective river resource use and control for the priority mission areas of hurricane and storm damage reduction, flood risk management, navigation, and ecosystem and environmental restoration. Opportunities to manage water in the basin to increase benefits for water supply, hydropower production, and recreation will be explored when compatible with alternatives formulated to address the priority mission areas." Specifically, the Study will consider at minimum:

- Potential structural and operational modifications to existing MR&T water resources development projects.
- Adaptive management of existing MR&T water resources development projects to respond to changing conditions over time.
- New water resources development projects, including those proposed in the comprehensive coastal protection master plan entitled "Louisiana's Comprehensive Master Plan for a Sustainable Coast" prepared by the State of Louisiana and accepted by the Louisiana Coastal Protection and Restoration Authority, to include Ama sediment diversion; Union freshwater diversion; increased Atchafalaya flow to Terrebonne; and the Manchac Landbridge diversion.
- Measures or actions to restore, or mitigate future impacts from flood control operations on fish and wildlife habitat resources in the Mississippi Sound Estuary, the Lake Pontchartrain Basin, the Breton Sound, the Barataria Basin, the Terrebonne Basin, the Atchafalaya Basin, the Vermilion–Teche Basin, and other outlets of the MR&T.
- The use of natural and nature-based features, such as levee setbacks and floodplain restoration.
- Measures or actions to improve the efficiency of operational and maintenance dredging.
- Actions to be undertaken by other Federal agencies or by non-Federal interests.

The LMRCMS aims to recommend actionable features to address contemporary needs of the system in a manner that is not likely to jeopardize the continued existence of any listed threatened or endangered species, that will not result in the destruction or harmful modification of designated critical habitat or essential fish habitat, that will not result in loss of authorized navigation performance or loss of risk reduction from existing flood risk management and coastal storm risk management projects, that will avoid or minimize impacts to usage of freshwater infrastructure, and that will not induce development in the floodplains. The actionable features would include mitigation measures to address impacts to significant resources in compliance with other statutory and regulatory responsibilities.

2 PUBLIC SCOPING PROCESS

The LMRCMS covers portions of seven states (Illinois, Missouri, Kentucky, Tennessee, Arkansas, Mississippi, and Louisiana) and six Corps Districts within three Corps Divisions:

- Mississippi Valley Division: St. Louis District (MVS), Memphis District (MVM), Vicksburg District (MVK), and New Orleans District (MVN);
- Southwestern Division: Little Rock District (SWL); and
- South Atlantic Division: Mobile District (SAM).

The Corps implemented a robust public scoping process in early 2024 intended to provide ample opportunity for the public to understand how the LMR and MR&T systems currently operate and to identify issues of concern to be addressed in the LMRCMS. The Corps invited the public to help define the issues, concerns, and any potential measures that could address those issues.

2.1 Public Notifications

A variety of notifications were used to announce the open houses/public scoping meetings and public comment period, including sending a public scoping letter to interested parties, issuing news releases, and updating the LMRCMS website.

2.1.1 Press Releases

Each Corps District within the Study boundary maintains a robust stakeholder email database that includes media contacts, congressional staff, and other interested parties. The Corps issued a series of press releases intended to keep the public informed about the LMRCMS and public scoping process. The press releases were provided on the LMRCMS website and Corps Districts' social media pages and sent to stakeholders listed on the email database. Copies of the press releases are in Appendix A.

The press releases covering the scoping meetings in February and March 2024 generated some local coverage ahead of the meetings by WVUE, Times Picayune, WWL, WWL radio, the Vicksburg Post, as well as other outlets. The meetings themselves were covered by local media across the Study area in Cairo, Illinois; Cape Girardeau, Missouri; Bay St. Louis, Mississippi; and New Orleans, Louisiana.

2.1.2 Website

A public website was established to communicate and share information about the LMRCMS: <u>https://www.mvn.usace.army.mil/About/LMRComp.</u> The website announced public scoping meeting dates, times, and locations in addition to providing all the information shared during the public scoping meetings (e.g., orientation video, link to comment, Study email). The public could also use the comment submission link on the website to submit comments during the 2024 public comment period. News releases, documents, and upcoming public meeting information were available to the public through the website.

2.2 Public Scoping Meetings

2.2.1 In-Person Meetings

The following considerations were made when selecting meeting locations: proximity to underserved and Environmental Justice communities, meeting site availability in each of the seven states, and maximum coverage of the Study area. Each Corps District was responsible for identifying in-person meeting locations that were easily accessible by individuals in underserved communities within each state. Geospatial analysts with MVN then analyzed drive times to each location to evaluate the coverage of the Study area (Figure 2). Meeting times were selected to target the end of a traditional workday, depending on the venue availability.

In February and March 2024, the team hosted 32 public scoping meetings at 5 locations across the Study area. These meetings solicited input to help shape Study direction. The meetings were both in-person and virtual and included presentations and an open house format. Attendees included citizens, state and local government officials, congressional staff, local drainage and levee districts, industries, agriculture, non-governmental organizations, news outlets, and private firms. The specific dates and times of the public meetings are shown in Table 1.

Interdisciplinary teams from the Corps attended all public scoping meetings to provide subject matter expertise in the areas of the NEPA process, MR&T System operations, flood risk management, river navigation, ecosystem restoration, and Civil Works planning process.

Upon arrival at a meeting, attendees were invited to sign in and then view a short orientation video. The video presentation provided an overview of the Study including the authorization, the potential Study boundary, and example measures that could be evaluated, as well as the overall Study schedule, NEPA process, and ways to provide comments (Appendix B). Following the video, attendees were invited to visit with Corps staff to discuss the subjects and ask questions.

Attendees were invited to submit public scoping comments in several ways, including:

- verbally through a court reporter or Corps staff note taker at the meetings;
- through the online platform Survey 1,2,3 provided on the Study website (https://www.mvn.usace.army.mil/About/LMRComp/);
- via the LMRCMS email LMRComp@usace.army.mil; or
- in comment forms with pre-paid postage so they could be mailed at a later date, if needed.

Attendees were also advised that they could review all the materials, including the orientation presentation and public meeting presentation, and submit comments on the LMRCMS website at any time during the 2024 public scoping period. Meeting attendees were encouraged to ask questions and have informal one-on-one discussions with various subject-matter experts. A total of 418 people attended the 32 public scoping meetings. Several pictures taken at some of the public meetings are shown in Figure 3.

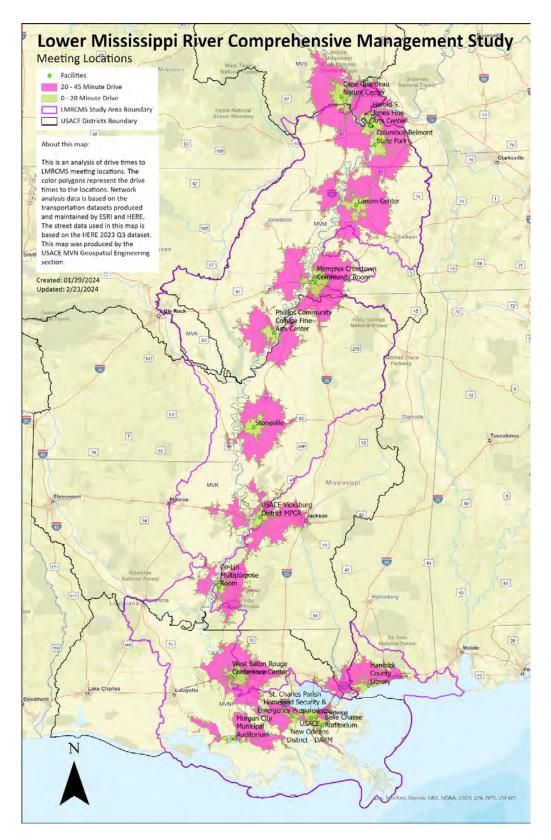


Figure 2. Public Scoping Meeting Locations and Estimated Drive Times

Table 1. Scoping Meeting	Locations, Dates, and Number of Attendee	S
Location	Date/Time	Number of Attendees
Harold S. Jones Fine Arts Center, Cairo, Illinois	February 27, 2024/2:00 – 4:00 pm and 6:00 – 8:00 pm	21
Crosstown Community Room, Memphis, Tennessee	February 27, 2024/2:00 – 4:00 pm and 6:00 – 8:00 pm	16
Hancock County Library, Bay St. Louis, Mississippi	February 27, 2024/2:00 – 4:00 pm and 6:00 – 8:00 pm	75
Lannom Center, Dyersburg, Tennessee	February 28, 2024/10:00 am – 12:00 pm and 6:00 – 8:00 pm	9
Delta Research and Extension Center, Stoneville, Mississippi	February 28, 2024/10:00 am – 12:00 pm and 6:00 – 8:00 pm	19
Corps New Orleans District Headquarters, New Orleans, Louisiana	February 28, 2024/10:00 am – 12:00 pm and 6:00 – 8:00 pm	68
Cape Girardeau Nature Center, Cape Girardeau, Missouri	February 28, 2024/2:00-4:00 pm	30
Columbus-Belmont State Park, Columbus, Kentucky	February 29, 2024/2:00 – 4:00 pm and 6:00 – 8:00 pm	7
Co-Lin Multiple Purpose Room, Natchez, Mississippi	February 29, 2024/2:00 – 4:00 pm and 6:00 – 8:00 pm	10
Belle Chasse Auditorium, Belle Chasse, Louisiana	February 29, 2024/2:00 – 4:00 pm and 6:00 – 8:00 pm	26
West Baton Rouge Conference Center, Port Allen, Louisiana	July 25, 2017/5:00 – 8:00 pm	35
Emergency Operations Center, Hahnville, Louisiana	March 5, 2024/2:00-4:00 pm and 6:00 – 8:00 pm	16
Phillips Community College Fine Arts Center, Helena Arkansas	March 7, 2024/2:00-4:00 pm and 6:00 – 8:00 pm	8
Municipal Auditorium, Morgan City, Louisiana	March 7, 2024/2:00-4:00 pm and 6:00 – 8:00 pm	66
Corps Vicksburg District Headquarters, Vicksburg, Mississippi	March 11, 2024/2:00-4:00 pm and 6:00 – 8:00 pm	7
Virtual	March 12, 2024/10:00 am, 12:00 pm, and 6:00 pm	NA



Figure 3. Pictures from Public Scoping Meetings in Bay St. Louis, Mississippi; New Orleans, Louisiana; Helena, Arkansas; and Cape Girardeau, Missouri

2.2.2 Virtual Meetings

Three web-based meetings were held on March 12, 2024, at 10 a.m., 12 p.m., and 6 p.m. Central Time to accommodate individuals who were not able to attend one of the public meetings in person. The virtual meetings were scheduled for two hours each and were staffed by subject matter experts who presented the same visual material provided during the in-house meetings described in Section 2.2.1. Through the webinars, the public was able to submit questions and comments. Comments submitted through the chat function of the webinar were recorded.

3 SUMMARY OF SCOPING COMMENTS

3.1 Overview

This section provides a general summary of the comments received during the public scoping process. All public comments in their entirety have been made a part of the administrative record and are provided in Appendix C, organized in alphabetical order by last name for ease of reference. Comments that were submitted by agencies or organizations (identified by those comments submitted with formal signatures or letterheads) are named by the agency or organization rather than an individual's name.

The Corps received 233 individual comment submissions via emails, letters, comment cards, and verbal comments transcribed at the public scoping meetings. Of these submissions, 132 (57 percent) were from individuals, while 101 comment submissions were from city, state, and federal government agencies; non-governmental organizations and educational institutions; companies and industries; levee districts; ports; and water management districts. Approximately 46 (20 percent) of all comment submissions were a form letter that had a primary theme stating that the inland navigation community believes that the LMR should be maintained at -12 feet as authorized by Congress (in areas of the river where the -12 ft authorization applies).

All public scoping comments were reviewed and will be used to inform the scope and development of the Study, alternative development, and NEPA analysis. Table 2 below lists the primary topics and associated themes that were identified in the comment submissions. Specific examples of the comment submissions are summarized by topic and theme in Section 3.2 below.

Table 2. Comment Topics and Specific Themes Expressed in Public Comments 1		
Comment Topic	Specific Themes	
Navigation	 Infrastructure Updates and Modernization for Navigation Purposes Operations for Navigation Purposes Dredging and Sediment Management for Navigation Safety Concerns 	
Flood Risk Management	 Infrastructure Updates and Modernization for Flood Risk Management Operations Updates for Current and Future Conditions Sediment Management for Flood Risk Reduction Development in Floodways 	
Ecosystem Restoration	 Operations for Ecosystem Restoration Benefits Wetlands/Waters of the U.S. Permitting and Regulatory Concerns Restore Floodplains/Riparian Habitat Reconnect Rivers to Floodplains Enhance and Restore Natural Vegetation Enhance Aquatic Channels Sediment Management in the Atchafalaya Basin Restore Coastal Habitat Beneficial Use of Dredged Material in Southeast Louisiana and Mississippi Sound Operation of Spillways and Diversions in Southeast Louisiana and Mississippi Sound 	
Water Quality and Water Supply	 Contaminants, Nutrient Loading, and Hypoxia Groundwater Recharge Water Supply for Agriculture, Industry, Tribal Lands, and National Wildlife Refuges Municipal and Drinking Water Supplies in Coastal Areas Identify Data Gaps and Implement a Monitoring Program 	

Comment Topic	Specific Themes
Recreation and Tourism	 Restore Riverfronts and Channels to Expand Recreational Opportunities Implement Walking/Biking Paths on Levees Establish More Boat Ramps and Outfitter/Guide Services Along the Rive Address Coastal Water Quality and Sedimentation Issues for Recreationa and Tourism Benefits
Climate Change and Greenhouse Gases (GHG)	 Incorporate Climate Change into River Management Use Up-to-Date Climate Data and Models Assess How Subsidence and Sea Level Rise Are Causing Saltwater Intrusion in Water Supply Maintain Authorized Navigation Depths to Reduce GHG Emissions
Wildlife including Threatened and Endangered Species	 Protection of Threatened and Endangered Species Conservation of Migratory Birds National Wildlife Refuges Wildlife Impacts and Protection
Socioeconomics and Environmental Justice	 Equitable Project Delivery and Environmental Justice Equitable Consideration of Agricultural, Community, and Industry Stakeholders Job Training
Study Objectives and Opportunities	 Revise Study Objectives to be Inclusive of Residents, Businesses, and Farms in the Mississippi Corridor Objectives and Opportunities for Floodplain Restoration and Species Protection
Study Approach	 Ensure a Comprehensive and Transparent Study Process Implement Flexible and Holistic Management Coordinate Across Corps Districts, Disciplines, and Agencies Maintain political Independence and Integrity
Scope of Analysis for the Study	 Assess Adverse Effects of River Discharges Implement Wetlands Restoration in Plaquemines Parish Evaluate Effects of and Potential Mitigation for Bonnet Carré Spillway Operations Expand Study Area in Key Places
Public and Agency Involvement	 Involve All Ages and Stakeholders Communicate Information Clearly and Continuously Collaborate with Local Entities
Impact Analysis Methodologies	 Use Advanced Models and Data Incorporate Existing Data and Research Coordinate with Existing Initiatives and Experts
Monitoring and Adaptive Management	 Implement Long-Term Monitoring and Adaptive Management Plans Avoid or Mitigate Impacts on High-Value Habitats

3.2 Comments by General Topic and Specific Theme

Summarized examples of comments that illustrate recurring themes observed in the comment submissions are shown below, organized by topic category. These summaries are intended to capture the substance of the original comments; the summaries do not represent the views of the Corps. Factual, legal, or other errors in the comment summaries have not been corrected.

Specific examples in each section are generally ordered from north to south and, in south Louisiana, from west to east. Specific comments regarding navigation and flood-risk management structures and projects were organized by Corps District where possible. All public scoping comments, including those not shown below, have been reviewed and will be used to inform the scope and development of the Study. Appendix C includes all comments submitted.

3.2.1 Navigation

Comments regarding navigation focused on maintaining depths for barge traffic and addressing challenges such as low water levels, sedimentation, aging infrastructure, and updating navigation systems for extreme weather. Examples include:

3.2.1.1 Infrastructure Updates and Modernization for Navigation Purposes

- MVM: Enhance structures to withstand extreme weather, preventing harbor closures during low water. The Port of Memphis shut down August 2023 to January 2024.
- MVM: Review Kentucky and the Barkley Dam purposes for navigation purposes during droughts. In the droughts the last few years, navigation has been drastically curtailed.
- MVM: Ensure Tennessee Department of Transportation (DOT) considers navigation concerns in bridge design of the proposed I-55 Bridge in Memphis.
- MVN: Modernize Bayou Sorrel Lock for current vessel sizes and conditions. It was designed and built to facilitate the continued passage of inland towing vessels through the East Atchafalaya Basin Protection Levee, a critical flood control and levee system serving south Louisiana. The 1951 mid-20th century design is inadequate to meet the demands of 21st century inland marine transportation.
- MVN: Replace the IHNC Lock to improve flood protection and inland barge transportation efficiency. There is no viable alternate route to circumvent this lock to access the East Canal. The IHNC Lock is the weakest link in the post-Katrina flood protection system.

3.2.1.2 Operations Updates for Navigation Purposes

- MVS: Reconsider Lake Michigan/Illinois River: reevaluate constraints on releasing water from Lake Michigan to the Illinois River for navigation purposes.
- MVS: Update river operations across Corps District Boundaries to maintain navigation and grain/barge traffic during fall shipping seasons. Utilize Lake Barkley to hold water

and keep the Missouri River open, preventing shutdowns like the one that occurred 30 days early due to insufficient water management. Revise Illinois River water releases, considering changes in conditions since operations were set by the Supreme Court in 1933.

- MVM: The Corps and the Tennessee Valley Authority should collaborate to control water levels downstream of Olmstead Lock, preventing sudden changes that hinder navigation. In times of low water, a 3 to 5-foot unanticipated rise or drop results in significant navigation hindrances to industry. It is impossible to set barge drafts and tow size when these significant river level changes occur.
- MVN: Evaluate impacts on navigation when operating floodways such as the Morganza Floodway and the Bonnet Carré Spillway. The impacts to the eddies are severe and far-reaching, up- and downstream of these floodways whenever they are operated. Any added controls will likely compound the navigation issues already encountered.
- All Districts: Develop a program to implement during a national security and/or supply chain emergency for low water events similar to the one that exists for high water.

3.2.1.3 Dredging and Sediment Management for Navigation

- MVM: Dredge the main channels of Mississippi and Ohio rivers regardless of droughts and water levels. Collaborate with landowners for dredge material transfer.
- MVS/MVM/MVK/SWL: Deepen all channels to 13 or 14 feet. This would create natural storage of water at the bottom of the river during high water.
- MVS/MVM/MVK/SWL: Maintain the channel at 12 feet as authorized by Congress and recommended by the Mississippi River Commission to optimize barge draft and maximize volumes. It is vital to maintain these depths both in the main channel and in harbors to ensure harbor access.
- MVN: Dredge the Intercoastal Waterway at the Bayou Sorrel Lock to alleviate bottlenecks. At this location, the river goes from 25 feet to 6 feet causing water to stay higher for longer periods of time.
- MVN: Avoid wasteful sand management plans. Sand deposited on the Power Plant channel is being dredged and dumped in the Atchafalaya River. This management plan is counterproductive.
- MVN: Move the federal channel along the Atchafalaya River in the vicinity of Stouts Pass (ACH MM 113 117) to Little Island Pass to reduce maintenance dredging and support channel resilience.
- MVN: Assess sediment levels in the Atchafalaya River. Increase dredging to address sedimentation and maintain waterway efficiency.
- MVN: Add to the existing sandbar along the river to replace the Pilot Town Anchorage, enhancing river flow to reduce shoaling and sedimentation in the navigation channel. This would optimize navigation safety and alleviate dredging burden by redirecting river power into the shipping channel. An additional boat travel lane could

be built along the west side of the river which would accommodate smaller boat traffic and make the river safer for all users.

- MVN: Create a hopper dredge disposal area at the confluence of the Mississippi River and the uncontrolled Neptune Pass to manage sediment flowing through the Neptune Pass crevasse. This would enhance ecological benefits and optimize river flow for shipping, potentially improving the proposed Neptune Pass closure by regulating water flow more effectively.
- MVN: Certain areas of the river, including Tiger Pass, South Pass, and Baptiste Colette Bayou, are not being dredged to their authorized depths as there is not a-reliable source of funding to do so. Additional funding should be delegated to increase dredging-in these areas for navigation purposes. The use of Tiger Pass, South Pass, and Baptiste Colette Bayou as-waterways for shallow vessels is a much safer alternative to using the main channel of the-river.

3.2.1.4 Safety Concerns

- MVK: Reject the proposed Delta Point Project due to adverse impacts on vessel transit.
- MVK: Address navigation challenges near Hickman Control Point. Navigation is severely affected during low water due to the geologic rock outcroppings near RM 921.
- All Districts: Buoy Management & Lights: Industry should provide vessels and crews for continuous reconnaissance routes until new cutter vessels are available. U.S. Coast Guard (USCG) members should support and ensure adherence to standards. Industry collaboration is recommended for maintaining lights and day boards crucial for navigation.
- All Districts: Upgrade the U.S. Coast Guard's AIS encoding guide to ensure safe navigation.
- All Districts: Evaluate the need for air gap sensors on bridges that pose safety risks to ensure safe passage of vessels to enhance safe and efficient navigation.
- All Districts: Assess the need to increase the number of anchorages or expand the extent of existing anchorages to improve efficiency and safety.

3.2.2 Flood Risk Management

Comments related to flood risk management included updating operation manuals based on current conditions and climate change projections; modifying or constructing flood-risk management infrastructure, such as levees, structures, and pump stations; managing sedimentation issues; and addressing development in floodplains. Examples of general comments related to flood-risk management include:

3.2.2.1 Infrastructure Updates and Modernization for Flood Risk Management

- All Districts: Identify and map recurrently flooded regions or repeated levee failures.
- All Districts: Regardless of whether levees and floodwalls are high enough, reducing their inundation level greatly improves resiliency and risk of failure.

- All Districts: Pass legislation to provide money to the Coast Guard or other enforcement authority to stop barges from getting too close to and damaging the levees when the river is high.
- MVS: Upgrade damaged pumping stations to address the flooding crisis in Cairo, Illinois. The flooding discourages people from moving here and adversely affects streets.
- MVS: The Corps should put permanent pumps on the levee on either side of Highway 146 just over the Bill Emerson Bridge to avoid extreme flooding in the community of East Cape Girardeau, Illinois like what occurred in 2019.
- MVS/MVM: Fortify the cities of Cairo, Illinois and Hickman, Kentucky so that the Bird's Point-New Madrid Floodway can be allowed to overtop instead of requiring explosive activation. Farmers within the floodway would overwhelmingly agree this is preferred in the event of another catastrophic flood.
- MVS/MVM: Maintain the current Mississippi River Levee system in Southeast Missouri. According to the National Levee Safety Program, many areas are graded deficient, but federal funding is not allocated for all the repairs required to make them meet original specifications.
- MVM: Near Drummonds, Tennessee, construct a partial levee or spur between the Mississippi River and Coon Valley Road to prevent high-velocity flows from damaging prime farmlands, roads, businesses, and drainage infrastructure.
- MVK: Finish constructing the pumps on Steele Bayou in Mississippi so that farmers' crops do not flood, and timber and wildlife are not killed.
- MVK: Finish the Yazoo Backwater Pumps Project to not only provide flood protection for people, homes, businesses, and cropland but also provide environmental benefits.
- MVK: Raise the Yazoo Backwater Levee up to its authorized grade. It is designed to overtop when the Mississippi River gets to 2 feet below a Project Design Flood.
- MVN: Increase capacity of the Wax Lake Outlet so that it can be used more frequently. Doing so would reduce the sedimentation in the Atchafalaya River channel directly upstream of outlet and help to prevent upstream flooding, like what occurred in Baton Rouge in 2011.
- MVN: Water backs up in Bayou Chene when river stages at the Morgan City gauge elevation are at only 3 feet. This backwater issue threatens five surrounding parishes with flooding and should be included in the analysis of the operations of the MR&T Project.
- MVN: The Wax Lake Outlet delta is growing and slows the river down, pushing water through the GIWW to the west, beyond the footprint of the Federal Levees of the Atchafalaya Basin into Iberia Parish. Additional flood risk protection measures are needed.
- MVN: Flooding in Pierre Part, Louisiana has increased, and the water seems to be coming from the Vermilion River. Address this issue, including examining if a structure

is needed there.

3.2.2.2 Operations Updates for Current and Future Conditions

- All Districts: Update the project flowline report for the Lower Mississippi River. It has been 50 years (since 1974) since the project flowline has been reevaluated, and conditions have changed.
- All Districts: Ensure the Study fully accounts for the changing climate and its predicted effects across a range of scenarios, including increased storms, drought, and flooding.
- All Districts: Use gauge readings for the basis of operations rather than volume in the channel.
- All Districts: Consider acquiring land to hold water in the upper basin to reduce flood stages downriver.
- All Districts: Update operation manuals based on current and projected surface velocities.
- All Districts: Re-evaluate operation manuals of the floodways. They are 100 years old.
- MVS: Update and revise water releases on the Illinois River; operations were set by the Supreme Court in 1933 and conditions have changed since then.
- All Districts: The Corps should fully assess the optimal operation of designated floodways and backwaters to reduce flood damages, improve public safety, and restore habitat. Among other things, this assessment should consider expanding the extent of floodways to reduce flood damages.
- All Districts: Adjust all four major backwater areas in the Lower Mississippi River Valley so they all work together during a Project Design Flood at the same time.
- MVN: Go back to an annual 70/30 flow split at the Old River Control Complex. It appears that flooding in south Louisiana has drastically increased since operations were changed to a daily 70/30 flow split decades ago.
- MVN: Reconsider the timing of the mandated 70/30 flow split at the Old River Control Complex. Other flood protection efforts have increased storm surge on unprotected areas along Lake Pontchartrain's northshore communities.
- MVN: In the Atchafalaya Basin, revise the operations manual to allow operations in Bayou Courtableau to avoid flooding in Lafayette during storm events.
- MVN: Although river levees and floodwalls in New Orleans have been constructed above and beyond projected water level elevations, it is still quite possible that future overtopping may occur.
- MVN: Revise the trigger operation on the Morganza Floodway to put more water down the Atchafalaya River to reduce sedimentation that is backing up the river.

3.2.2.3 Sediment Management for Flood Risk Reduction

• MVN: The ability of the Atchafalaya Basin to absorb floods is immense, but since

1932, there has been a net accretion of nearly 2.5 billion cubic meters of sediment in the river basin. This compromises the basin's ability to handle floodwaters.

• MVN: Increase wetland extent through beneficial use of dredged material to help protect south Louisiana from storms.

3.2.2.4 Development in Floodways

- All Districts: Prevent people from developing land in flood hazard areas.
- All Districts: The Corps should take a systematic approach to managing development along waterways rather than evaluating individual permits.
- All Districts: Most of the land within the river batture is in private ownership, but some landowners are interested in reforesting their land. There are programs to assist these landowners.

3.2.3 Ecosystem Restoration

A variety of comments recommended various strategies for restoring floodplains/riparian habitat and coastal area. The comments underscore the importance of integrated approaches to ecosystem restoration, floodplain management, and coastal protection to mitigate flood risks, preserve habitats, improve water quality, and enhance resilience against storms. Examples of ecosystem restoration measures suggested by commenters include:

3.2.3.1 Operations for Ecosystem Restoration Benefits

• A rigid flow distribution at the Old River Control Structure, where the Corps attempts to maintain a 70/30 distribution between the Mississippi and Atchafalaya rivers, tends to flatten the highs and lows of the flood cycle within the basin. The flood cycle is critical to many natural processes, including allowing dry downs for tree seeds to sprout and floods to replenish backwaters. Among many negative consequences of the current management are stagnation of backwater swamps and the inability of forests to recruit new growth as older trees age and die.

3.2.3.2 Wetlands/Waters of the U.S. Permitting and Regulatory Concerns

- The recent U.S. Supreme Court decision in Sackett v. Environmental Protection Agency restricts the Corps' jurisdiction over wetlands and streams under the Clean Water Act, which will likely change development patterns in the Mississippi River's floodplains. ... If development now occurs closer or even adjacent to levees, how will that impact the Corps' or local sponsors' ability to perform maintenance work and new work on or near the levees? What are the flood risk impacts? These questions should be addressed, considering the implications for storm damage risk reduction and flood risk reduction, the first purpose listed in the Study's congressional authorization.
- The Study should evaluate how the Sackett decision will affect the management of the MR&T.

3.2.3.3 Restore Floodplains/Riparian Habitat

3.2.3.3.1 Incorporate the Remaining Seven Reaches Identified in the 2015 Lower Mississippi River Resource Assessment

• Incorporate the remaining seven reaches identified in the 2015 Lower Mississippi River Resource Assessment (USACE 2015). The Hatchie/Loosahatchie Mississippi River Ecosystem Restoration Study can serve as a comprehensive model for those studies. Components of particular conservation reaches would be better suited for partner entities to execute (for example, reforestation efforts). Narrow the scope of the seven reaches for efficiency and to conserve or restore the rarest and most important habitats on the Lower Mississippi River such as oxbow lakes, meander scarps, and other higher priority habitats.

3.2.3.3.2 Reconnect Rivers to Floodplains

- The U.S. Fish and Wildlife Service (USFWS) recommends the Corps identify opportunities to reconnect the floodplain to the Mississippi River where possible, like the Loch Leven Project in southwest Mississippi and the Richard K. Yancey Blackhawk Scar Lakes Ecosystem Restoration and Monitoring Project near Vidalia, Louisiana.
- The Study should assess methods to reconnect rivers to their floodplains. Diverting water to natural floodplains, wetlands, and other riparian areas will remove flooding pressure from inhabited areas. Meanwhile, soaking flood waters into the soil will remove pollution from them.
- The alternatives should prioritize use of floodplains/floodplain connectivity to pass floodwaters and enhance natural habitats, while also maintaining navigation purposes.
- Remove or modify targeted river training structures (for example, wing dikes, bendway weirs, and chevrons) to reduce flood heights, restore important fish and wildlife habitat, and reconnect side channels.
- Identify locations where levee segments could be realigned farther away from the river to give the river more room to spread out during flood events. Such setbacks could be targeted toward locations where wetlands and other undeveloped lands are found on the landside of a levee reach.
- Integrate the use of grey and green infrastructure for flood control and reconnecting floodplains at scales larger than a single river reach.

3.2.3.3.3 Enhance and Restore Natural Vegetation

- Identify and map reaches of batture where reforestation and other nature-based solutions can accomplish channel resilience at areas vulnerable to cutoff or instability while providing habitat or other ecosystem benefits.
- Restore wetland buffers on the riverside of the Mainline Levee System. Doing so would improve the integrity and effectiveness of the levee while providing vital fish and wildlife habitat.

- The Study should include a measure for preserving cypress swamp/bottomland hardwood habitat along the river from Little Rock to Memphis. This is habitat for a new sub species of firefly, namely: *photuris walldoxeyi*, which is classified as vulnerable and imperiled.
- Implement projects authorized under various Water Resource Development Acts (WRDAs) to address invasive species on the river that would include substantial benefit to native species if implemented. They include privet abatement and kudzu control.
- The USFWS recommends the Corps build on the batture reforestation initiative started by the Natural Resources Conservation Service's partnership with the Mississippi River Trust and Lower Mississippi River Conservation Committee.
- Several Federally Recognized Tribes mentioned revitalizing rivercane stands in historically documented canebrakes.

3.2.3.3.4 Enhance Aquatic Channels

- The USFWS recommends the Corps investigate ways to improve low-flow conditions to benefit fish and wildlife resources with interior streams and rivers (i.e., Sunflower River in Yazoo Mississippi Delta).
- The USFWS recommends the Corps continue efforts to restore flow through secondary channels via notching of dikes.
- Conduct Aquatic Habitat Ecosystem Restoration studies using the existing Corps authority under Section 1135 of the WRDA 1986 or Section 206 of WRDA 1996.
- Conduct an ecological survey of the islands on the Mississippi River to determine their uniqueness, ecological resources, and opportunities for restoration.
- Improve in-river and side channel habitat to enhance flood protection for nearby communities while restoring habitat for fish and wildlife.
- Implement projects authorized under various WRDAs to address invasive species on the river. The Aquatic Nuisance Species Task Force and Mississippi Interstate Cooperative Resource Association have developed plans to manage and control carp and other aquatic nuisance species.

3.2.3.3.5 Sediment Management in the Atchafalaya Basin

- Implement specific measures in the "Atchafalaya Basin Master Plan for Flood Protection, Ecological Enhancement, Wetland Protection, and Coastal Restoration" prepared by the Atchafalaya Basinkeeper and others (see Appendix C-attachment to letter from Atchafalaya Basinkeeper/LCPA-West). For example:
- The realignment and straightening of Bayou Sorrel and the closure of Jakes Bayou around 1969-1970 increased bedload and sediments moving into Bayou Sorrel with significant negative effects to the hydrology of the floodplain, and ecological services. This needs to be reversed. Sand should be guided to stay in the main channel of the river, and sand from the river into the bayou should thereby be reduced.
- Sediments moving down Blue Point Chute have resulted in the rapid filling of open

water and swamps. Sand should be guided to remain in the main Atchafalaya River channel.

3.2.3.4 Restore Coastal Habitat

3.2.3.4.1 Beneficial Use of Dredged Material in Southeast Louisiana and Mississippi Sound

- Sediments are precious to south Louisiana. There is a need to get the sediments into the adjoining wetlands as much as possible. All dredging should require that, except in extreme circumstances, dredge spoil should be utilized within the sustainable wetland areas of south Louisiana.
- It is wrong to force Louisiana to pay for all costs above the cheapest alternative disposal method, when all states benefit from both the wetlands protection and economic vitality of the entire drainage area. The Corps should cover all costs of beneficial use of spoils.
- Restore Louisiana marsh through dredge material placement, not river diversions. Diversions add harm to the Mississippi Sound.

3.2.3.4.2 Operation of Spillways and Diversions in Southeast Louisiana and Mississippi Sound

- The U.S. Fish and Wildlife Service recommends the Corps review the operation of each diversion as a congruent system to better consider the overall health of coastal Louisiana and the river for purposes of ecosystem restoration and flood or drought mitigation.
- The U.S. Fish and Wildlife Service recommends the Corps consider reauthorizing the Caernarvon and Davis Pond Diversions to remove the salinity restrictions associated with operation of the diversions to achieve ecosystem restoration and flood risk management goals.
- Evaluate Ama and Union diversions to see how they can be operated in conjunction with other planned diversions for maximum wetlands benefits.
- Build river diversions to the correct areas to benefit Louisiana and Mississippi.
- The Mid-Breton Diversion project would lead to the death of threatened and endangered species and destroy salt marsh habitats. It should not be approved.
- Reduce river flows and restore habitat by putting pipes into the river to transport sediment and water into basins. Increase flows through the Morganza Spillway. Much of that water goes to the Gulf where it is less damaging than through the Bonnet Carré Spillway.
- Revise Bonnet Carré Spillway operations to stop any adverse effects to the Mississippi Sound.
- Consider operating the Morganza Spillway and other structures west of the Mississippi River more frequently and operating the Bonnet Carré Spillway less frequently.
- Completely open the Bonnet Carré Spillway at the beginning of each hurricane season to keep river stages lower sooner.

• To avoid some of the impacts in Mississippi Sound from the Bonnet Carré Spillway, implement a measure that was in Louisiana's 2017 Coastal Master plan that recommended the use of other structures to get the water from the spillway to the Maurepas Landbridge. Modify the Bonnet Carré Spillway structure so it is still for flood control but have an additional structure to deliver the sediment and river water onto the Maurepas Landbridge. The spillway is authorized for flood control, but the authorization can be broadened to cover structures used for ecological restoration.

3.2.4 Water Quality and Water Supply

Comments related to water quality and supply concerns largely focused on pollutants and hypoxia issues, available water supply for agricultural and municipal uses, operational and structural modifications to address saltwater intrusion in south Louisiana. Examples of water quality and water supply comments include:

3.2.4.1 Contaminants, Nutrient Loading, and Hypoxia

- The Study should consider how municipal, industrial, and stormwater discharges affect water quality, and how improving discharge practices could improve water quality.
- Consider closing the road crossing the Old River Control Structure. One fertilizer truck changed the whole economy.
- Water quality problems such as hypoxia and algal blooms in the Gulf of Mexico are ultimately driven by nutrient loads originating in the Upper Mississippi River Basin. Municipalities up and down the Mississippi River must work together to reduce physical and liquid wastes that enter the river. A Mississippi River-wide circular economy master plan should be implemented to ensure river-adjacent municipalities adhere to common sense policies that reduce waste at its source to prevent it downstream.
- Acknowledge the effects of and find strategies to prevent nitrogen and phosphate pollution in the Mississippi Sound, primarily from upriver runoff from agriculture, animal farms, and municipalities.
- Manage the basin's nutrient loading and hypoxia through nature-based solutions and improved floodplain connectivity in the lower river. The scope should include inputs from the Ohio and Missouri Rivers.

3.2.4.2 Groundwater Recharge

- The Study must also recognize the interconnectedness of surface water and groundwater in managing the Mississippi River and the impact of significant declines in aquifers throughout the Mississippi River basin, with withdrawals exceeding recharge rates. This depletion affects both surface water availability and the broader hydrological system.
- Add weirs to interior streams for water supply, groundwater aquifer recharge, and channel maintenance. Make water supply a mission for Corps. The groundwater aquifer is being depleted, and ways to recharge it must be determined.
- Surface water can be managed to best support stressed groundwater resources in the

region. The Mississippi River Valley alluvial aquifer provides the majority of irrigation water for agriculture in the region, and other aquifers provide substantial drinking water and industrial water supplies. This Study could help identify synergies between surface water and groundwater management infrastructure and activities, complementing ongoing work by the Corps, the U.S. Department of Agriculture, the U.S. Geological Survey, and numerous state and local agencies.

3.2.4.3 Water Supply for Agriculture, Industry, Tribal Lands, and National Wildlife Refuges

- The Study should incorporate considerations about water rights into its project and programmatic recommendation process. Federal reserved rights for water extend to all congressional reservations of land, which also include National Wildlife Refuges. Just earlier this year, the U.S. Fish and Wildlife Service asserted federal reserved water rights with respect to water levels in the Okefenokee National Refuge.
- There are at least 29 federally recognized tribes that reside in the 10 states of the Mississippi River Corridor, many of which reside on reservations in close proximity to the main stem, and several more in proximity to the waters in the MR&T that feed the main stem. Tribes in the Eastern U.S. have not yet asserted federal reserved rights, as has been seen in the Western U.S. However, worsening drought along with increasing demands are creating the conditions that would raise that necessity. The Study should keep the water needs, indeed rights, of tribes at the forefront of its planning process.
- In the Mississippi and Arkansas deltas, streams are drying up due to agriculture. Water from the Mississippi River should be used during growing season to help offset areas throughout the delta. Pumping water into Moon Lake (in Mississippi) and letting it travel down through the delta would be ideal.
- Sugar cane farmers in Pointe Coupee Parish between the Atchafalaya and Mississippi Rivers rely on an efficient supply of water and drainage. This is a peninsula between the Atchafalaya and the Mississippi Rivers with levees on both sides. Consider impacts on these sugar cane farmers when considering alternatives, including decisions about the Morganza Spillway.

3.2.4.4 Municipal and Drinking Water Supplies in Coastal Areas

- South Louisiana: Coastal erosion, subsidence, and sea level rise have increased the severity and frequency of saltwater intrusion in Louisiana's coastal parishes. Investigate how subsidence and sea level rise add to the problem of saltwater intrusion.
- Atchafalaya Basin: The Study should adopt the specific measures recommended in the EPA 1979 Hydraulics of the Atchafalaya Basin Main Channel System: Considerations from a Multiuse Management Standpoint (see Appendix C; attachment to the Atchafalaya Basinkeeper/LCPA-West letter) for provisions for reduction of siltation, water quality improvements, and improvement for commercial and sport fishing in the Atchafalaya Basin.
- Atchafalaya Basin: The drinking water supply in the Atchafalaya Basin is solely from the Atchafalaya River. For this reason, the Study must address any potential alternative

impacts on the water quality of the river.

- Atchafalaya Basin: Operate the Old River Control Complex to prevent, whenever possible, water levels in the Atchafalaya Basin from being on the stand for long periods of time. Keeping water levels rising or falling is the best and cheapest way to greatly improve water quality in the Atchafalaya Basin.
- Teche-Vermilion Basin: There is more need for the flow of freshwater in the Teche-Vermilion Fresh Water District service area than there was when the Louisiana Department of Public Works conducted the 1956 Study that lead to the implementation of this project. Municipal areas have grown significantly since 1956 and demands for fresh water in coastal areas have increased.
- Teche-Vermilion Basin: The Study should address water quality issues in White Lake and Grand Lake in Vermilion and Cameron Parishes. These lakes provide a freshwater reservoir for those coastal parishes. It is a common occurrence for saltwater to get into these lakes during high tides and possibly through failed structures.
- Teche-Vermilion Basin: High salinity and fecal coliform have been water quality issues in Vermilion Bay, Vermilion River, and Bayou Teche. The Teche-Vermilion Water Management District has an extensive water quality monitoring program that finds that the flow of fresh water from the Krotz Springs pump station reduces fecal coliform and improves dissolved oxygen content in both Bayou Teche and the Vermilion River. Update the authorized operations of the Teche-Vermilion pumping station (near Krotz Springs) to allow us to increase flows from the Atchafalaya River during times of low flow to critically reduce saltwater intrusion in order to improve water quality.
- Southeast Louisiana: Southeast Louisiana needs a long-term solution to address saltwater intrusion near municipal water intakes.
- Southeast Louisiana: Expedite repair of the crevasses on the east side of the river in Plaquemines Parish. Thirty-four to forty percent of the river is now escaping through these crevasses north of the Venice jump. This affects the migration of saltwater intrusion that threatens the parish's water supply.
- Southeast Louisiana: In the fall of 2023, the threat of saltwater intrusion in New Orleans' water supply presented a major challenge to businesses of all kinds. Request that the Corps study solutions to protect the municipal water supply including a desalination facility that could serve the greater New Orleans region.
- Southeast Louisiana: Urge collaboration between the Corps and local government partners to implement operations and new technologies and facilities that would address the threat of saltwater intrusion and provide for reliable water supply.
- Southeast Louisiana: To address saltwater infiltrating the drinking water supply, implement technical measures such as permanent reverse osmosis machines added to the municipal water intakes in Plaquemines Parish, or a regional reverse osmosis machinery could be added upriver somewhere or emergency reverse osmosis machines on barges could be available to municipalities that need them. Coordinate with Federal Emergency Management Agency (FEMA) to help support this.

3.2.4.5 Identify Data Gaps and Implement a Monitoring Program

- Create a dedicated water quality monitoring program for the entire LMR.
- The Study should acknowledge gaps in understanding of how much water is currently used and how much will be needed throughout the system in the future.

3.2.5 Recreation and Tourism

Comments related to recreation and tourism included recommendations for enhancing various riverfronts in the Study area, constructing walking/biking paths on levees, increasing the number of boat ramps and outfitter services along the Lower Mississippi River, and addressing sedimentation issues in the Atchafalaya Basin for recreation benefits. Some comments related to promoting safer and more accessible recreation while also safeguarding the natural environment and supporting tourism and fisheries. Examples include the following.

3.2.5.1 Restore Riverfronts and Channels for Recreational Opportunities

- Improve flows/conditions along Cape Girardeau, Missouri riverfront to improve recreation.
- It is my understanding that the Wolf River in Memphis has been destroyed by the Corps many decades ago. It used to be a shallower, slower-moving river, which included many natural sandy beaches which could be safely approached and used for recreation. There are only a few points left which can be safely enjoyed now, due to the channelization of the river.

3.2.5.2 Implement Walking/Biking Paths on Levees

• This Study should investigate the feasibility of implementing walking/biking paths on levees in the Mississippi River watershed. These trails can be paved or unpaved and require little maintenance, but they are extremely popular where this infrastructure is currently in place.

3.2.5.3 Establish More Boat Ramps and Outfitter/Guide Services Along the River

- Increase the number of boat ramps on the LMR. A boat ramp every 10 to 20 miles on the river would provide more opportunities for paddlers, fishermen, and hunters and would increase safety to allow those in distress more options for getting off the water or easier access for search and rescue operations to get to those in distress. More ramps should be available to directly access backwaters and side channels. Ramps also provide location for interpretive signs about the Miss. River, environmental education, and safety.
- Establish more outfitter and guide services on the LMR. Increased guide services of fishing, canoeing/kayaking, and hunting will help safely get river adventurers on the water to explore and enjoy.

Maintain boat access on the Arkansas side of the Mississippi River. There are very few access points as it is, and many are unusable, primarily in low-water conditions. Several

have also been damaged due to barge-contact. The Arkansas Game and Fish Commission has received numerous calls from anglers about these issues.

3.2.5.4 Address Coastal Water Quality and Sedimentation Issues for Recreational and Tourism Benefits

- Include measures for avoiding impacts to and/or restoring the Mississippi Sound for the benefit of fisheries and tourism.
- Declining resources, pollution, and water quality are threatening the way of life for the Gulf Coast fishing industry and associated tourism, spanning generations.
- The record amount of sediment (at Atchafalaya Basin) caused record levels of severe shoaling, hindered vessel access to facilities, caused safety issues and traffic shutdowns in the river and adverse impacts to industry and recreation.

3.2.6 Climate Change and Greenhouse Gases (GHG)

This summary of comments included concerns that climate change be taken into account in the Study with respect to how a changing environment would affect the Mississippi River system. Examples of comments related to climate change concerns include:

3.2.6.1 Incorporate Climate Change into River Management

- The variability, and the possibility of frequent major flood events on the Mississippi, must be fully taken into account. Some Corps operational documents, including the over 20-year-old water control manual for the Bonnet Carré Spillway, are based on information that is long out of date and inconsistent with a rapidly changing environment.
- The Study should assess how climate change (increased temperature leads to increased snow melt, which leads to increased flows in the river) leads to downstream flooding, which leads to ecological devastation, economic costs, and risk to public safety. The Study should present this in a way that is intelligible to members of Congress so that they can take further action to reduce carbon emissions.
- Explore and model the impacts of expected climate change weather patterns on river operations, providing recommendations to adapt future operations to changing conditions.
- Continuing climate trends, including but not limited to, earlier hurricane season, longer high river season, higher river stages, and more intense hurricanes may result in a higher than anticipated maximum flood stage event(s). Also, reaches immediately upstream and downstream of New Orleans do not have the same over-protection and would be vulnerable to even a slight underestimation of future flood levels.
- Evaluate the need for additional floodways due to climate change–such as reopening the Cypress Creek natural floodway in southeast Arkansas and Louisiana.

3.2.6.2 Use Up-to-Date Climate Data and Models

- In planning for the future operation of the MR&T system, it will be extremely important to account for the predicted effects of climate change on river flows. It is important that the Study team take advantage of the many robust climate and hydrologic models and data sets developed by other Federal agencies, states, academic institutions, and other stakeholders as explicitly authorized by the Study's legislative language (Implementation Guidance for WRDA 2020 Section 213 (b)).
- The Corps should incorporate up-to-date climate data and modeling efforts such as the recent Coupled Model Intercomparison Project Phase 6 (CMIP6) to ensure that management efforts are prepared and informed for the most extreme variability, and to fully quantify the levels of uncertainty associated with project designs, ensuring that communities are adequately informed regarding flood protection in these highly variable scenarios. Modeling the impacts to operations from a range of hydrologic conditions will allow for adaptive management recommendations to be developed.

3.2.6.3 Assess How Subsidence and Sea Level Rise Are Causing Saltwater Intrusion in Water Supply

• There are concerns with the amount of subsidence and sea level rise which is adding to the problem of saltwater intrusion in the Teche-Vermilion Basin. Not only is this happening in lower parts of the Vermilion, but it is also happening in some of the freshwater lakes that farmers in the basin use as a supply of irrigation water.

3.2.6.4 Maintain Authorized Navigation Depths to Reduce GHG Emissions

• Maintaining a 12-foot navigation channel is vital to the efficient movement of goods by water including key grain exports. It also brings climate/environmental benefits as it allows more goods to move by water and remove freight from truck and rail which means reduced emissions, fuel burn, and spills.

3.2.7 Wildlife Including Threatened and Endangered Species

Comments pertaining to threatened and endangered species were provided by the U.S. Fish and Wildlife Service and are summarized here. Other commenters provided information about the importance of the Study area for migratory birds. A commenter from Cairo, Illinois commented that habitat disruption from levee construction is driving wildlife into residential areas, posing challenges under conservation laws for local officials. Examples of comments related to wildlife including threatened and endangered species include:

3.2.7.1 Protection of Threatened and Endangered Species

- The Study area includes threatened and endangered species, at-risk species, nesting wading birds, and bald eagles. The Study should consider recovery actions for listed and proposed species as per Section 7(a)(1) of the Endangered Species Act, which mandates that federal agencies aid in the conservation of endangered species.
- The Fish and Wildlife Service defines "at-risk species" as those proposed for listing, candidates for listing, or petitioned for listing under the Endangered Species Act (ESA).

The Study should consider proactive conservation measures for these species to prevent future listings.

• The Birds of Conservation Concern 2021 report highlights migratory nongame birds that need conservation actions to avoid becoming ESA candidates. The Fish and Wildlife Service recommends conserving these species where possible.

3.2.7.2 Conservation of Migratory Birds

- Approximately 60 percent of all North American bird species rely on Mississippi River basin habitats, including the 40 percent of all waterfowl and shorebirds that migrate along the Mississippi River Flyway.
- Situated at the doorway of the Mississippi Flyway, the Atchafalaya Basin is arguably the single most important ecosystem for migratory birds in the Western Hemisphere. It is a critical habitat for rich and diverse variety of wildlife, including threatened and endangered species.

3.2.7.3 National Wildlife Refuges

- The U.S. Fish and Wildlife Service recommends the Corps review the operation of each pumping station to better consider the impacts that these operations have on fish and wildlife habitat, specifically in areas impacting National Wildlife Refuges (NWRs). One specific recommendation is that the Corps consider a way to prevent bypass siltladen flood waters from the Missouri Bootheel from reaching the lake at Big Lake NWR.
- The Study should enhance NWRs within or near the Study area.

3.2.7.4 Wildlife Impacts and Protection

- A commenter in Cairo, Illinois reported that wildlife are moving into residential areas, and it is assumed that the wildlife are migrating due to the habitats being affected from construction and work going on with the levee. People in the town cannot mitigate the animals due to conservation laws. Local officials can only do so much with the wildlife being in the residential areas as well.
- The USFWS recommends consideration be given to returning Wapanocca Bayou back to a wildlife corridor between the Mississippi River and Wapanocca NWR.

3.2.8 Socioeconomics and Environmental Justice

Comments regarding socioeconomics and environmental justice underscore the need for inclusive decision-making and equitable delivery of Study benefits. Comments urge the Corps to address skilled trades retraining, recognize the important of industrial and agricultural interests that make up a large portion of the Study area, and address operational impacts on the Mississippi Sound's tourism economy. Additionally, people commented on the importance of protecting communities like Dyersburg, Tennessee, and the Port of Morgan City from adverse impacts of flood control measures.

3.2.8.1 Equitable Project Delivery and Environmental Justice

- The Corps should prioritize equitable project delivery, address environmental injustices, and comprehensively evaluate impacts on underserved communities during potential actions, recognizing past federal actions' compounding flooding effects on these communities.
- The Lower Mississippi River basin is an economic engine for the U.S., a critical zone for wildlife and bird habitat, and heavily comprised of communities identified through the Justice40 Initiative as "disadvantaged and marginalized by underinvestment and overburdened by pollution". For these reasons and many others, it is critical that the Study be centered in principles of equity, providing affected communities and stakeholders a regular opportunity to check in and provide feedback on the evolving Study.
- In a heavily managed interstate system like the Mississippi River, the Study must ensure that no state is disproportionally impacted by natural disasters like flooding. Many of the Missouri citizens that face the highest potential for flood damages belong to low income or minority communities, and the Missouri Department of Natural Resources wants to ensure that these stakeholders are given consideration when evaluating flood control activities on the Mississippi River.

3.2.8.2 Equitable Consideration of Agricultural, Community, and Industry Stakeholders

- In the virtual scoping meeting, the slide titled "Here Are Some of the Resources in the Study Area" overlooked mentioning industry and agriculture, major components protected by the levee system. This omission may imply that the Corps prioritizes other aspects, neglecting the interests of residents and businesses in the Mississippi River corridor. Provide equal consideration.
- The Missouri Bootheel is one of Missouri's most unique and productive agricultural landscapes, and the food and fiber crops grown here are important to the state and national economies. This land is farmable due to drainage systems and levees that have been in place for decades. The Missouri Department of Natural Resources supports examining these features as part of this Study to ensure that they are performing as efficiently as possible to preserve the productivity of the agricultural communities in the Bootheel.
- A commenter from Dyersburg, Tennessee commented that people in the valley should not be relocated, they should be protected.
- The Atchafalaya Basin Floodway passes through the Port of Morgan City, and recommendations from the LMRCMS could adversely affect this maritime community supporting vital industries like shipbuilding and energy services. While the flood wall safeguards homes and essential infrastructure, industrial facilities lie beyond its protection. It is crucial to maintain a navigable waterway while safeguarding Morgan City from floods, which could have far-reaching impacts.
- A lifelong resident of the Mississippi Gulf Coast witnessed the adverse impact of opening the Bonnet Carré Spillway on vegetation, marine life, estuaries, and

beaches due to pollution from the released flows. Beaches were closed and people in the tourism industry lost their jobs.

• It is imperative U.S. Army Corps of Engineers protect the Mississippi Sound from future openings of Bonne Carré Spillway. The shopping center has a very large tourism base. When the Spillway was opened the last two times, tourism was heavily impacted, and stores saw that impact. It was not a minor effect where proceeding months would take care of the impact. It was a MAJOR impact affecting store sales and eventually store staffing reduction. There must be a balance of Louisiana flooding and protecting seafood production in the MS Sound.

3.2.8.3 Job Training

• An educator is interested in knowing how this project will support retraining of the skilled trades (for example, using drones and designing landscapes for nature-based solutions on industrial, commercial, and residential properties).

3.2.9 Study Objectives and Opportunities

Comments related to the Study objectives and opportunities included recommendations such as revising Study objectives to include not only environmental justice communities but also residents, businesses, and farms in the Mississippi River corridor. Other recommended opportunity areas included benefitting at-risk species to prevent them from becoming threatened or endangered. Summarized comments include, but are not limited to, the following:

3.2.9.1 Revise Study Objectives to be Inclusive of Residents, Businesses, and Farms in the Mississippi Corridor

- Revise Study objectives to not only focus on environmental justice communities, but also the many residents, businesses, and farms within the Mississippi River corridor that matter too.
- An objective of the Study should be to manage levees and water levels for the benefit of farmland.
- Commercial and sport fishing should be included in the list of priorities to comply with the Congressional mandates.

3.2.9.2 Objectives and Opportunities for Floodplain Restoration and Species Protection

- Additional objectives should include new systemwide objectives designed to maximize floodplain connectivity, flood resilience, and ecosystem health through structural and operational modifications as well ecosystem restoration and nature-based solutions.
- Consider adding opportunities for reducing the likelihood of additional species becoming threatened or endangered by benefitting at-risk species.
- Opportunity areas should include evaluating floodplain restoration and levee setbacks for flood risk management, ecosystem restoration, and nutrient reduction.

3.2.10 Study Approach

A variety of comments were received that addressed the Study process and approach. The comments emphasized the need for a comprehensive, collaborative approach that integrates ecological, water quality/supply, flood control, recreational, and navigation objectives. Comments expressed the need for the Study team to be objective, flexible, and not swayed by political pressures that may exist. Some comments recommended that the Study provide actionable solutions and address issues like nutrient loading, hypoxia, and flooding through nature-based solutions and improved floodplain connectivity. A cohesive strategy across Corps Districts and the creation of interdisciplinary action groups for each mission area are also recommended. Lastly, comments emphasized that a systematic approach is needed, considering the river system as a whole rather than focusing on individual projects. Summarized example comments included the following:

3.2.10.1 Ensure a Comprehensive and Transparent Study Process

- The Study should be comprehensive, honest, frank, and understandable by readers from the communities that use the Mississippi and drink its treated water.
- While this Study is limited to the lower river, actionable recommendations and solutions should be identified that recognize these conditions and respond accordingly, such as by managing the basin's nutrient loading and hypoxia, as well as flooding, through nature-based solutions and improved floodplain connectivity in the lower river.

3.2.10.2 Implement Flexible and Holistic Management

- To achieve all goals in an optimal way, the Corps must adopt a highly flexible management system that calls for different protocols at different water levels, different seasons, and various locations that include all available diversions.
- Strongly recommend a report that recommends follow-up actions toward solutions that provide for holistic management of water and sediment in the Atchafalaya Basin, designating ecological restoration along with flood control and navigation.
- Need to re-evaluate the system working together as a whole instead of looking at mechanisms, triggers, and operating standards for individual projects...systematic approach.

3.2.10.3 Coordinate Across Corps Districts, Disciplines, and Agencies

- There needs to be a more cohesive strategy between Corps Districts to optimize water management as a system.
- The Corps should create interdisciplinary action groups for each mission area of the Study.
- Mounds, Illinois has flooding issues because the area is influenced by both the Ohio and the Mississippi River. FEMA has coordinated with my city to look over floodplain and watershed maps. Will the Corps and FEMA work together with the data gained from previous work to make sure the residents' safety is maintained?

3.2.10.4 Maintain Political Independence and Integrity

• Concerns with how the work of the Corps on this Study over the next couple of years is going to insulate itself from political pressures at the state and federal level.

3.2.11 Scope of Analysis for the Study

Many comments were directed at general topics or combinations of resource areas that should be considered in developing the Study. For example, comments on this topic emphasized the need for the Study to identify and mitigate the adverse effects of Mississippi River structures and operations on natural habitats and local economies. Some commenters recommended that the Corps consider extending the model boundary to the west to include White and Grand Lakes, and to the east to the Mississippi-Alabama border. Additionally, commenters recommended that the Study utilize various resources and consult with partners to integrate ecosystem restoration with flood risk reduction.

3.2.11.1 Assess Adverse Effects of River Discharges

• Identify the adverse effects of Mississippi River discharges from both controlled and uncontrolled structures, spillways, and levees, on the habitat, environment, and economy of affected areas. Develop options to mitigate these damaging effects. This should include reevaluating the requirements to open additional discharges or close levee breaches based on the adverse effects on all potentially impacted communities, including jobs, environment, and habitat.

3.2.11.2 Implement Wetlands Restoration in Plaquemines Parish

• Find meaningful ways to mimic natural processes to reverse the loss of wetlands. Specifically, address the significant reduction of wetlands in Plaquemines Parish over the last hundred years, which has had a negative impact on local species and culture. The goal is to regenerate wetlands to prevent further loss of environmental and cultural assets.

3.2.11.3 Address Effects from Bonnet Carré Spillway Operations

• Address the effects caused by Bonnet Carré Spillway operations to the natural resources of the Mississippi Sound and the citizens of coastal Mississippi. This includes studying and mitigating any adverse effects on the ecosystem and local communities.

3.2.11.4 Expand Study Area in Key Places

- Extend the Eastern model boundary of the Study to at least the Mississippi-Alabama border, and preferably further into Alabama, to comprehensively model the freshwater effects of the Bonnet Carré Spillway. Utilize various resources and consult with the Lower Mississippi River Conservation Committee (LMRCC) and its partners to develop ecosystem restoration components that supplement other critical LMR uses, such as flood risk reduction.
- Expand the Study area to include White Lake and Grand Lake, which are experiencing saltwater intrusion. These lakes, located in Vermilion Parish and Cameron Parish,

provide essential freshwater reservoirs for coastal parishes. Addressing this issue is crucial for the Study's comprehensive analysis.

3.2.12 Public and Agency Involvement

A variety of comments provided feedback on the public scoping meeting format, requests for additional public scoping meetings, requests for additional information, and suggestions for how public comments should be collected and used to develop the NEPA document. The comments emphasize the importance of ongoing and inclusive communication between the Corps and stakeholders throughout the Study process, recommending that regular updates and public hearings should be held with clear notification to all stakeholders. The establishment of a comprehensive web-based platform for sharing Study information and receiving feedback was recommended. Comments recommended that the Corps collaborate with local community groups as well as with scientific, academic, and navigation representatives.

3.2.12.1 Involve All Ages and Stakeholders

- Hold public hearings in Mississippi and all other affected states on at least a semiannual basis. These public hearings should have a format that allows all stakeholders and the public to engage with Corps representatives in a question-and-answer period at which all stakeholders and members of the public present or online can hear the questions and answers.
- Fully incorporate Mississippi Gulf Coast stakeholders in the Study process and hold regular meetings on the Mississippi Gulf Coast to incorporate input from the public.
- Explore ways to get more young people involved in this process.

3.2.12.2 Communicate Information Clearly and Continuously

- Make sure to let stakeholders and public know when the quarterly update meetings are.
- The Corps should commit to a continued feedback loop with community members, the public, and stakeholders. The recent scoping meetings were held across the Study geography, with multiple meetings per day, with access to Study team members for greater detail. This was an encouraging demonstration of inclusivity, and such efforts should be continued throughout the Study timeline, to ensure that objectives and solutions are grounded in the needs of the communities that will be affected, with meaningful impact and consideration by the project management team as the Study continues.
- Critically, stakeholders are an essential source of input for adaptive management of water resource projects. For that reason, Corps mitigation and adaptive management plans should be informed by extensive outreach and engagement opportunities with community members, scientific and academic communities, residents, navigation representatives, and other stakeholder groups.
- Establish a web-based clearinghouse for information about the Study process and information generated in the Study process. The existing website can be the foundation for such a platform. Materials on the site should include technical data, comments, and

other information received from stakeholders and the public, committee reports, interim reports, and meeting notices.

3.2.12.3 Collaborate with Local Entities

• Please continue partnering with local residents and levee boards to make practical solutions to specific problems, regardless of how someone without "boots on the ground" initially wrote their federal plans.

3.2.13 Impact Analysis Methodologies

This summary of comments recommended specific approaches, methodologies, or models for assessing impacts to specific resources in the context of analyzing alternatives. The comments emphasized the importance of using best available scientific models and data, as well as the most current data, in developing the Study and evaluating alternatives. Local stakeholders highlight the extensive water quality data they have collected over a decade, including metrics like saltwater intrusion and various water chemistry parameters in the Teche-Vermilion and Atchafalaya Basins, for example, offering it for use in the Study. Additionally, integrating existing data from the Lower Mississippi Resource Assessment and Lower Mississippi Conservation Committee is recommended. The U.S. Army Engineer Research and Development Center (ERDC) and the Engineering with Nature Initiative are cited as valuable resources for the Corp to use throughout the Study analysis. General comment summaries for impact analysis methodologies included:

3.2.13.1 Use Advanced Models and Data

- The National Wildlife Federation urges the Corps to use state-of-the-art and carefully calibrated climate, hydrologic, sediment transport, and morphodynamic models in developing the LMRCS and when assessing new projects and project operations. It is equally important to use the most up-to-date data to populate those models.
- American Rivers encourages the Corps to use the best available science and data, including hydrologic and other models, in developing the LMRCS to prevent unintended adverse impacts. Recommend the Corps leverage the many climate and hydrologic models and data sets developed by federal and state agencies as well as academic institutions.

3.2.13.2 Incorporate Existing Data and Research

- Incorporate the existing data developed during the lower Mississippi resource assessment and Lower Miss Conservation Committee into the Study for existing conditions.
- The Teche-Vermilion Water Management District has a large and comprehensive water quality monitoring program and water quality data that the Corps is welcome to draw on for the Study. They have been managing a water quality monitoring project in the watershed for the last ten years. Currently, they are monitoring 25 sites throughout the watershed, and we take meter readings as well as lab samples to evaluate water quality. One of the things they monitor is saltwater intrusion, in addition to dissolved oxygen, temperature, pH. The district also monitors and collects lab samples for chloroform,

nitrite, and TKN. All our samples are analyzed by a lab and records are stored at the district. The district has collected an extensive amount of data over the past years. The data include flows, elevation readings, modeling, and reports by the University of Louisiana at Lafayette and water quality information. Please contact us with any questions or comments.

3.2.13.3 Coordinate with Existing Initiatives and Experts

• The Corps also has close at hand two efforts that embody the multi-objective assessment intent of the LMRCMS: the U.S. Army ERDC and the Engineering with Nature Initiative. The professionals involved with both programs possess important knowledge, case studies, and expertise to help achieve the multiple-benefit assessments and project development that will strengthen the LMRCS and the region. We encourage the Corps to align and coordinate these efforts for an optimized final product.

3.2.14 Mitigation and Adaptive Management

Comments regarding mitigation and adaptive management were provided by the U.S. Fish and Wildlife Service and non-profit organizations. They focused on long-term and real-time monitoring, contaminant monitoring, habitat impact mitigation, and mitigation for the mainline levee system.

3.2.14.1 Implement Long-Term Monitoring and Adaptive Management Plans

- The U.S. Fish and Wildlife Service recommends a long-term monitoring and adaptive management plan and restoration program on the Lower Mississippi River be developed for the Study. One model to consider is the Upper Mississippi River Restoration Program, which integrates long-term monitoring, research, modeling, and data management to provide critical knowledge about the Upper Mississippi River's health and resilience.
- Observations from Davis Pond and Caernarvon Diversions show contaminants from the Mississippi River entering receiving areas. The full impact on fish and wildlife is unclear. To address future contaminant impacts, the U.S. Fish and Wildlife Service recommends implementing a monitoring and adaptive management plan to monitor fish, shellfish invertebrates, and sediments, and to take corrective actions if significant impacts are detected.
- Develop near real-time monitoring programs for water quality, ecosystems, navigation, and flood risk management to inform adaptive management strategies and enhance resilience. The Nature Conservancy has designed a Sentinel Monitoring System with partners including technical assistance from the Corps and the U.S. Geological Survey that would expand the present system at strategic location and address priority areas of flood risk management, navigation safety, and water quality.

3.2.14.2 Avoid or Mitigate Impacts on High-Value Habitats

• The U.S. Fish and Wildlife Service recommends the Corps investigate alternatives which avoid and minimize impacts to these habitats and where possible to enhance or restore them. If the below habitats cannot be avoided, mitigation will be recommended:

 Coastal Marshes, 2. Forested Wetlands (Swamp and Bottomland Hardwood Forest),
 Mississippi Alluvial Valley and Gulf Coast Habitats, 4. Batture, 5. Riparian Corridors, 6. Sandbars and Gravel Bars, and 7. Secondary Channels, Backwaters, and Oxbows.

• Implement mitigation and required monitoring for adverse impacts resulting from enlarging the Mainline Levee System, as required by 33 U.S.C. 2283.

4 CONCLUSION

The Corps engaged in a robust scoping process including public meetings, public notifications, and scoping comment solicitation and received tremendous public participation in the scope and scale of comments to guide the development of the scope of analysis for the LMRCMS. This includes public comments on the scope of Study, ideas for alternatives, methods of evaluation, and resource concerns expressed by the public, non-governmental organizations, state and federal agencies, and tribes. The Corps will use these comments to develop the LMRCMS and focus on those issues expressed through public scoping as important in the analysis.

5 REFERENCES

U.S. Army Corps of Engineers (USACE). 2015. Lower Mississippi River Resource Assessment. Final Assessment in Response to Section 402 of WRDA 2000, final July 2015. U.S. Army Corps of Engineers, Memphis District.

Appendix A News Releases



NEWS RELEASE

U.S. ARMY CORPS OF ENGINEERS

For Immediate Release: Feb. 2, 2024

BUILDING STRONG®

Contact: Matt Roe 504-862-1606 Matt.M.Roe@usace.army.mil

Public Meetings scheduled for Mississippi River study

NEW ORLEANS – The U.S. Army Corps of Engineers will host public scoping meetings for the Lower Mississippi River Comprehensive Management Study (LMR Comp) at venues throughout the study area between Feb. 27 and March 11.

The meetings will consist of a remote overview presentation and followed by an on-site open house to meet with and collect input from the public. The meeting dates, times and locations are as follows:

Feb. 27 from 2 to 4 p.m. and 6 to 8 p.m.

Cairo, IL: Harold S. Jones Fine Arts Center (815 Commercial Ave., Cairo, IL 62914)
Memphis, TN: Crosstown Community Room (1350 Concourse Avenue, Memphis, TN 38104)
Bay St. Louis, MS: Hancock County Library (312 Highway 90, Bay St. Louis, MS 39520)

Feb. 28 from 10 a.m. to noon and 6 to 8 p.m.

Dyersburg, TN: Lannom Center (2000 Commerce Avenue Dyersburg, TN 38024) Stoneville, MS: (82 Stoneville Rd, Stoneville, MS 38776) New Orleans, LA: USACE New Orleans District Headquarters (7400 Leake Ave., New Orleans, LA 70118)

Feb. 28 from 2 to 4 p.m.

Cape Girardeau, MO: Cape Girardeau Nature Center (2289 County Park Dr, Cape Girardeau, MO 63701)

Feb. 29 from 2 to 4 p.m. and 6 to 8 p.m.

Columbus, KY: Columbus-Belmont State Park (350 Park Rd, Columbus, KY 42032) **Natchez, MS**: Co-Lin Multiple Purpose Room (11 Co-Lin Cir, Natchez, MS 39120) **Belle Chasse, LA**: Belle Chasse Auditorium (8398 LA-23 Belle Chasse, LA 70037)

March 4 from 2 to 4 p.m. and 6 to 8 p.m.

Port Allen, LA: West Baton Rouge Conference Center (2750 North Westport Drive, Port Allen , LA 70767)

March 5 from 2 to 4 p.m. and 6 to 8 p.m.

Hanville, LA: Emergency Operations Center (15026 River Road, Hanville, LA 70057)

March 7 from 2 to 4 p.m. and 6 to 8 p.m.

Helena, AR: Phillips Community College Fine Arts Center (1000 Campus Road, Helena AR 72342) Morgan City, LA: Municipal Auditorium, Morgan City, LA (728 Myrtle St., Morgan City, LA 70380)

March 11 from 2 to 4 p.m. and 6 to 8 p.m.

Vicksburg, MS: USACE Vicksburg District Headquarters (4155 E Clay St, Vicksburg, MS 39183)

The LMR Comp is a five-year, \$25 million mega-study that will deliver recommendations for effective and practical management of the Mississippi River from Cape Girardeau, MO, to the Gulf of Mexico.

The purpose of the study is to identify recommendations for the comprehensive management of the region across multiple purposes, including: hurricane and storm damage reduction, flood risk management, structure and nonstructural flood control, floodplain management strategies, navigation, ecosystem and environmental restoration, water supply, hydropower production, recreation, and other purposes as determined by the Secretary of the Army.

The study area encompasses seven states: Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee. Because of the size and scope of the study, active participation and collaboration from the public and stakeholders throughout the five-year endeavor will be critical to identifying practical and sustainable recommendations for successful management of the river.

Written comments related to the Lower Mississippi River Comprehensive Management Study may also be submitted to:

USACE-MVN LMRComp C/O Project Management 7400 Leake Ave New Orleans, LA 70118

Or by email to: LMRComp@usace.army.mil

For more information about the study, please visit the website: www.mvn.usace.army.mil/About/LMRComp/

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Appendix B Public Scoping Meeting Presentation

LOWER MISSISSIPPI RIVER COMPREHENSIVE MANAGEMENT STUDY (LMRCMS)

PUBLIC SCOPING MEETING

Ann Hijuelos, Senior Project Manager New Orleans District, USACE

PRESTRESSED CONCRETE



U.S. ARMY of Engineers



MEETING PURPOSE



Provide background information on the Lower Mississippi River Comprehensive Management Study

Hear your concerns, ideas, and solutions for the management of the Lower Mississippi River, in compliance with the National Environmental Policy Act (NEPA)



U.S. ARMY

- Cairo, IL: Harold S. Jones Fine Arts Center (815 Commercial Ave., Cairo, IL 62914)
- Memphis, TN: Crosstown Community Room (1350 Concourse Avenue, Memphis, TN 38104)
- Bay St. Louis, MS: Hancock County Library (312 Highway 90, Bay St. Louis, MS 39520)
 Feb. 28 from 10 a.m. to noon and 6 to 8 p.m.
- Dyersburg, TN: Lannom Center (2000 Commerce Avenue Dyersburg, TN 38024)
- Stoneville, MS: (82 Stoneville Rd, Stoneville, MS 38776)
- New Orleans, LA: USACE New Orleans District Headquarters (7400 Leake Ave., New Orleans, LA 70118)

Feb. 28 from 2 to 4 p.m.

- Cape Girardeau, MO: Cape Girardeau Nature Center (2289 County Park Dr, Cape Girardeau, MO 63701)
- Feb. 29 from 2 to 4 p.m. and 6 to 8 p.m.
- Columbus, KY: Columbus-Belmont State Park (350 Park Rd, Columbus, KY 42032)
- Natchez, MS: Co-Lin Multiple Purpose Room (11 Co-Lin Cir, Natchez, MS 39120)
- Belle Chasse, LA: Belle Chasse Auditorium (8398 LA-23 Belle Chasse, LA 70037)
 March 4 from 2 to 4 p.m. and 6 to 8 p.m.
- Port Allen, LA: West Baton Rouge Conference Center (2750 North Westport Drive, Port Allen, LA 70767)

March 5 from 2 to 4 p.m. and 6 to 8 p.m.

Hahnville, LA: Emergency Operations Center (15026 River Road, Hanville, LA 70057)
 March 7 from 2 to 4 p.m. and 6 to 8 p.m.

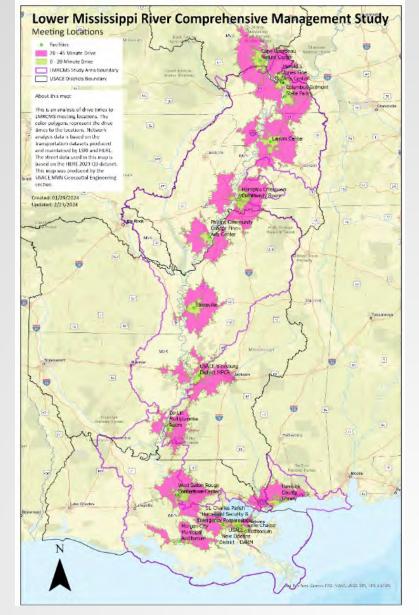
- Helena, AR: Phillips Community College Fine Arts Center (1000 Campus Road, Helena AR 72342)

Morgan City, LA: Municipal Auditorium, Morgan City, LA (728 Myrtle St., Morgan City, LA 70380)
 March 11 from 2 to 4 p.m. and 6 to 8 p.m.

Vicksburg, MS: USACE Vicksburg District Headquarters (4155 E Clay St, Vicksburg, MS 39183)
 March 12, 10 a.m., noon, and 6 p.m., - Virtual Only

- <u>https://usace1.webex.com/meet/mvnpao;</u> Meeting number (access code): 1991 65 9004
- By phone: 1-844-800-2712.









WHY ARE WE STUDYING THE MISSISSIPPI RIVER?

Lower Mississippi River Comprehensive Management Study was authorized in Section 213 of the Water Resources Development Act of 2020.

(1) PURPOSE – The Secretary, in collaboration with the heads of other Federal agencies and pursuant to subsection (d)(1)(A), shall conduct a comprehensive study of the Lower Mississippi River basin from Cape Girardeau, Missouri, to the Gulf of Mexico. The study will identify recommendations of actions to be undertaken by the Secretary, under existing authorities or after congressional authorization, for the comprehensive management of the basin for multiple purposes:

- (A) Hurricane and storm damage reduction, flood risk management, structural and nonstructural flood control, and floodplain management strategies;
- (B) Navigation
- (C) Ecosystem and environmental restoration;
- (D) Water supply;
- (E) Hydropower production;
- (F) Recreation; and
- (G) Other purposes as determined by the Secretary.



WHY ARE WE STUDYING THE MISSISSIPPI RIVER?



Lower Mississippi River Comprehensive Management Study was authorized in Section 213 of the Water Resources Development Act of 2020.



\$25M 5 Years



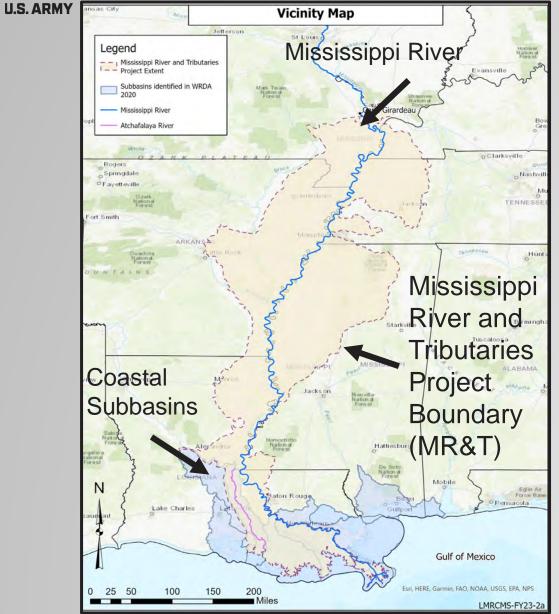


7 States Cape Girardeau, MO to Gulf of Mexico

Flood Risk, Navigation, Ecosystem Restoration, Water Supply, Hydropower, and Recreational Uses



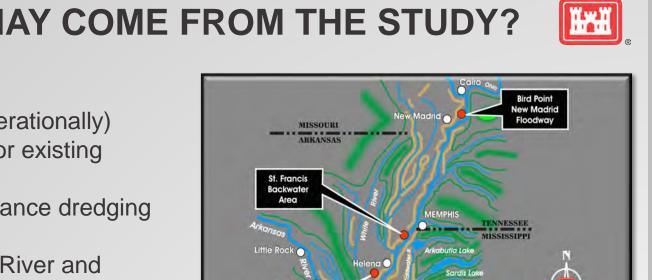
WHY ARE WE STUDYING THE MISSISSIPPI RIVER?





Credit: https://commons.wikimedia.org/wiki/File:Mississippiriver-new-01.png

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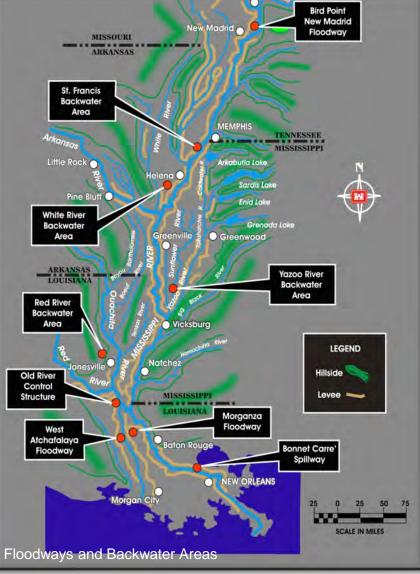


WHAT RECOMMENDATIONS MAY COME FROM THE STUDY?

U.S. ARMY

- 1. Construction of new projects
- 2. Modifications to existing projects (structurally or operationally)
- 3. Monitoring of or adaptive management measures for existing projects to respond to changing conditions
- 4. Improving the efficiency of operational and maintenance dredging within the study area;
- Whether changes are necessary to the Mississippi River and Tributaries (MR&T) Project within the Study area;
- 6. Other Federal and non-Federal action, where appropriate
- 7. Follow-up studies and data collection and monitoring to be carried out by the relevant Federal or State agency

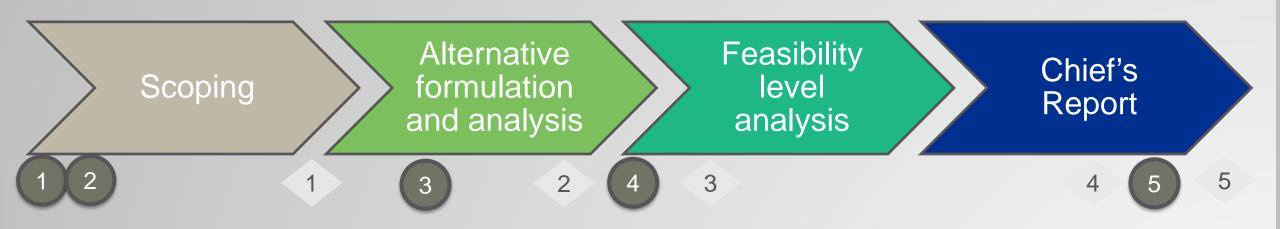






HOW ARE WE CONDUCTING THE STUDY?



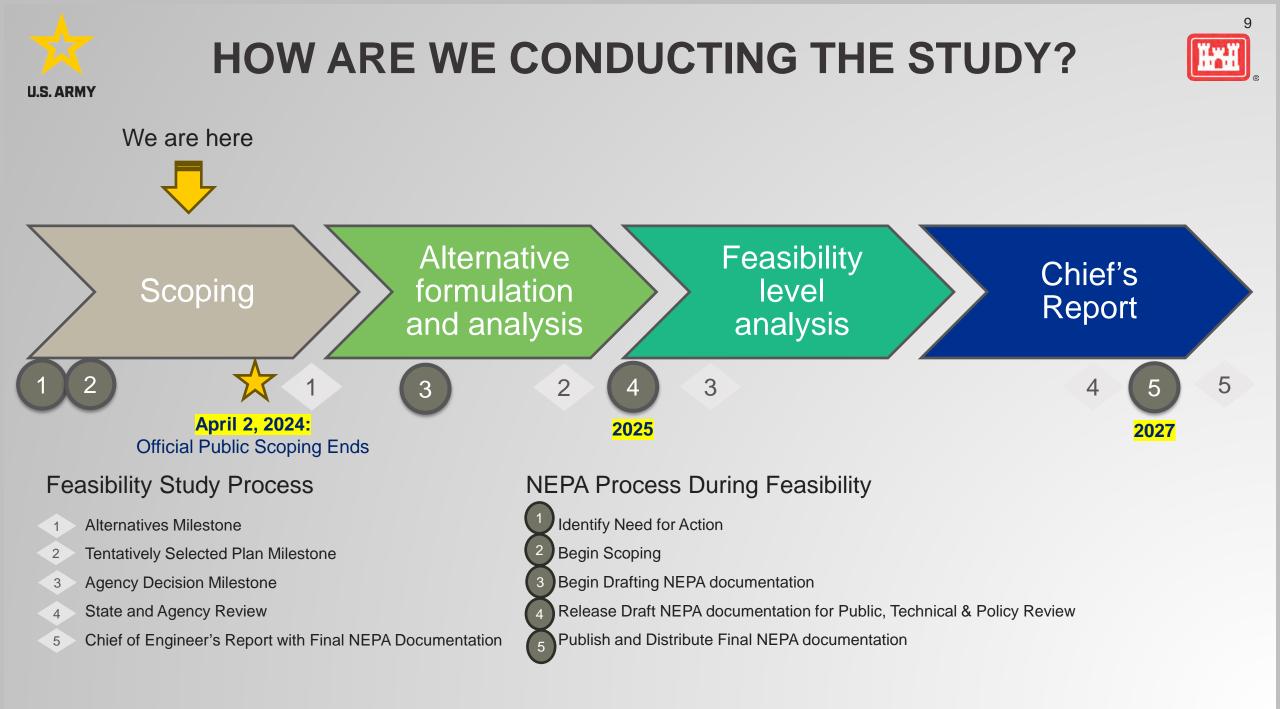


Feasibility Study Process

- 1 Alternatives Milestone
- 2 Tentatively Selected Plan Milestone
- 3 Agency Decision Milestone
- 4 State and Agency Review
- 5 Chief of Engineer's Report with Final NEPA Documentation

NEPA Process During Feasibility

- Identify Need for Action
- ² Begin Scoping
- Begin Drafting NEPA documentation
- Release Draft NEPA documentation for Public, Technical & Policy Review
- ⁵ Publish and Distribute Final NEPA documentation



WHAT IS THE NATIONAL ENVIRONMENTAL POLICY ACT?



U.S. ARMY

National Environmental Policy Act (NEPA)

Laws, Executive Orders,

- Clean Water Act
- Endangered Species Act
- Clean Air Act

Policies, and Regulations

- National Historic Preservation Act
- Coastal Zone Management Act

And others...



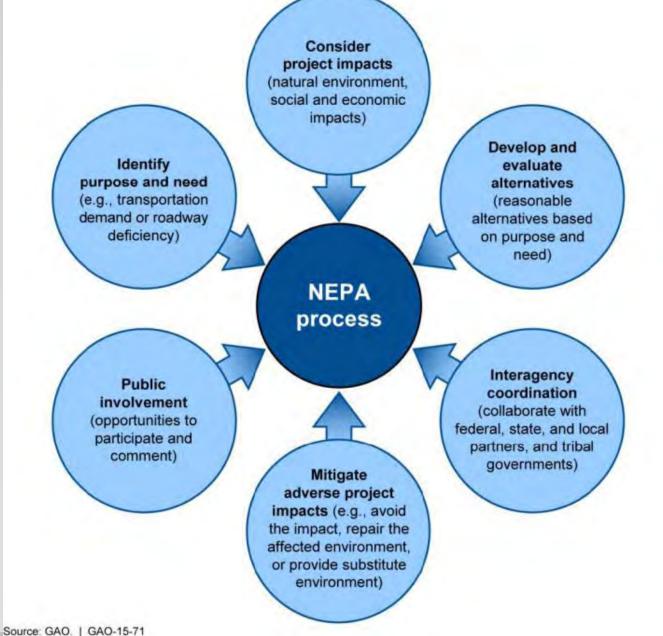
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WHAT IS THE NATIONAL ENVIRONMENTAL POLICY ACT?

U.S. ARMY

Requires all federal agencies to:

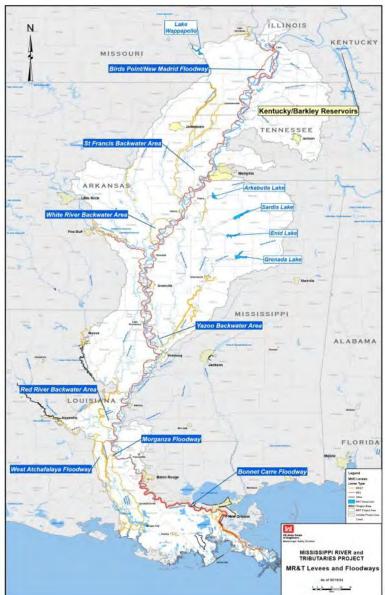
- Conduct scoping to identify significant issues that warrant further analysis
- Consider the environmental impacts of potential actions;
- Develop a range of alternatives, including no action;
- Provide opportunities for the public to provide input; and
- Document the decision-making process so that interested and affected stakeholders can understand how the agency came to a decision.





HERE'S WHAT WE'RE THINKING!

- Find the right balance of water and sediment throughout the Mississippi River and Tributaries System
- Reconnect the river and the floodplain, where possible, to support ecosystems
- Stabilize channels and improve channel resilience
- Improve economic efficiencies in inland navigation
- Change how we operate existing structures to support multiple purposes, such as flood risk management, ecosystem restoration, and water supply
- Reduce flood risk to economically and socially disadvantaged communities along the Mississippi and Atchafalaya Rivers





HERE ARE SOME OF THE RESOURCES IN THE STUDY AREA



- Terrestrial Habitats (Bottomland Hardwoods, Swamp, Marshes, etc.)
- Wildlife Resources
- Aquatic Resources and Fisheries
- Protected, Threatened and Endangered Species
- Groundwater
- Water Quality
- Geology and Soils
- Air Quality to include Greenhouse Gases
- Recreation & Aesthetics
- Cultural, Historic, and Tribal Resources
- Environmental Justice (EJ)
- Socioeconomics



- Where are some of the PROBLEMS or CHALLENGES on the river?
- What are some SOLUTIONS to fix these problems or challenges?
- How can we more EFFECTIVELY MANAGE the river and its resources?
- What river management practices would you like to see EXPANDED?
- What are your greatest CONCERNS about current state of the river?
- What are we MISSING and what is it that we don't know?







Comment Method	How to Access & Submit
Survey 123 Tool	https://arcg.is/0OC1DP
Email	Imrcomp@usace.army.mil
Comment Cards	At Public Meetings
Website	https://www.mvn.usace.army.mil/About/LMRComp/
GENERAL INQUIRIES:	Email Imrcomp@usace.army.mil
Public Comment Period Ends April 2 nd 2024	



Appendix C Public Comments

Letter ID: 48 Name: Alexius, Chris Org/Agency/Company: -

Letter ID: 45 Name: Marcel, Amanda Org/Agency/Company: American Commercial Barge Line

Letter ID: 74 Name: Parsons, Julie Org/Agency/Company: American Commercial Barge Line

Letter ID: 158 Name: Hettel, Marty Org/Agency/Company: American Commercial Barge Line

1. Inland navigation stakeholders are not opposed to the comprehensive study but would like to ensure that no negative impacts to the inland navigation system come from the study recommendations. Inland navigation is the safest, most energy-efficient, and has the lowest carbon footprint of any surface transportation mode. Any changes to navigation could drive tonnage off the inland waterways and onto other surface transportation modes.

2. The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944.

a. Maintaining the channel at 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commercial barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage.

b. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitive by making significant investments in their respective infrastructures.

The advantages of maintaining the system to 12 feet extend beyond just transportation cost savings. Transporting commodities on the inland system is the least expensive mode of transportation, the most energy-efficient, and has the lowest carbon footprint, providing 675 ton-miles/gallon compared to 472 ton-miles/gallon for rail and 151 ton-miles/gallon for tractor-trailers. Just one 15-barge tow equals 1,050 large trucks or 216 rail cars.

Letter ID: 49 Name: Lonnemann, Nick Org/Agency/Company: American Commercial Barge Line

Letter ID: 54 Name: Schappell, Steve Org/Agency/Company: American Commercial Barge Line

Letter ID: 44 Name: Bowen, Timothy Org/Agency/Company: American Commercial Barge Line

Letter ID: 68 Name: Daigle, Hannah Org/Agency/Company: American Commercial Barge Line

Letter ID: 67 Name: Wooley, Jessica Org/Agency/Company: American Commercial Barge Line

Letter ID: 63 Name: Carlson, Tom Org/Agency/Company: American Commercial Barge Line St. Louis

Letter ID: 150 Org/Agency/Company: American Rivers

American Rivers is the only national organization dedicated entirely to protecting and restoring the rivers on which all life depends. American Rivers has over 300,000 supporters throughout the United States and over five decades of experience in river protection and restoration work.

These comments include sections:

1. Recommendations for the LMRCS Study Objectives

2. Overall Recommendations on Study Approach

3. Actional Recommendations to Improve Resilience

1.Recommendations for LMRCS Study Objectives

American Rivers sincerely appreciates the work that has gone into developing the LMRCS Study Objectives. We propose several modifications and additions:

•The Study Objectives on "maximizing channel stabilization" should be modified to more fully reflect that the LMRCS is not prioritizing navigation above ecosystem benefits as part of its comprehensive management study.

•Additional objectives should include new Systemwide Objectives designed to maximize floodplain connectivity, flood resilience, and ecosystem health through structural and operational modifications as well ecosystem restoration and nature-based solutions.

The current objectives are a good start for the LMRCS, and we hope to see the Corps build on them by identifying further multi-benefit actions for communities and ecosystems that rely on the river.

2. Overall Recommendations on Study Approach

As noted by the Corps, this study is a tremendous opportunity to re-examine and re-envision all aspects of the operation and management of the lower Mississippi River and Tributaries (MR&T) system in an adaptable, resilient, and sustainable manner and in consideration of a full range of contemporary issues, including hurricane and storm damage reduction, flood risk management, structural and nonstructural flood control, floodplain management strategies, navigation, ecosystem and environmental restoration, water supply, hydropower production, recreation, and nature-based solutions. Keeping in mind the breadth of the study and its objectives, American Rivers recommends a study approach that is focused around key Opportunity Areas. These may include:

•Areas for floodplain reconnection and restoration to provide effective flood risk management

and restore damaged floodplain ecosystem.

•Areas for the modification or removal of outdated navigation infrastructure to improve ecosystem health without compromising navigation.

•Areas in floodway and backwater locations where operational and/or structural modifications could reduce both flood risk and nutrient run-off and improve floodplain functionality.

Overall, we recommend that the Corps take steps to ensure the study fully accounts for:

•The changing climate and its predicted effects across a range of scenarios, including increased storms, drought, and flooding;

•Equitable delivery of projects and project benefits, particularly for historically underserved communities;

•Direct, indirect, and cumulative impacts affecting fish and wildlife species that rely on the Mississippi River and adjacent wetlands and floodplain for habitat.

3. Actional Recommendations to Improve Resilience

The measures identified below would work across multiple programs, projects, and operational activities to improve the resilience of the Lower Mississippi River and meet the objectives of the LMRCS.

a.Identification of Legal Impediments

Should the Corps identify authorizing language changes needed to modify projects to implement measures advancing the goals of the LMRCS, the Corps should notify Congress in required annual reports to facilitate inclusion of necessary changes in future Water Resources Development Acts.

American Rivers believes necessary actions to improve the resilience of the Lower Mississippi River can already be carried out under the existing authorizing language and according to the full complement of laws and policies applicable to Corps projects.1 Laws and policies that require the Corps to protect the environment include the National Water Resources Planning Policy2, the National Environmental Policy Act, the Clean Water Act, the Endangered Species Act, the Clean Air Act, and the Corps' civil works mitigation requirements.3

b.Best Available Science, Data, and Modeling

American Rivers encourages the Corps to use the best available science and data, including hydrologic and other models, in developing the LMRCS to prevent unintended adverse impacts. We recommend the Corps leverage the many climate and hydrologic models and data sets developed by federal and state agencies as well as academic institutions.

c.Optimize Operations of Floodways and Backwaters

The Corps should fully assess the optimal operation of designated floodways and backwaters to reduce flood damages, improve public safety, and restore habitat. This assessment should consider:

1) Lowering flood level elevation triggers for the use of floodways and backwaters

2) Implementing changes that allow for passive activation of floodways and backwaters

3) Restoring wetlands within floodways and backwater areas

4) Maximizing connectivity between the river and floodways and backwater areas

5) Expanding the extent of floodways to reduce flood damages

Such measures would increase the net functionality and productivity of the floodplain, decrease the cost of providing flood protection to more developed areas, and reduce the likelihood of catastrophic damage to life and property in the event of levee failure.

d.Modernize Operations and Maintenance of Navigation

The operations and maintenance of the navigation system on the lower Mississippi should be modernized to reduce flood damages, improve habitat for fish and wildlife, and increase resilience. Modernization measures may include:

1) Removal and modification of targeted river training structures to reduce flood heights, restore important fish and wildlife habitat, and reconnect side channels

2) Removal of rip rap in targeted reaches to facilitate natural channel movement and allow the contribution of additional sediment to advance restoration of coastal wetlands, riverine wetlands, and islands

3) The reuse of fully compatible sediments dredged to maintain navigation and minimization of adverse impacts associated with the disposal of sediments dredged to maintain navigation

4) Mitigation of the adverse impacts of activities carried out to operate and maintain navigation

e. Improve Resilience of the Mainline Levee System

American Rivers supports improvements to the resilience of the Mainline Levee System. Such improvements will restore fish and wildlife habitat and reduce nutrient loading in the Mississippi River. These improvements include:

1) Levee and berm construction material for maintenance or enlargement of the Mainline Levee System should be sourced from non-wetland locations.

2) Wetland buffers on the riverside of the Mainline Levee System should be restored.

3) Increased levee setbacks in targeted locations to expand and reconnect floodplains and wetlands.

4)Implement mitigation and required monitoring for adverse impacts resulting from enlarging the Mainline Levee System, as required by 33 USC § 2283.

Conclusion

Thank you again for the opportunity to provide these comments on the scoping phase of the LMRCS. We hope the Corps seizes this opportunity to bring management of the Lower Mississippi River into alignment with the knowledge and values of the 21st century and protect critical ecosystems while also supporting communities that depend on the river. American Rivers looks forward to supporting the Corps throughout the study development process.

If you have any questions or would like additional information, please contact Kelsey Cruickshank

Footnotes:

1 See, e.g., Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 196 (D.C. Cir. 1991) (to comply with NEPA, an agency must adopt a "Purpose and Need" statement that considers "the views of Congress, expressed, to the extent that an agency can determine them, in the agency's statutory authorization to act, as well as in other Congressional directives." (emphasis added)).

2 Enacted by Congress in 2007, the National Water Resources Planning Policy requires "all water resources projects" to protect and restore the functions of natural systems and to mitigate any unavoidable damage to natural systems. 42 U.S.C. § 1962-3.

3 33 U.S.C. § 2283(d).

Letter ID: 211 Org/Agency/Company: American Waterways Operators

Hello,

Attached are AWO's comments on the scope of the LMR Comp.

Sincerely, Justin Lampert

Dear COL Jones,

The American Waterways Operators (AWO) is the tugboat, towboat, and barge industry's advocate, resource, and united voice for safe, sustainable, and efficient transportation on America's waterways, oceans, and coasts. Our industry is the largest segment of the nation's 40,000-vessel domestic maritime fleet and moves 665 million tons of cargo each year safely and efficiently through 25,000 miles of inland and intracoastal waterways, the Great Lakes, and the Atlantic, Pacific and Gulf coasts. This includes more than 60 percent of U.S. export grain, energy sources such as coal and petroleum, cement, iron ore, and other bulk commodities critical to the U.S. economy.

Thank you for the opportunity to comment on the scope of the U.S. Army Corps of Engineers' (Corps) Lower Mississippi River Comprehensive Study (LMR Comp). Commerce moving on the Mississippi River and its tributaries is an incredible asset for the American people. The 2022 Transportation Statistics Annual Report¹ noted that, in 2020, 165.5 million tons of freight moved between the twelve states that touch the Mississippi River system. The Lower Mississippi River is the most heavily trafficked part of the river system and provides a vital path for U.S. exports to the international market with the Mississippi River Basin accounting for 92% of U.S. agricultural exports. However, recent low water events and other challenges have spotlighted ongoing navigation concerns. The need for consistent, transparent, and initiative-taking solutions that facilitate the Marine Transportation System while protecting communities, mariners, and the environment is essential to the nation.

The LMR Comp provides an opportunity for the Corps to examine and implement actions needed to protect and enhance navigation on the river for decades to come. AWO provides the following input on the scope of the study:

¹ U.S. Department of Transportation, Bureau of Transportation Statistics, Transportation Statistics Annual Report 2022 (Washington, DC: 2022). https://doi.org/10.21949/1528354

- Assess economic and environmental benefits to maintaining a 12-foot channel from Cairo, IL to the Gulf of Mexico.
 - A 12-foot navigation channel was authorized by Congress in the 1944 Flood Control Act.
 - A dependable 12-foot channel will provide an increased value to the nation and to agricultural exports.
 - Implement a process during a national security and/or supply chain emergency for low water like the one that already exists for high water.
 - Collaborate with the Maritime Administration (MarAd) and/or the Department of Transportation's Committee on the Maritime Transportation System (CMTS) or to conduct studies to understand the full economic impacts along with other impacts to the nation (safety, security, and environmental).

• Assess equipment needs to maintain a 12-foot navigation channel.

- Two of the current dredges are over 90 years old.
- Recapitalization of new dredges needs to be implemented quickly to ensure resilience of navigation assess the use of the Federal Acquisition Regulation (FAR) to ensure emergency contracting.
- To maintain the 12-foot channel and routes to access areas, the Corps should utilize contract dredges as outlined in WRDA 2022, Section 8133, *Regional Dredging Project*.
- Further plans and funding should include the main channel and access to ports, terminals, and fleeting areas.
- Assess collaboration needed with other state and federal agencies to better predict river depths.
 - Work with the Tennessee Valley Authority (TVA) to improve reliability of flows at the confluence of the Ohio and Mississippi rivers.
 - Ensure NOAA moves forward with crowd-sourcing channel depths to improve reliability.
 - Improve predictions of water levels utilizing National Oceanic and Atmospheric Administration (NOAA) River Forecast Centers and NASA technologies.
 - Work with the National Weather Service (NWS) to improve water level predictions, especially if the changes are extreme.
- Assess possible new or expanded technologies to enhance safe and efficient navigation.
 - o Investigate and implement crowd-source data from industry vessels.
 - Eliminate all electronic buoy "black holes."
 - The U.S. Coast Guard's AIS encoding guide needs upgrading to ensure safe navigation.
 - Evaluate the need for air gap sensors on bridges that pose safety risks to ensure safe passage of vessels.

- Investigate the use of drones for photogrammetry surveys to map the riverbed and water levels.
- Assess information needed to inform the public of the value of navigation to the nation (economic and environmental).
 - Collaborate with the Institute for Water Resources (IWR), National Planning Center of Expertise for Inland Navigation (PCXIN), Waterways Commerce Commission, MarAd, CMTS, and Engineer Research and Development Center (ERDC).
- Assess the need for anchorages.
 - With a reliable and resilient system, traffic is likely to increase and areas to stage vessels could improve efficiency and safety.
- Assess processes that affect navigation efficiency and safety.
 - Improved permitting processes transparent, consistent, and collaborative with industry and the Coast Guard.
- Assess funding needs to accomplish the above goals.

Thank you again for the opportunity to provide input on the scope of the LMR Comp. AWO looks forward to working with the Corps as the LMR Comp moves forward.

Sincerely,

Justin Lampert Senior Manager – Midcontinent Office

Letter ID: 19 Org/Agency/Company: Arkansas Game and Fish Commission

What is the outreach beyond the agencies? Public Affairs Office, libraries, community centers? Jen also wanted AGFC on the comment mailing list so they can shotgun it out to their contacts to reach the widest audience. 12' channel on Arkansas is funded and in feasibility. The Mississippi River is authorized but only dredged to 9'.

-Jennifer Sheehan

Letter ID: 152 Org/Agency/Company: Arkansas Game and Fish Commission

The Arkansas Game and Fish Commission (AGFC) has participated in the development of the Lower Mississippi River Comprehensive Management Study (LMRCMS). This comment letter has been prepared in accordance with the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). FWCA requires that efforts to protect fish and wildlife resources be given equal consideration with other project features.

AGFC, as the trustee of wildlife resources for the State of Arkansas, has a vested interest in the outcome of the LMRCMS. In accordance with 40 CFR 1501.8 of the National Environmental Policy Act (NEPA), AGFC accepted the opportunity to join this project as a Participating Agency on January 26, 2024. In doing so our agency pledged to provide agency staff for the purposes of identifying issues and alternatives that would avoid impacts to, promote the protection of, and identify restoration and public use opportunities for the natural resources present within the project area.

AGFC offers the following comments regarding the development of the LMRCMS to this point:

• While we appreciate that the U.S. Army Corps of Engineers (Corps) Project Team is utilizing NEPA as an umbrella law to cover other federal laws that intersect with the LMRCMS, we want to make sure that the Project Team understands that the FWCA Sec. 2. [16 U.S.C. 662] (a) states, "...whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the United States, or by any public or private agency under Federal permit or license, such department or agency first shall consult with the United States Fish and Wildlife Service, Department of the Interior, and with the head of the agency exercising administration over the wildlife resources of the particular State wherein the impoundment, diversion, or other control facility is to be constructed, with a view to the conservation of wildlife resources by preventing loss of and damage to such resources as well as providing for the development and improvement thereof in connection with such water-resource development." The FWCA allows the U.S. Fish & Wildlife Service (Service) and the state wildlife agency to prepare a report detailing their position on the project, the Corps must provide written responses addressing both reports, and then those reports accompany the Corps' Final Report to Congress. The FWCA therefore allows for a more robust process for the Service and the state wildlife agency to review a project than a typical NEPA comment letter. AGFC wants to ensure that the FWCA review process is adhered to throughout the development of the LMRCMS.

• Through our participation in agency and public scoping meetings for the LMRCMS we learned that the Corps Project Team identified a contact for each of the seven states in the project area by requesting that the Governor of each state identify one point of contact. While on the surface this approach sounds very organized, it does not fully work in Arkansas and Missouri. In Arkansas the Arkansas Department of Transportation, the Arkansas University System, and the Arkansas Game and Fish Commission are all constitutionally independent of our Legislature. In Missouri their state wildlife agency, the Missouri Department of Conservation, is also constitutionally

independent of their Legislature. This means that contacting the Governor's Office does not include direct communication with the aforementioned state agencies. AGFC asks that the Corps Project Team present a plan to the above listed agencies on how our review and comments on the development of the LMRCMS will be given equal consideration to the comments of the Governor appointed state contacts.

• In 2015 the Lower Mississippi River Resource Assessment (LMRRA) Final Report was presented to Congress. On June 1, 2015, AGFC sent a letter to the U.S. Army Corps of Engineers, Memphis District supporting many of the recommendations in the LMRRA. AGFC still supports the recommendations contained within the LMRRA and I have provided that 2015 letter as an attachment to these comments.

See Attachment: 6-1-2015_LMRRA

A Century of Conservation

Andrew Bass Assistant Deputy Director

Ricky Chastain Assistant Deputy Director

Mike Knoedl Director Jeff Crow Chief of Staff and

Deputy Director

Arkansas Game and Fish Commission

June 1, 2015

Colonel Jeffery Anderson Memphis District – U.S. Army Corps of Engineers 167 N. Main St. Room B-202 Memphis, TN 38103-1894

RE: Lower Mississippi River Resource Assessment Final Report to Congress

Colonel Anderson:

The Lower Mississippi River Resource Assessment (LMRRA) is authorized by Section 402 of the Water Resources Development Act of 2000, Public Law 106-541. It states that the Secretaries of the Army and the Interior, in cooperation with the states of Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee shall develop 1) an assessment of information needed for river-related management, 2) an assessment of natural resource habitat needs and, 3) an assessment of the need for river-related recreation and access. The goal of the LMRRA is to summarize the needs for information, habitat, and recreation identified in the three previous assessments and develop a strategy to meet those needs.

The Arkansas Game & Fish Commission (AGFC) was an active partner in the development of the LMRRA through submission of AGFC data layers, meeting attendance, and our membership in the U.S. Fish & Wildlife Service's Lower Mississippi River Conservation Committee (LMRCC). The AGFC supports the work of the U.S. Army Corps of Engineers (USACE) and the Lower Mississippi River partners in this examination of the needs and opportunities for the Lower Mississippi River.

Assessment of Information Needed for River-related Management

The Assessment of Information Needed for River-Related Management includes current information and research which allows for a thorough documentation of what information is currently available for Lower Mississippi River management and where information knowledge gaps exist. Recommendations include the need to continue sediment analysis already underway to aid in river and delta management, to establish a water quality monitoring program and to establish a river information center to house the complicated and extensive data in a central location for river managers. Additionally, ten tributaries were identified as targets for watershed studies to better understand the influence these waters have on the main stem Lower Mississippi River (LMR).

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The Arkansas Game and Fish Commission's mission is to conserve and enhance Arkansas's fish and wildlife and their habitats while promoting sustainable use, public understanding and support. AGFC supports the following LMRRA recommendations:

Recommendation - Data, Information, Science and Communication (DISC) 2: Continue with sediment analysis of the Middle and Lower Mississippi River that was initiated in 2014 in a Mississippi River Geomorphic and Potamology Study. **Recommendation DISC 3:** Create a dedicated water quality monitoring program for the entire LMR.

Recommendation DISC 4a: Conduct Comprehensive Watershed Studies of the major tributary rivers of the LMR as authorized in Section 729 of the Water Resources Development Act of 1986.

Recommendation DISC 4b: Conduct studies on larger tributary systems. These studies would focus on the active floodplain and existing water resources infrastructure and not on the entire watershed. USACE would need specific authorization to conduct these studies. **Recommendation DISC 5a:** Island Inventory - Conduct an ecological survey of the islands on the Mississippi River to determine their uniqueness, ecological resources, and opportunities for restoration.

Recommendation DISC 5b: Potential Natural Vegetation Study – Conduct research on the current hydrology, soils, and historic vegetation within the batture and develop a potential vegetation map to inform vegetative restoration.

The above recommendations complement the AGFC Strategic Plan goals of:

- Managing Fish and Wildlife
- Working Together for Fish and Wildlife
- Preparing for the Future

Assessment of Natural Resource Habitat Needs

The Assessment of Natural Resource Habitat Needs recommendations focus on eight conservation priority areas to determine federal interest in specific restoration project opportunities, planning and design, and implementation approaches. Each reach has opportunities to enhance a broad spectrum of features including side channels, backwaters, oxbow lakes, tributary and floodplain functions, islands, gravel bars, wetlands and sandbars. These eight reaches total 275 miles or nearly 30% of the LMR. Recreational enhancement will be considered alongside natural resource habitat improvements to provide opportunities for people to benefit from completed restoration actions.

AGFC supports the following LMRRA recommendations:

Recommendation - Habitat, Restoration, and Management Program (HRMP) 1.

Conduct eight conservation reach habitat restoration studies on the LMR. The Mississippi River ecosystem is a dynamic system with interactions between the terrestrial and aquatic systems, main channel and side channel areas, mudflats, backwaters, tributaries, and islands. These feasibility studies would examine the Mississippi River and batture to determine if there is Federal interest sufficient to justify construction of ecosystem restoration features. Eight reaches have been identified as priorities.

- 1. Wolf Island to Island 8 Reach RM 946 910 (36 mi.)
- 2. Hatchie/Loosahatchie Reach RM 775 736 (39 mi)

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- 3. Islands 62/63 Reach RM 650 618 (32 mi.)
- 4. Arkansas River Reach RM 599 556 (43 mi.)
- 5. Possum (Worthington-Pittman) Reach RM 524 490 (34 mi.)
- 6. Palmyra River Reach RM 431 398 (33 mi.)
- 7. Lake Mary Reach RM 360 -322 (38 mi.)
- 8. Raccourci Cutoff Reach RM 300 -265 (35 mi.)

Recommendation HRMP 2a. Conduct Aquatic Habitat Ecosystem Restoration studies using the existing USACE authority under Section 1135 of the Water Resources Development Act (WRDA) of 1986 or Section 206 of WRDA 1996.

Recommendation HRMP 3: Terrestrial Habitat Program – Continue to implement programs that restore native vegetation to the batture. Most of the land within the batture is in private ownership, but some landowners are interested in reforesting their land. There are programs to assist these landowners.

Recommendation HRMP 4: Invasive Species - There are several plans in place to address invasive species on the river that would include substantial benefit to native species if implemented. They include privet abatement, kudzu control, the Aquatic Nuisance Species Task Force (ANSTF) and Mississippi Interstate Cooperative Resource Association (MICRA) have developed plans to manage and control carp and other aquatic nuisance species.

The above recommendations complement the AGFC Strategic Plan goals of:

- Managing Fish and Wildlife
- Working Together for Fish and Wildlife
- Preparing for the Future

In addition to the recommendations provided in the LMRRA, AGFC would like to make the following recommendations:

- Include opportunities for fish passage and eel ladders on the Ouachita River, White River, and Arkansas River dams to the LMR.
- Develop a study to estimate the number and species of fish that are killed by the Huxtable Plant on the St. Francis River.

Assessment of the Need for River-related Recreation and Access

Assessment of River Related Recreation and Access: The LMR passes seven states and many municipalities and cities. Currently many opportunities exist for outdoor recreation and tourism on and near the LMR, but there is no single entity marketing the river for tourism. Therefore, many of the recreation recommendations included in this assessment are important for numerous government agencies, municipalities, and private organizations. Multiple state organizations like the Mississippi River Parkway Commission, Mississippi River Trail, local communities and non-governmental organizations can help provide continuity to provide better service and access to the Mississippi River. These recommendations are river-related recreation items but are often not directly within the batture or on the LMR. They include boat ramps for all sizes of watercraft, bike and pedestrian trails, riverfront parks, large riverboat docks, lodging and dining, guide service and marketing of the river as a destination.

AGFC supports the following LMRRA recommendations:

2 Naturaí Resources Drive • Little Rock, AR 72205 • www.agfc.com Phone (800) 364-4263 • (501) 223-6300 • Fax (501) 223-6448 **Recommendation – Recreation Program (RP) 1.** Boat Ramps – Increase the number of boat ramps on the LMR. A boat ramp every 10 to 20 miles on the river would provide more opportunities for paddlers, fishermen and hunters and would increase safety to allow those in distress more options for getting off the water or easier access for search and rescue operations to get to those in distress. More ramps should be available to directly access backwaters and side channels. Ramps also provide locations for interpretive signs about the Mississippi River, environmental education and safety. **Recommendation RP 7.** Outfitter and Guide - Establish more outfitter & guide services on the LMR. Increased guide services of fishing, canoeing/kayaking, and hunting will help

safely get river adventurers on the water to explore and enjoy.

The above recommendations complement the AGFC Strategic Plan goals of:

- Serving the Public
- Connecting People with Fish and Wildlife

The LMRRA combines the three assessments into a comprehensive plan that contains recommendations that will guide future management of the LMR. This report will illustrate many needs and opportunities to restore natural resources, develop recreation options for access and experiences, and improve our knowledge of the river. As this work moves forward there will be interest in public and private collaboration to restore habitat, enhance recreation access, and promote information sharing. AGFC is encouraged by this work and will continue to work with our state and federal partners to develop and implement projects that protect and enhance the LMR's natural resources while increasing opportunities for public use.

The opportunity to comment is appreciated.

Sincerely,

Richy Chartan

Ricky Chastain Deputy Director, Arkansas Game & Fish Commission

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Letter ID: 134 Org/Agency/Company: Arkansas Game and Fish Commission

Incorporate the existing data developed during the lower Mississippi resource assessment and Lower Miss Conservation Committee into the study for existing conditions.

Letter ID: 137 Org/Agency/Company: Arkansas Game and Fish Commission

How will the present study incorporate the 12-foot depth channel proposed in the MKARN system.

Letter ID: 220 Org/Agency/Company: Arkansas Game and Fish Commission

Please see additional comments on behalf of the Arkansas Game and Fish Commission. These should be considered in addition to what was provided by Ms. Jennifer Sheehan on April 2, 2024.

• My main recommendations are to closely follow the recommendations provided in the LMRRA, particularly the 4 Habitat Restoration and Management Program recommendations and the 7 Recreation Program recommendations as outlined in the document's executive summary. I am particularly interested in recommendations DISC 4b, DISC 5b, HRMP 2, HRMP 3, HRMP 4, for which AGFC has already supported.

• Additionally, it is of the interest of AGFC to maintain boat access on the Arkansas side of the Mississippi River. There are very few access points as it is, and many are unusable, primarily in low-water conditions. Several have also been damaged due to barge-contact. AGFC has received numerous calls from anglers about these issues. We also support the goal of having boat ramps every 10 to 20 miles to increase access and improve recreational opportunities, as stated in the LMRRA (2015).

• AGFC would like to emphasize our support towards funding the remaining 7 conservation reach studies similar to the Hatchie-Loosahatchie, as well as implementing the recommended and appropriate management actions provided within.

• AGFC would like to emphasize our interest in working alongside federal and state agency partners in the early stages of ecosystem restoration work, as much as possible.

• Within the fisheries division, we would like to see a continuation of the dike notching work, addressing habitat degradation within the batture, and reconnecting the Mississippi River and tributary floodplains at important times of the year for ecosystem processes and aquatic tax lifecycles.

• There is a 20+ year history of dike notching efforts on the LMR and therefore we would like both paper and digital formats (GIS) to track the life-cycle of the training structure modifications. Things we are interested in knowing include when dikes/dike notches were implemented and what modifications were made.

• There is no standardized monitoring program for the LMR like there is for the Upper Mississippi River. It would be beneficial to implement standardized monitoring sites near Memphis and Vicksburg, which function similarly to Cape Girardeau. • There are a number of important fish species we are interested in within the LMR, including diadromous fish such as American Eels and Alabama Shad, as well as Sicklefin and Sturgeon Chub, Alligator Gar, catfish species, and Ohio Shrimp. Prioritized studies are needed.

• We would like to see an investigation of ground-water upwelling sites within the LMR. There are areas below dikes that you can find really cold water, even in the summer months. These may be critically important areas of thermal refugia for aquatic taxa within the LMR.

Letter ID: 233 Name: Org/Agency/Company: Arkansas Game and Fish Commission

Good Morning USACE LMR Comp Team (and Memphis and Vicksburg staff that cover Arkansas),

The Arkansas Game and Fish Commission (AGFC) provided comments on the USACE-Little Rock District's MKARNS 12-foot Channel Deepening Project Draft Supplemental Environmental Assessment. Through conversations at the Lower Mississippi River Comprehensive (LMR Comp) Study Public Meetings, AGFC was asked to also provide those comments to the LMR Comp Team as the Arkansas River is connected to the MR&T Project. I have attached AGFC's comments on the MKARNS 12-foot Channel. If you have any questions, need additional information, or have trouble accessing the attachment please let me know.

See attachment below.

Chris Racey Chief of Staff



Brad Carner Deputy Director

Ben Batten Deputy Director

Arkansas Game and Fish Commission

Spencer Griffith Deputy Director

Austin Booth Director

March 10, 2024

Col. Damon Knarr U.S. Army Corps of Engineers P.O. Box 867 Little Rock, AR 72203-0867

Re: McClellan-Kerr Arkansas River Navigation System 12-foot Channel Deepening Project - Draft Supplemental Environmental Assessment - Public Comment Period

Col. Knarr,

The Arkansas Game and Fish Commission (AGFC) has reviewed the McClellan-Kerr Arkansas River Navigation System (MKARNS) 12-foot Channel Deepening Project Draft Supplemental Environmental Assessment (SEA). This comment letter has been prepared in accordance with the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). FWCA requires that efforts to protect fish and wildlife resources be given equal consideration with other project features. On June 13, 2023 AGFC signed on to this project as a cooperating agency and regularly attends coordination meetings and is assisting in efforts to formulate and evaluate alternatives.

AGFC offers the following comments and questions on the MKARNS 12-foot Channel Deepening Project Draft SEA:

General Comments:

• Section 10.1.3 Fish and Wildlife Coordination Act of the Draft SEA makes no mention of coordination with the state wildlife agencies affected by the MKARNS 12-foot Channel Deepening Project. The language of the FWCA Sec. 2. [16 U.S.C. 662] (a) states, "... whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the United States, or by any public or private agency under Federal permit or license, such department or agency first shall consult with the United States Fish and Wildlife Service, Department of the Interior, and with the head of the agency exercising administration over the wildlife resources of the particular State wherein the impoundment, diversion, or other control facility is to be constructed, with a view to the conservation of wildlife resources by preventing loss of and damage to such resources as well as providing for the development and improvement thereof in connection with such water-resource development." The FWCA coordination that has occurred between the U.S. Army Corps of Engineers and the U.S. Fish & Wildlife Service for

the MKARNS 12-foot Channel Deepening Project should also be extended to the Arkansas Game and Fish Commission and the Oklahoma Department of Wildlife Conservation.

- While we understand that the Mississippi River is authorized to be maintained at 12-feet we know, even though conformation as recently as the March 2024 public meetings associated with the Lower Mississippi River Comprehensive Study by the New Orleans, Vicksburg, and Memphis Districts, that the lower Mississippi River is only maintained to 9-feet. How will this difference in depth work with the MKARNS if it is maintained at 12-feet?
- AGFC would like to know why the "Marsh Model" was chosen over other certified models as we are unfamiliar with the methodologies used in the "Marsh Model" to calculate mitigation. We are unsure if this model will adequately describe the impacts this project will have on riverine habitat degradation that may be likely over the lie of the project.
- While we understand that specific details of MKARNS 12-foot Channel construction are not currently available, we would like to see more detail on proposed mitigation plans included in the SEA for agency and public comment.
- AGFC would like to see more continuity between the proposed mitigation from the 2005 MKARNS 12foot Channel Environmental Impact Statement and what is proposed in the 2024 SEA.
- Currently most all dike fields are labeled as potential aquatic disposal sites. AGFC would like to discuss the use of these areas as disposal sites to identify where disposal could be placed to cause the least amount of impact to aquatic resources.
- AGFC is concerned that the continuous placement of dredge material on the inside of river bends could eventually restrict both angler and aquatic life access. AGFC would like to discuss the possibility of dike notching, or other methods, to maintain openings to these secondary channels that serve as important habitats for the life stages of many aquatic organisms.
- Many of the proposed training structures and sandbars already exist. Is the intent to make these structures larger?
- Nearly all of the Arkansas post-canal is proposed for dredging. However, per conversations with USACE, it seems that the majority of the channel is already at a 12-foot or greater depth. AGFC would like specific locations for where the channel is not at 12-foot or greater depth and where dredging impacts will be the most substantial.
- AGFC would like to see site-specific locations for mitigation efforts prior to construction and/or modification. If possible, we would like to be heavily involved in the decision making of this process where appropriate in Arkansas. There are opportunities for creative thinking to bolster the ecological benefits received through mitigation.
- AGFC would like to see updated gravel mapping rather than locations provided in the 2005 EIS. The SEA states gravel will be mapped prior to dredging and construction.
- Most dike fields along the MKARNS in Arkansas are designated as dredge disposal sites. However, many of these areas, particularly where there are notched revetments providing protection and access from the main channel, serve as important recreational fisheries for anglers. These can be thought of as pseudo-backwater areas. While they do not provide the same ecological benefits as a functional backwater, they do provide access to slack water often with fairly sufficient depth, moderate habitat diversity, and structure for targeting game and non-game fishes. AGFC would like to refine dredge disposal locations along the MKARNS in Arkansas.
- AGFC does not agree that aquatic resources along the MKARNS have not significantly changed since the finalization of the 2005 MKARNS (SEA page 29). According to Rhodes et al. 2019 and Spurgeon et al. 2021, the MKARNS has lost 2.1% of permanent water and 12.1% of seasonal water. There is a general trend of loss of off-channel habitat (i.e., backwaters), that are being converted to terrestrial

habitats. With the rate of backwater filling and channel restriction preventing the creation of new backwaters, the AGFC Fisheries Division would like to prioritize restoration and reconnection of secondary channels and backwater improvements over the creation of numerous islands, as the existing dike fields are already serving some of that purpose. These habitat types are not being regenerated while islands and terrestrial habitat conversion are happening naturally due to the extensive system modifications the MKARNS has experienced.

- What are the changes that need to be made to existing locks and dams along the MKARNS to support deeper tows (SEA page 67)? Is the current infrastructure going to be sufficient immediately? If not, will the MKARNS truly be able to support these deeper drafting vessels? Is there funding available to bring these navigation structures up to their needed specifications to support a 12' channel depth?
- AGFC would like to reiterate the need for an updated mussel survey, particularly in areas where dredge impacts are expected to be the highest. We do not feel that information from 2005 is sufficient or solely valid for informing sensitive species populations, particularly for animals that are sensitive to major environmental changes. The MKARNS has seen extensive flooding and change since the 2005 report. Although concerns of encountering threatened or endangered mussel species are relatively low within the project footprint, ignoring common species is how they become threatened or endangered.
- AGFC does support 1:1 mitigation of 165 acres of gravel bar habitat. However, although the benefit is practically "immediate," after implementation, it is extremely important to monitor these areas for success. We do agree that gravel should be placed in-water close to the impact location as long as it is likely to function similarly to what was damaged. It is important to have sensitive success criteria for this critical and relatively rare habitat type. Additionally, if possible, AGFC would like to see an updated gravel report with the most recent survey data.
- AGFC would like to retain all rock or similar hard structures, such as those located at RM 151 and 140, be retained in-water rather than removed from the system entirely.

Site Specific Comments:

- AGFC would like to discuss the possibility of avoiding sandbar placement at RM 279 279.3 RD, RM 275.2 275.4 RD, 227.5 227.7 RD
- AGFC would support maintaining or moving the notch at 275.3 LD
- A dredge disposal area is indicated at RM 256 LD. There is currently power plant effluent infrastructure in this area.
- AGFC requests avoiding disposal in the Sixmile Creek Diversion Channel to maintain ingress and egress opening at RM248.8 RD
- AGFC would like to discuss the possibility of avoiding disposal at RM 247.8 248 RD, RM 245.9 246.8 LD, 238.4 238.7 LD, 238.4 238.7 LD, 193.7 -193.9 LD, 186.9 187.2 RD, and 185.9 186.4 LD
- AGFC does not support disposal at RM 242 242.7. This is the mouth of Hartman Lake (aka Blackpoint) because there is an existing boat ramp in the lake.
- AGFC would like to see the recreation of a fish passage notch of 10-feet at RM 242.4. This notch was mistakenly filled in during January of 2023.
- Upon review of the Draft SEA, the dike at RM 222.7 222.9 is missing from the map
- AGFC would support a new dike notch of 85-feet at RM 223.7 LD. This would allow access to the Cabin Creek Recreation Area maintained by the city of Knoxville.
- AGFC would like to see the consideration of notching the dike at mile 249-250L

- The consideration of notching new dikes at 241.8 to 242.2R, especially the longest dike would be appreciated. Notching these dikes are a high priority for AGFC.
- AGFC requests considering notching the long dike at ~240.5L
- AGFC is concerned about the spoil site that is on the north side of the river between river mile markers 124 and 125. It has the potential to fill in some very deep water behind two dikes. During an AGFC conducted creel survey anglers were observed regularly utilizing this area. Spoil in this area has the potential to adversely impact the fishery.
- At the river mile 150 proposed sandbars, scouring caused by the training structures here create some of the only decent angling habitat in the area. Disposing between these training structures might halt this natural scouring and restrict access to these areas. This area also has some secondary channel habitats that could be impacted by additional disposal material.
- River mile 143 proposed training structures: these structures already exist, is the plan to lengthen them? This is an important secondary channel in this area of the river. The notches that exist and height of the existing structures throughout this complex produce and maintain a diversity of habitats. AGFC would not want to see a change in the training structures result in the degradation of this habitat.
- Avoid using existing dredge disposal area at AR292.3L in the dikes adjacent to the hydroelectric plant
- Please consider notching dikes anchored to the bank at RM 275.2 275.4 RD
- A tern island may be desirable at ~ mile 272.7-272.9L west of the two existing islands if it will not cause the side channel to fill with sediment
- AGFC would like to propose the consideration of AR238.5L-D (~238.6-240L) as a potential tern island if this disposal area is planned for use
- AR RM 19 LD AGFC would support moving the proposed aquatic disposal site just downstream of RM 19. This disposal site has the potential to deposit sediment in the entrance to a backwater habitat just downstream of the proposed disposal site during high water events.
- AR RM 23.5 RD Move proposed disposal site away from the mouth of the canal that leads to Coal Pile Lake. This canal has a history of filling in with sediment during high water events and we do not need a sediment disposal site right at its mouth to exacerbate the problem.
- AR RM 24 to 25 LD This depiction of the dike field does not appear to accurately represent the dike field that is actually present. If the depiction is mislabeled and should be proposed as new dikes, notch dike at AR RM 25.0 LD and inside dike at RM 24.6 LD to allow access to backwater at AR RM 24.7 LD.
- AR RM 32.5 LD through 32.8 LD this proposed aquatic disposal site would block the channel leading to the backwater at AR RM 33.0 LD.
- AR RM 37 through RM 48 Consider utilizing more upland disposal sites in this reach rather than the proposed aquatic disposal sites and islands within and between dike fields.
- AR RM 96 through 96.3 LD Move this proposed aquatic disposal site because it is right at the mouth of a dike notch that leads to the large backwater that is present from RM 96.2 through RM 98.3 LD.
- AGFC does not recommend an aquatic disposal site below RM 298 in Arkansas. This is a productive Paddlefish area.
- AGFC recommends removing the in-water disposal site between RM 237 and 235. Further sediment deposition in this area is likely to negatively impact recreational access for anglers, especially if the dikes are filled to capacity and a flood event occurs, washing sediments into the tributaries downstream. Access and depth in this part of the river is already problematic and it is the heaviest used angling part of the river within the state.
- RM 230.5 to 230. Consider removing the creation of sandbar islands here. If a major flood washes these out, it will negatively impact access to Spadra. Right now, some of this area is still accessible by boaters.

- As far as the new structure on bank right (looking downstream), AGFC would like to maintain access through that cutoff. This area tends to hold an abundance of fish of many species and is still currently accessible/passable at sufficient water levels.
- AGFC recommends implementation of a boat-notch in the proposed new training structure between RM 224 and 223. It is important to maintain passage for recreational craft and anglers in this location.
- AGFC strongly recommends protecting the known gravel bed at RM 205. There are not many locations of gravel in this pool so this is a critical habitat area and disturbance should be avoided.
- AGFC recommends removing in-water disposal sites between RM 205 and 204. With the gravel present on the opposite bank, access to these dikes are likely going to be important aquatic features given the extensive modification of this system. These dikes can serve as refuge areas for many aquatic species.
- RM 187 must the entire gravel bar be a proposed dredge location when there are so few gravel bars in this system? Is this area mislabeled and instead one of the mitigation areas discussed in the mitigation plan (map 28 of 47)?
- RM 165 AGFC does not support inhibiting access to what is known by most as the Plumerville cutoff. This is an important area along the Arkansas River for Alligator Gar. Boating access into this area should be maintained and dredge material should not be placed so that it blocks ingress or egress to this area. This would be a beneficial area to improve access.
- Removal of gravel or damage to gravel beds at RM 151 to 150 should be avoided. If avoidance is not possible impacts should be mitigated.
- AGFC suggests restoring the secondary channel from RM 155 to 149 as mitigation, rather than as a dredge disposal site on the lower end between RM 153 and 149.
- AGFC would support opening the secondary channel from below RM 144 to 139 with dike notches. If possible, notches should be proposed for new and existing structures.
- Outside of Murray Park, there is an approved dike notch location that is overlaid with a dredge placement area, near RM 123. AGFC would recommend leaving the notch open rather than using it for in-water dredge placement.
- AGFC recommends determining exact locations for in-water dredge disposal area, especially immediately behind lower revetments, near RM 97 and 96 if dredge quantities are expected to be high. These notched revetments provide slackwater habitat which support many game and non-game species. In this section of the river, these areas provide habitat for black bass species and one of the few offmain-channel access points for anglers and recreational boaters. Additionally, there are several existing dike notches in this area making angling access difficult This location would be a great candidate for restoration; it could be a highly productive area in a section of the river that lacks critical habitat mosaics.
- Consider still allowing boating access through proposed revetment near RM 92. Although shallow, this area is still accessible at certain water levels.
- There is a discrepancy between MKARNS 12ft Channel Web App mapper and Appendix B at RM 80 and 79. There are no proposed training structures on the printed version, nor is there a dredge disposal site.
- There is a discrepancy between MKARNS 12ft Channel Web App mapper and Appendix B at RM 65. The printed Appendix has 3 proposed new or modified training structures and the mapper only shows an in-water dredge disposal site. We assume these are modifications because it appears there are already training structures in place at that location.

- There is a discrepancy between MKARNS 12ft Channel Web App mapper and Appendix B at RM 62. The online mapper has 5 proposed new or modified training structures and the printed version only shows an in-water dredge disposal site. We assume these are modifications because it appears there are already training structures in place at that location.
- RM 28 refine dredge disposal area to not impede access to secondary channel. This area is still accessible at certain water levels.

The MKARNS is a valuable river for inland navigation, and Congress has authorized the U.S. Army Corps of Engineers (USACE) to deepen the navigation channel from 9 to 12-foot depth. The Arkansas River also provides one of the largest and most economically and culturally important freshwater fisheries in the State of Arkansas. The Arkansas River provides important habitats for fishing, especially backwater habitats and dike field habitats with adequate depth of > 3-foot at normal pool. These fishable backwaters are declining over time (Schramm et al. 2008; Rhodes et al. 2019). For example, Lake Dardanelle has lost 22% of its off-channel habitat from 1984 to 2015 (Rhodes et al. 2019). AGFC and the USACE worked cooperatively on dike notching projects to mitigate for aquatic habitat losses from the 9-foot channel prior to 2003. The USACE also worked intensively with agency partners to develop the 2005 Environmental Impact Statement (EIS), but the coordination of the 2023 draft SEA (Supplemental Environment Assessment) has been relatively minimal thus far. The draft SEA appears to be a coarse-grained projection of impacts and possible mitigation instead of the exact site, specific accounting of impacts and mitigation presented in the 2005 EIS. Thus, a detailed site-specific mitigation plan is not provided in the SEA for aquatic habitat impacts that ensures public accountability for project impacts. We recommend a mitigation plan with specific sites should be completed and the public should be able to comment on the mitigation plan before any construction begins.

We would like to continue to work with the USACE to develop site-specific plans for dike notching and dredge disposal islands for Least Terns. Numerous disposal islands were successfully created in Pool 9 near the base of Petit Jean Mountain, and these habitats are reminders that we can accomplish great things for fish and wildlife when we work together in a cooperative fashion. During construction, please avoid addition of dredge materials to existing tern islands during the nesting season.

Significant impacts are expected to occur to aquatic habitats from the proposed project, although a positive project change is that fewer dikes and less dredging volume is expected. The SEA indicates that 18 new dikes will be constructed and 84 dikes will be modified (i.e., raised), and each of these dikes is expected to lead to reduce aquatic habitat volume in backwater areas. The 2005 EIS includes 28 proposed dredge sites and the 2023 SEA includes 51 sites, so approximately double the sites. However, dredge volume is expected to decline from 10,840,245 yards to 5,791,099 yards in the 2023 SEA. The SEA indicates more dredging is expected to occur from Lake Dardanelle to Fort Smith than was projected in 2005. We are skeptical of the conclusion in the SEA on page 76 that "Long-term, minor adverse, not significant impacts" will occur to Aquatic Resources with the 12-foot Channel. We find it highly unlikely that cumulative impacts of dike modification and dredging will not have significant impacts to aquatic habitat since the USACE is proposing to use in-water dredge disposal. Appendix F (mitigation plan) indicates, "unavoidable adverse impacts are direct and indirect to bottomland forests and aquatic resources." Appendix F, page 5 describes aquatic habitat loss as major and adverse.

Many new extensive dredge locations are located in the White River section of the Arkansas River navigation system, and this is one of the major changes in the SEA. We request the risk of head cutting from this dredging be assessed, including the projects potential impacts on the White River National Wildlife Refuge as RAMSAR Wetlands of International Importance. Any new head cut has the possibility to drain important oxbow lakes and wetlands and damage the mussel beds of the lower White River. Head cutting has already been an issue in the

lower White River in the past 25 years (e.g., Cooks Lake situation). The draft SEA Appendix K indicates that the lower White River will have 343,015 CY of sediment removed, whereas the 2005 EIS indicated no extra dredging in this area. The navigation depth in the White River section of the MKARKNS will increase to 12-feet, but the depth authorized for the White River upstream of the MKARNS is much lower at 5-feet thereby increasing the channel depth difference among river sections (i.e., gradient of the river). Riverbed gradient changes are a known factor that may influence head cutting.

Considering the substantial amount of dredging in the lower White River, we believe that winter surveys for endangered Pallid Sturgeon and the petitioned Lake Sturgeon are warranted. We request these surveys due to the adjacent proximity of the lower White River to known Pallid Sturgeon habitat in the Mississippi River, and the recently documented tendency for Pallid Sturgeon to swim up tributaries in the winter (i.e., the Arkansas River). The similarity of appearance of Pallid Sturgeon and Shovelnose Sturgeon confounds our understanding of past sturgeon catches in this reach, and previous USACE surveys in this lower 10-mile stretch of river were not performed during winter when Pallid Sturgeon appear most likely to possibly occur. Any sturgeon captured from surveys needs genetic testing for positive identification. The petitioned Lake Sturgeon is known to occur or swim through the White River section of the MKARNS. Also, the National Oceanic and Atmospheric Administration petitioned Alabama Shad (*Alosa alabamae*) appears to swim through this area, as juveniles have been captured up river near Newport, AR.

The Little Rock District staff has indicated that dredging in the Post Canal possibly less than indicated in the SEA. However, the mussel survey for the post canal is 25 years old, and Fat Pocketbook have been collected nearby at mile 11-12.4 in the White River (BA; page 26). It seems prudent that mussel surveys be performed before any dredging in the lower White River and the post canal to ensure endangered mussels are not impacted. It is illegal to purposely kill mussels (AGFC Code 31), and all appropriate precautions should be made to avoid killing mussels. Just as it is illegal to kill hundreds of deer, it is illegal to purposefully kill hundreds of mussels. Mussels should be translocated to prevent killing them, and any accidental killing of mussels should be mitigated for at American Fisheries Society (AFS) fish kill monetary values per individual killed.

AGFC noted that valuable gravel substrate has not re-mapped since the 2005 EIS but the SEA on page 70 notes that gravel quantity and locations should be mapped prior to any dredging operation. AGFC supports that all 165 acres of impacts to gravel substrate be mitigated.

The SEA mitigation plan indicates dike notching that impacts 2,225 acres to offset the loss of 1,365 AAHU in dike fields (page 19). Notching of 2,225 acres for aquatic mitigation (Appendix F; page 38) appears to greatly underestimate likely aquatic habitat impact if we only look at impacts of dredging alone (i.e., without dikes). Please consider that the 5.7 million cubic yards of dredging is about 3,533 acre-feet, so the notching acreage is drastically lower than the dredging acreage filled 1-ft deep. Also, additional maintenance dredging is expected to be 2.45 million cubic yards annually (table 2-4; page 12), and this is likely 1,518 acre-feet per year which over 50 years is 75,900 acre-feet. These figures lead us to believe that the MARSH model appreciably underestimates aquatic habitat impacts for economically important and recreationally popular fishing areas. We believe the full 2005 mitigation plan will be needed to offset habitat losses caused by dredging and dike notching.

The draft SEA uses a MARSH model to model average impacts to aquatic habitat over the entire river (i.e., not site specific), and this model seems to provide low values for aquatic habitat mitigation. This MARSH model application is unconventional and subsequently has confusing terminology and interpretation. Note that the MARSH model was approved to model marsh or wetland mitigation needs (page 17), but it does not specify

aquatic habitat as an approved use. The MARSH model does not appear to be designed to model aquatic habitat loss for fisheries, as terms in the model include emergent vegetation, emergent canopy cover, depth of water, and timing and duration of water, percent woody vegetation, patch size, adjacent land use and nearest marsh in 200 yards. Use of marsh-oriented model appears to underestimate mitigation needs for aquatic habitat because shallow aquatic habitats have high value. If the USACE is using "wetland/marsh" as a substitute word for "aquatic habitat" that word usage is not desirable as it is confusing. On page 18, the document reads, "Due to loss of marsh habitat within dike fields." This does not make sense as important fisheries habitat in dike fields is generally aquatic and it is not correct to call it a marsh. We recognize that the issue maybe that the USACE does not recognize the high priority need for aquatic habitat mitigation as does for wetlands. AGFC would support USACE consider reviewing certified models used the Mississippi River Loosahatchie-Hatchie Conservation reach.

Success criteria of dike notching appears to be based on survival of plants (Appendix F; page 38). However, an improved performance metric would be (1) acreages of aquatic habitat converted to terrestrial habitat, and (2) acreage of backwater aquatic habitat greater than 3.5-feet in depth, which is important for maintaining fisheries. The Mitigation Plan also indicates that notches may "provide too much river flow" but that is rarely to almost never an issue. On page 41 of Appendix F, the monitoring plan indicates that a general inventory of wildlife species will be done in the project area. AGFC would support important aquatic species monitoring as approved in the 2005 EIS.

Mitigation for aquatic habitat impacts should be done in the pool where the impacts occur and if mitigation is done at a different pool than the impact the mitigation performed should be at a higher ratio (e.g., 3 acres of mitigation for 1 acre of impact).

AGFC does not agree with the statement on page 37 of the SEA that American Alligator are "Not likely to occur in the project area," as the species is known to frequent Pool 2 and Merrisach Lake area (see Roberts 2019).

Appendix K notes that blasting maybe used to help excavate the river in several locations. Blasting is likely to kill fish and all fish killed should be mitigated for at AFS fish kill monetary values. Several blasting sites are known areas (e.g., Plummerville Cuttoff area; Fouche La Fave River mouth) for Alligator Gar, which is a species that requires high adult survival and is very difficult to mitigate for loss.

The draft SEA indicates on page 69 that the project has the potential to adversely impact Alligator Snapping Turtles (AST). We suggest that mitigation in the form of site-specific surveys before work is implemented may reduce impacts to ASTs.

If prior projects completed by the Corps be proposed as mitigation for future construction of the 12-foot channel project AGFC would only support those decisions if made after coordination and consensus with the U.S. Fish & Wildlife Service, the Arkansas Game and Fish Commission on the Arkansas portion of the river, and the Oklahoma Department of Wildlife Conservation on the Oklahoma portion of the river. Page 19 of Appendix F reads, "Future efforts include inspecting any previously constructed mitigation features to assess their current outputs. If viable, their outputs would count towards mitigation needed." AGFC would not support any "double dipping" by counting mitigation twice. We find it positive the USACE apparently will have an online tool to increase transparency of accounting for mitigation. Appendix F, page 36 indicates that the district engineer may reduce or waive the monitoring requirements upon determination that performance standards are met, but this is arbitrary and appears to suggest that all monitoring could possibly be waived which AGFC would not support.

Access to fisheries is an important consideration for a mitigation plan as access to important habitats is often reduced by navigation improvements. AGFC hopes that USACE will continue to fund recreation areas along the MKARNS.

The USACE has suggested in recent meetings that fish notches that are 4-feet wide x 1-foot deep. It is important for the USACE to recognize these are "micro-notches" for fish passage only and not the notches used for mitigation to prevent aquatic habitat losses.

AGFC appreciates the extension of the comment period from March 1, 2024 to March 10, 2024. The opportunity to review this project and to serve as a cooperating agency is appreciated. If you have any questions please contact me at 501-680-0319 or Jennifer.sheehan@agfc.ar.gov.

Sincerely,

Jennifer Elise Sheehan Chief, Environmental Coordination Division

References

Rhodes, M., J. Spurgeon, W. Neal, and K. Evans. 2019. Habitat change along the modified longitudinal gradient of the Arkansas River from 1984 to 2015. Arkansas Game and Fish Commission report AGFC-FD-2019-95-MGMT.

Roberts, K. G., 2019. Arkansas Herpetological Atlas 2019. Distributions of Amphibians and Reptiles. Available at: <u>http://HerpsOfArkansas.com/Herp/Atlas</u>.

Schramm, H. L., R. B. Minnis, A. Spencer, and R. T. Theel. 2008. Aquatic habitat change in Arkansas River after development of a lock-and-dam commercial navigation system. River Research and Applications 24:237-248.

Letter ID: 222 Org/Agency/Company: Assumption Parish Police Jury

The following public comments are reflective of my experience in the lower Atchafalaya Basin and Lake Verret basin (east of the east Atchafalaya basin guide levee) as both an elected official and an avid outdoorsman.

Backwater flooding:

As you can see from the historic data obtained from the National Weather Service gauge in Morgan City, 8 of the highest 14 recorded crests have been since 2009 with a concentration between 2016 and 2020. https://water.weather.gov/ahps2/hydrograph.php?gage=mcgl1&wfo=lch

Historic Crests:

- (1) 10.53 ft on 05/28/1973
- (2) 10.35 ft on 05/29/2011
- (3) 10.06 ft on 07/13/2019
- (4) 8.46 ft on 06/27/1957
- (5) 8.29 ft on 03/15/2019
- (6) 8.20 ft on 01/22/2016
- (7) 8.06 ft on 04/05/1997
- (8) 7.95 ft on 04/18/1975
- (9) 7.93 ft on 04/13/2020 (P)
- (10) 7.72 ft on 04/05/1997
- (11) 7.32 ft on 06/06/1983
- (12) 7.18 ft on 06/03/2017
- (13) 7.13 ft on 06/04/2009
- (14) 7.12 ft on 03/30/2018

These crests are undoubtable related to the siltation of the Atchafalaya River south of Morgan City, LA. Projects intended to build islands and train the channel have led to increased hydraulic head at Morgan City. The Bayou Chene, which connects to the Atchafalaya River just south of

Morgan City, is the artery that sends river water back north, causing Backwater Flooding in the Lake Verret Basin. It does not take but a few inches of backwater flooding to have detrimental effects on the area. The data to prove the correlation exists in historical gauge data as well as maintenance dredging logs.

Many of the hardwoods in the forest surrounding Lake Verret Basin have lost hardwoods due to the higher water levels for prolonged time periods.

A structure has been built in Bayou Chene to protect against extreme backwater flooding but the trigger point to close the structure is too high. Damage to forests, residences and the entire ecosystem is occurring at lower elevations that 7 feet on the Morgan City gauge.

The negative impact on the environment and economics of the region need to be considered as part of a thorough study.

Hurricane Protection:

There exists an eight mile gap in the flood protection of the lower end of Assumption Parish to protect against storm surge. Terrebonne Parish has recently install flood protection that will force water to funnel into the Lake Verret basin in the event of a storm surge. The levees to the East and West of Assumption Parish will undoubtably make flooding worse for the residents. A closure structure at Bayou Boeuf is needed to close this gap. Louisiana's Coastal Protection and Restoration Authority (CPRA) has this project included in its master plan. This solution needs to be considered as part of the USACE management plan.

The study should consider efforts to validate the option to use the pilot program under Section 1043(b) of the Water Resources Reform and Development Act (WRRDA) 2014 to allow non-Federal interests to carry out projects subject to Congressional language and appropriations. Louisiana's CPRA is well suited to oversee the Study, Design, and Construction of this type of project. Upon completion, the project can be turned over to USACE for operation and maintenance.

Bayou Sorrell Lock Structure:

The Bayou Sorrell lock structure was used in 2016 as an emergency flood control structure to allow water from the Lake Verret basin into the Atchafalaya Basin. The current authority for this structure is for navigation. The authority needs to be reviewed to determine if is can also be authorized for flood control as it has been proven to work.

Sediment Control within Atchafalaya Basin:

Its no secret that the siltation in the Atchafalaya Basin has been a major problem. So much so that a solution appears unattainable. The ability for the basin to sheet flow from a Morganza floodway opening has diminished tremendously. Recreation and Commercial activities in the basin have been negatively impacted. The silt that is settling in the basin ha caused portions of the basin to become dead areas with stagnant water and navigation issues. Introducing additional flow at the Old River Control Structure would only add to the problem. The study should be focused on how water volume may be able to be increased while the silt remains in the Mississippi river. It is my understanding that although the split is currently 70/30, the silt percentage is likely much higher because of the density of the water column where the 30% is being pulled from. The guide levees for the Mississippi river is better suited to carry the sediment downstream in a fixed channel width.

Maintenance dredging of lower Atchafalaya River:

Ongoing maintenance dredging in needed in the lower Atchafalaya River (South of Morgan City) to allow the natural flow of riverine waters to the Gulf of Mexico. Any dredging operations should not only consider navigation, but also the flow requirements for the natural flow of water. Rainfall in the Lake Verret basin is routed through the Terrebonne marsh because of the head pressure in the Atchafalaya River caused by downstream siltation.

Closing comments:

Assumption Parish has completed a drainage and flood mitigation master plan which highlights many of the points made herein. I would be happy to assist those performing this study to have access to this data as well discuss these comments in more detail.

Letter ID: 149

Org/Agency/Company: Atchafalaya Basinkeeper and Louisiana Crawfish Producers Association West

Thank you for the opportunity to submit these very short comments from Atchafalaya Basinkeeper and Louisiana Crawfish Producers Association-West.

- On June 11, 1968, and March 23, 1972, the US Senate Committee on Public Works, and on June 14, 1972, the US House of Representatives Committee on Public Works, adopted resolutions concerning management of the Atchafalaya Basin. These directives included provisions for reduction of siltation, improving water quality and possible improvements in the area for commercial and sport fishing. In response to this directive, on May 1979, EPA release a paper with directives on future management of the Atchafalaya Basin. The directive was completely ignored by the USACE with dire consequences to the Atchafalaya Basin and future flood protections for South-Central Louisiana. We urge that the USACE study adopts the EPA directives outlined on their 1979 paper (attached to these comments).
- Commercial and sport fishing should be included in the list of priorities to comply with the Congressional mandates.
- Management of the Old River Control Structure can be done in such a way as to prevent, whenever possible, water levels in the Atchafalaya Basin from being on the stand for long periods of time. Keeping water levels rising or falling is the best and cheapest way to greatly improve water quality in the Atchafalaya Basin.
- Sand deposited on the power plant channel is being dredged and dumped in the Atchafalaya River. Some of the sand will fill wetlands, reducing precious and irreplaceable flood capacity, some of that sand will have to be dredged again to keep the Port Of Morgan City open to navigation. This management plan is wasteful and destructive. All sand dredged at the power plant should be deposited and stored at a determined dump site to be sold to industry and the public.
- The Atchafalaya Master Plan submitted to the Corps during our December 14th, 2023, meeting is part of our comments.

Thank you again for this opportunity to submit these comments. We are looking forward to continuing to be an asset to the study.

See Attachments

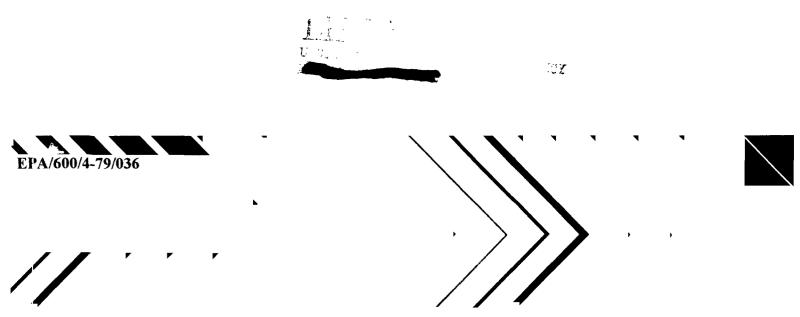
United States Environmental Protection Agency Environmental Monitoring and Support Laboratory P.O. Box 15027 Las Vegas NV 89114 EPA-600/4-79-036 May 1979

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Research and Development

Hydraulics of the Atchafalaya Basin Main Channel System:

Considerations from a Multiuse Management Standpoint



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HYDRAULICS OF THE ATCHAFALAYA BASIN MAIN CHANNEL SYSTEM Considerations from a Multiuse Management Standpoint

bу

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Contract No. 68-03-2665

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FOREWORD

Protection of the environment requires effective regulatory actions that are based on sound technical and scientific information. This information must include the quantitative description and linking of pollutant sources, transport mechanisms, interactions, and resulting effects on man and his environment. Because of the complexities involved, assessment of specific pollutants in the enviornment requires a total systems approach that transcends the media of air, water, and land. The Environmental Monitoring and Support Laboratory-Las Vegas contributes to the formation and enhancement of a sound integrated monitoring data base for exposure assessment through programs designed to:

- develop and optimize systems and strategies for monitoring pollutants and their impact on the environment
- demonstrate new monitoring systems and technologies by applying them to fulfill special monitoring needs of the Agency's operating programs

This report presents hydraulics of the Atchafalaya Basin main channel systems. The U.S. Environemental Protection Agency, the U.S. Army Corps of Engineers, the U.S. Department of the Interior, the State of Louisiana, special interest groups, and other interested individuals will use this information to assess the potential impact of proposed hydrological modifications and to develop alternative land and management plans, which will accommodate flood-flows and maintain an acceptable level of environmental quality. For further information contact the Water and Land Quality Branch, Monitoring Operations Division.

George B. Morgan

George B. Morgan Director Environmental Monitoring and Support Laboratory Las Vegas

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INTRODUCTION

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The Atchafalaya Basin in south-central Louisiana is a large alluvial basin that has national significance as a multiple resource. It derives this significance principally from possessing high quality habitats for fish and wildlife, being a semiwilderness area of high recreational value, and functioning as a floodway for the lower Mississippi River. To meet the need for flood control, the U.S. Army Corps of Engineers is considering hydrological modifications (channel training or channelization) for the Basin. The Basin's present hydrological cycle and complex water circulation pattern supports one of the world's most highly productive natural areas.

In response to a request by the Governor of Louisiana and a joint U.S. congressional resolution, the U.S. Environmental Protection Agency (USEPA), U.S. Army Corps of Engineers (USCE), and U.S. Department of the Interior (USDI) are conducting a water and land quality study in the Atchafalaya River Basin. The study is assessing the potential impact of proposed hydrological modifications and developing alternative land and water management plans to accommodate floodflows and maintain an acceptable level of environmental quality for the Atchafalya Basin. The purpose of this report is to consider the hydraulics of the Atchafalaya Basin main channel system from a multiuse management standpoint.

CONCLUSIONS

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1. The use of the Atchafalaya Basin for flood control must be within the constraints imposed by the presence of the Atchafalaya River.

2. Ultimately, the excess capacity of the area within the guide levees for flood control use will be only the cross-sectional area above the stable, active channel cross section and that above the overbank area.

3. Any additional capacity can only be acquired by raising the guide levees.

4. The inherent limitations of raising the guide levees must be resolved through the diversion of floodwaters outside the Basin above or at the latitude at which the project flow line exceeds the grade of the guide levees.

5. The most effective alternative for achieving maximum long-term use for flood control at a minimum cost to the environment is to enhance the development of the channel in the direction of its ultimate stable conditions while simultaneously minimizing sedimentation in the backwater areas.

6. There should be confinement of flows to the Atchafalaya Basin main channel and the channel leading to Wax Lake outlet for discharges of up to but no more than $400,000 \text{ cfs}^1$ at Simmesport. This should be accomplished without reducing peak flows through the Old River control structure.

7. The decrease in discharge in a downstream direction should be minimized by limiting diversion through the east and west freshwater distribution channels, the east and west access channels, and any other minor channels to only the volume necessary to enhance surface water quality and environmental integrity. Provided that internal circulation is improved through the measures indicated above, the limitation of diversion to 15 percent of the Simmesport discharge appears justified.

8. Confinement of flows below the diversion points should thus be for 340,000 cfs to 382,000 cfs until bifurcation occurs toward the Wax Lake outlet and lower Atchafalaya River. From there flow should be confined in each of the two branch channels up to the proportion of the 340,000 cfs to 382,000 cfs received at the bifurcation point.

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¹ Because all available data used in preparing this report were in English units, metric units are not used. Conversion factors are given in the Appendix.

9. Confinement of flows should be achieved through the use of training levees. Levee material may be dredged from the main channel and should be deposited in a natural configuration on the channel banks with severe constraints on width and height of the deposits and on distance from the present channel.

10. Prior to such dredging, it must be determined what the water surface profile will be for the confined, delineated discharges under present channel conditions.

11. Height of the training levees should not exceed the elevation of the water surface profile so as to maintain the overbank flow for greater discharges, thereby ensuring environmental integrity.

12. Width of the levees should be no more than is necessary to support the needed height and to prevent frequent crevassing. Distance of levees from the center line of the channel should be in accord with the width of the channel expected to develop under the present discharge regime.

13. The above specifications for flow confinmement establish a maximum limit that should not necessarily be interpreted as the recommended height of training embankments. The dredging of material from the Atchafalaya Basin main channel for the purpose of flow confinement should not result in channel enlargement to the extent that modification of the water surface profile adversely affects duration, depth, and extent of annual flooding.

14. Flow confinement should proceed only to the extent allowed by annual flooding regime requirements, with further confinement to take place through the natural process of overbank flow and associated greatest deposition of sediment on the channel banks.

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BACKGROUND

The Atchafalaya River Basin, Louisiana, coincides with the natural basin formed by alluvial ridges that relate to present and former Mississippi River courses (Figure 1). The Basin extends inland from the Gulf of Mexico for a distance of 125 miles to the former confluence of the Mississippi River and Red River. Continuity of the Basin is only interrupted by an alluvial ridge, the Teche Ridge, that crosses the Basin at the latitude of Morgan City, Louisiana. Central to the Basin is the Atchafalaya River, which connects the Mississippi River and Red River to the Gulf of Mexico and flows through the Teche Ridge at Morgan City where it becomes the Lower Atchafalaya River.

Until 1928 the entire Basin functioned as the Atchafalaya River flood plain and afforded a natural outlet for Mississippi and Red River floodwaters to the Gulf of Mexico. Since then major changes have evolved. In 1928 and 1956, respectively, Congress authorized the construction of a floodway through the Basin and the construction of a control structure at Old River to regulate the diversion of Mississippi River flow into the Atchafalaya River (Figure 2). To provide a defined floodway, guide levees were constructed east and west of and parallel to the Atchafalaya River and at an average distance of 15 miles apart. Floodflows as well as the annual overflow of the Atchafalaya River thus became confined to the central part of the natural basin as far south as the Teche Ridge. Through the ridge, flows are temporarily further confined to only the channels of the Lower Atchafalaya River and the constructed Wax Lake outlet until the guide levees terminate and water escapes the channels into adjacent wetlands and the Gulf of Mexico.

Despite the many adverse changes that have taken place as a result of indiscriminate use of the Atchafalaya Basin's water- and land-related resources, the Basin still constitutes a resource complex of exceptional recreational, ecological, and commercial significance. The floodway system above the Teche Ridge is one of the largest remaining alluvial flood plain hardwood swamps in the United States. It contains more than 700,000 acres of hardwoods, nearly one-third of which are cypress-tupelo swamps, and 53,000 acres of water bodies (Figure 3). To this must be added the hardwood swamps of the Basin outside the floodway. Below the Teche Ridge the Basin environment becomes one of fresh and brackish water marshes and bays, with the development of the Atchafalaya River delta the most important process. This delta offers the potential development of a 300 to 350 mi² area of new wetlands in a state where the loss of wetlands amounts to a staggering 16 mi² per year.

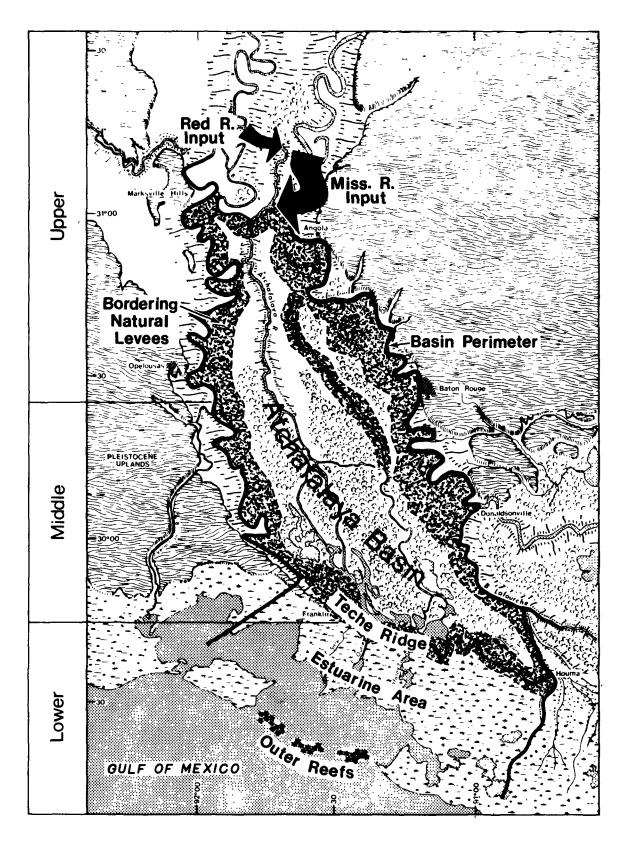


Figure 1. Physiographic setting of the Atchafalaya Basin, Louisiana.

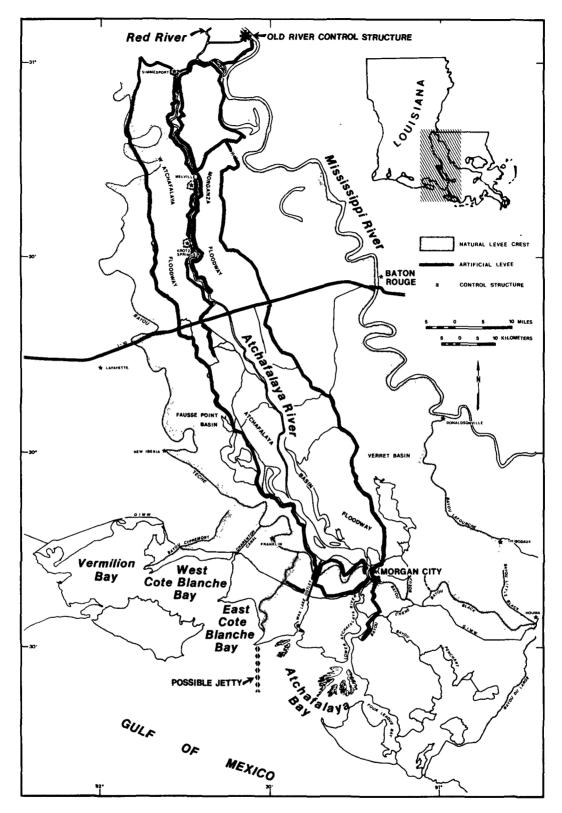


Figure 2. Levees of floodway system within the Atchafalaya Basin.

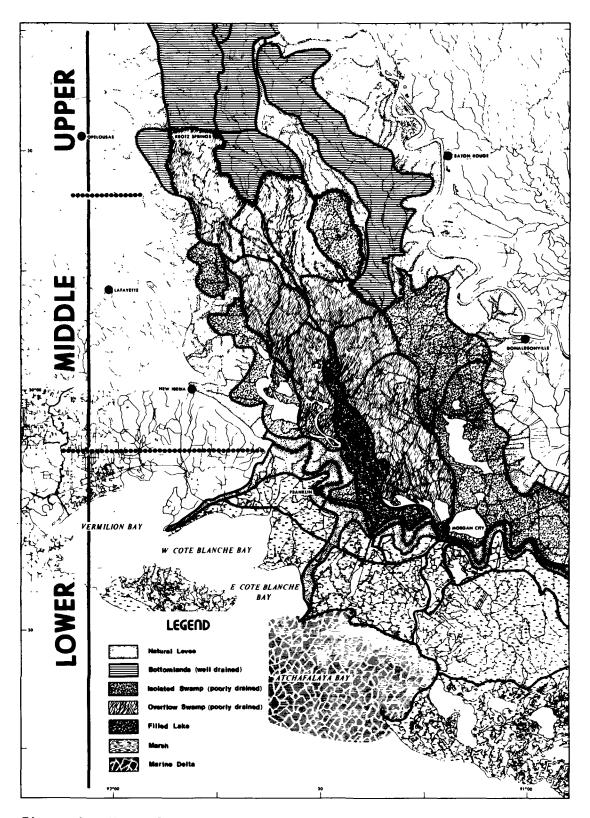


Figure 3. Natural environments and management unit boundaries of the Atchafalaya Basin.

Uniqueness and quality of its environment and associated biological productivity give the Basin an exceptional recreational and commercial value.

Use of the Atchafalaya Basin for flood control has significantly affected the integrity of the Basin's waters physically, biologically, and chemically. Most drastic has been the segmentation of the natural basin and associated modification of the overflow regime. Floodway guide levees have divided the Basin into the central floodway and two subbasins, the Verret subbasin on the east side and Fausse Point subbasin on the west side (Figure 2). The resultant restriction of the active flood plain has intensified riverine processes within the floodway area while it has eliminated annual overflow in the marginal areas. Within the floodway, the overflow regime was further modified as a result of partial channelization of the Atchafalaya River and associated spoil disposal along its lower course from Interstate Highway 10 to Morgan City. In combination with other actions related to navigation and oil and gas extraction, the modification of the hydrologic regime has had a major adverse impact.

Adverse impacts on the Basin's wetland system and related biological and recreational value could be further increased as a result of future actions for the purpose of improved flood control. Achieving the authorized and needed floodway capacity of 1,500,000 cfs requires further development of the Atchafalaya River channel from I-10 to the Teche Ridge and the restriction of sedimentation in the overbank area. Depending on the alternative selected to meet the requirements for flood control use, the hydrologic regime may be modified to the point that the viability of the present wetland system is severely threatened. Adverse effects of improper management on the duration and extent of flooding, and on circulation and water quality, could destroy the viability of the system. Indirect support provided for expansion of agricultural development adjacent and into present wetlands could destroy the wetlands directly and indirectly.

After flood control, maintenance dredging mainly for navigation is the most detrimental to the Basin's ecology. Annual maintenance above the Teche Ridge requires dredging of approximately 2,000,000 yds³ (USCE, 1973). One-half of this dredging is done in waterways in the backwater areas and waterways connecting the former to the Atchafalaya River. These include the east and west access channels, which account for 600,000 yds³, the freshwater distribution channels, and the alternate route of the Gulf Intracoastal Waterway. As indicated to some extent by the volume of maintenance dredging required, these channels are also the main route for the diversion of excessively larger volumes of sediment into the backwater area of the floodway below I-10. Not only does this result in a decrease in floodway capacity, it also results in several ways in the degradation of environmental integrity of the floodway's wetlands. Introduction of sediments through these channels into the flood plain swamps greatly contributes to the present reduction of the total water area and the degradation of the quality of forested wetlands.

Equally detrimental has been the disposal of spoil on stream banks. This has been a major cause of reduced circulation and resultant water quality

problems, in particular the depression of dissolved oxygen values. While annual reduction of dissolved oxygen values is in part a natural phenomenon resulting from large organic litter input and the organic nature of swamp sediments, at present the oxygen values in large swamp areas as well as streams are depressed for periods in excess of one month to levels where water can no longer support fishes and other aquatic life.

In the Lower Atchafalaya River connecting Morgan City and the surrounding industrial development to the Gulf of Mexico, provisions for navigation are creating a serious degradation of the environment. Because this navigation route traverses the area of the most rapid growth of the Atchafalaya delta, maintenance of the authorized navigation channel requires annual dredging. This action channelizes water and sediment through the active delta to deeper water, thus reducing the potential for valuable development of new wetlands.

The direct and indirect support for agricultural development in the Basin, inside and outside the floodway, is creating destructive pressure on the systems in the Basin. Expansion of agricultural development is facilitated by a number of processes and actions. Within the floodway, enlargement of the Atchafalaya River channel has resulted in a lowering of annual flood stages above I-10 thus reducing backwater flooding in the upper floodway. Since that area is already protected from direct river overflow by levees within the floodway along the Atchafalaya River, the reduced backwater flooding has allowed the expansion of agricultural development through the clearing of flood plain forests. Application has been received by the United States Soil Conservation Service (USSCS) for planning of a small watershed project involving 165,000 acres. Similarly, agricultural expansion takes place along and into the swamp forests of the Basin outside the floodway with support of a number of USSCS watershed projects.

The potential for further expansion of agricultural development and habitation of the floodway is increased by the consideration of reducing diversion of waters from the Mississippi River into the Atchafalaya River during annual flood stages. This plan is considered for the purpose of enhancing agricultural development in the flood plain of the Red River immediately north of the floodway. Such reduction in flows would equally affect the backwater stages in the northern part of the floodway, thus providing for increased flood plain development, and would reduce annual overflow in the lower floodway affecting the hydrologic regime of the wetlands there.

Concern for the protection of the environment has been growing, as has concern that the flood control value of the floodway is becoming increasingly less than it should be. On June 11, 1968, and March 23, 1972, the United States Senate Committee on Public Works, and on June 14, 1972, the United States House of Representatives Committee on Public Works, adopted resolutions concerning management and use of the water and related land resources of the Atchafalaya River Basin. These resolutions directed the USCE to determine whether, in light of changed conditions, modifications to the operation of the Old River control system are warranted and to review in cooperation with other agencies, including the USEPA, the report on the Mississippi and Tributaries Project, House Document 308, 88th Congress, and other pertinent reports with a view to developing a comprehensive plan for the management and preservation of the water and related land resources of the Atchafalaya River Basin, Louisiana. As directed, this would include provisions for reduction of siltation, improvement of water quality, and possible improvement of the area for commercial and sport fishing.

In response to the Senate and House resolutions, the Atchafalaya Basin Land and Water Resources Interagency Study was initiated in 1972. Participants are the USCE, USEPA, USDI, and State of Louisiana. The USEPA is in a position to make recommendations, enforceable through its responsibilities, to insure that Federal environmental requirements and objectives are sufficiently considered in the selection of a resource management plan. Objectives of the USEPA in the Atchafalaya Basin include: 1) land use requirements to control agriculturally related nonpoint sources of pollution (Federal Water Pollution Control Act Amendment (FWPCAA), 1972, Sec. 208); 2) the 1983 goal of water quality, which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water, and the restoration and maintenance of the chemical, physical, and biological integrity of the nation's water (FWPCAA, 1972, Sec. 101); 3) avoidance of degradation in any way of waters that in their existing condition could be used for sport fishing with degradation reducing their value for that use: 4) reduction of the adverse impact of spoil disposal on fishery, wildlife, or recreational areas (FWPCAA, 1972, Sec. 404); 5) monitoring of the discharge of dredged material in wetlands; 6) the avoidance of long- and short-term adverse impacts associated with destruction and modification of wetlands (Exec. Order 11990); 8) the avoidance of direct or indirect support of new construction in wetlands (Exec. Order 11990); 9) the avoidance, to the extent possible, of long- and short-term adverse impacts associated with the occupancy and modification of flood plains (Exec. Order 11988); 10) the avoidance of direct or indirect support of flood plain development whenever there is a practicable alternative (Exec. Order 11988); and 11) the avoidance of discharge of material that would have an unacceptable adverse effect on municipal water supplies, shellfish beds, and fishery, wildlife, or recreational areas (Public Law 92-500, Sec. 404, C).

MAIN CHANNEL SYSTEM

In a natural system, the river channel is not a static shape but is constantly changing size, cross-sectional shape, and alignment. In the alluvium of a coastal zone, these processes are more obvious. A river enlarges its bed by scouring when the water velocity is high and fills in its bed with sediment deposition when water velocity is low. It builds natural levees when overbank flooding takes place; this process leaves sediment on the banks of the river channel and permits the flood plain to receive water that does not bring with it enormous amounts of sediment. These natural levees in turn affect the channel, tending to increasingly confine the river between the banks of the natural levee before overbank flooding takes place. This changes every part of the river through time in a seaward direction. Also, the river and its channel change through time as the entrained sediment continuously builds a delta. This changes the gradient of the channel and the slope of the water surface. There are diurnal changes. The discharge will be higher during some parts of the year than others, and a larger part of the flood plain must be used to carry this water.

Furthermore, the plant and animal communities in the water and in the flood plain are delicately tuned to all of this fluctuation. Any change in course, any change in seasonal variation or overbank flooding, any change in sediment deposition must cause an equal adjustment in the ecological balance of the entire flood plain.

However, no matter how complicated a system has developed, flood control is an essential use of the Atchafalaya Basin. Channel conditions in the Basin must meet flood control needs and provide for long-term use of the flood plain for that purpose. Unfortunately, this is not a simple requirement, even if ecological considerations are ignored. The hydraulics of maintaining a channel of sufficient size, and of obtaining a channel that will remain at a sufficient size, must include a calculation of all of the factors that make the river and its channel a constantly fluctuating system.

Adding to this the requirement that flood control must be made available within some kind of multiuse management of the Atchafalaya Basin makes it mandatory that every possibility for obtaining the required flood control be evaluated and, furthermore, that each possibility be evaluated in the light of the interrelation of the river channel and the other natural systems.

Since these natural systems are adapted to and based upon the hydrologic regime as controlled primarily by stages and discharges of the Atchafalaya

River and since, within the present floodway system, the needed increase in capacity of flood control can only be obtained by increased efficiency and related necessary change of the Atchafalaya River main channel, the channel system is the most important element in the consideration of alternatives.

The alternatives available within the Atchafalaya Basin for the combined increase in flood control capacity and maximum retention of future floodway capacity fall basically into four categories. The first category is the dredging of the Atchafalaya Basin main channel to a larger size from river mile 50 to 120 (Figure 4) in order to obtain a reduction in the flow line for all discharges. The lowered annual river stages would reduce the extent and depth of annual overflow and result in lesser sedimentation in the overbank area. Likewise the flow line for the project flood discharge would be lowered, thus increasing capacity below a given grade of the guide levee or, alternatively said, decreasing the elevation to which the levees need to be raised to provide for the required 1,500,000 cfs capacity.

The second category of alternatives is to increase, where necessary below mile 55, channel efficiency and size through intensification of natural channel development by confinement of flows up to a given discharge and to obtain reduction of overbank sedimentation through management of water and sediment diversion. This would involve some dredging for construction of channel embankments, providing for overbank flow only where possible and taking structural measures where channelized diversion is necessary or unavoidable.

A third group of alternatives combines dredging, as in the first type of alternative, or channel training, as in the second type, with modification of the outlets, including the construction of an additional outlet. Since the present river regime cannot maintain additional outlet capacity, such additional capacity must be separate from the present channel system and only function when needed for flood control. The outlet element of this third group of alternatives only concerns floodway capacity. The latter is increased by lowering the project flood flow line through either diversion of floodwater from the present floodway above the Teche Ridge or by increasing the outlet capacity through the Teche Ridge parallel to the Wax Lake outlet and Lower Atchafalaya River.

The fourth group of alternatives combines elements of each of the above groups.

These categories of alternatives must be evaluated as to their efficacy in providing flood control and also their appropriateness to a multiuse management scheme for the Basin. In order that the categories can be evaluated, the relationship among the hydraulic elements in the Atchafalaya Basin floodway system and the present conditions and trends of the Atchafalaya Basin main channel must be understood.

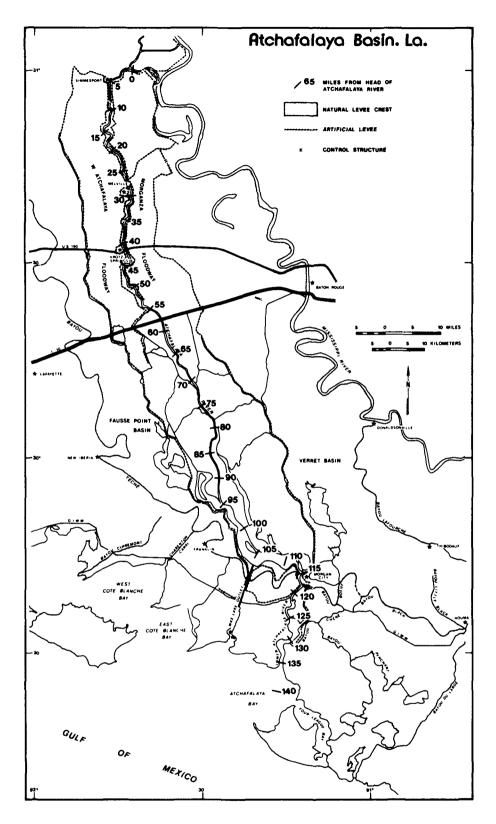


Figure 4. River miles along Atchafalaya Basin main channel.

RELATIONSHIPS AMONG HYDRAULIC ELEMENTS

Relationships among hydraulic elements are summarized in Figure 5. The most important elements are the annual discharge regime as governed by the Old River control structure, the distance between the Old River structure and the Gulf of Mexico, which is identified as the river length, and the division of flow between Wax Lake outlet and the Lower Atchafalaya River. With the ability of the river to modify its channel through scour and deposition, discharge regime and river length will ultimately determine the river slope and channel form of the future stable channel in which width, depth, and slope are related to discharge in such a manner that velocity is just sufficient to transport the sediment load.

Along the stream course, a number of other variables affect development and ultimate size, form, and water surface slope of the channel. The most important among these is the diversion of water from the stream into the backwater area. The magnitude of discharge diversion along the Atchafalaya Basin main channel is illustrated in Figure 6. Below river mile 55, diversion reduces main channel discharges from 10 percent to 25 percent at flows of approximately 425,000 cfs, depending on return flows. The largest reduction follows with diversion of 30 percent of the initial discharge into Wax Lake outlet so that only 60 percent remains after about mile 100 flowing toward Morgan City and the Lower Atchafalaya River.

Since river channels are continuously adjusting to seasonal and annual variation in discharge, the future stable channel must be viewed as an average future condition. At present, a reasonable working hypothesis for the Atchafalaya River is to consider this average condition associated with discharges within the range of 400,000 to 450,000 cfs, as measured at Simmesport, and having a frequency of occurrence between 1.5 and 2.5 years. This discharge will be referred to hereafter as the "channel determinant discharge."

It is evident that any changes in operation of the Old River control structure will affect the discharge regime and therefore the size, form, velocity, and water surface profile characteristics of the future stable channel. More specifically, the reduction that is being considered (of annual flood stage in the Red River backwater area) by reduction of annual peak flows would diminish the discharges for given frequencies; this would affect the channel determinant discharge and size of the channel that is stable and self-maintaining.

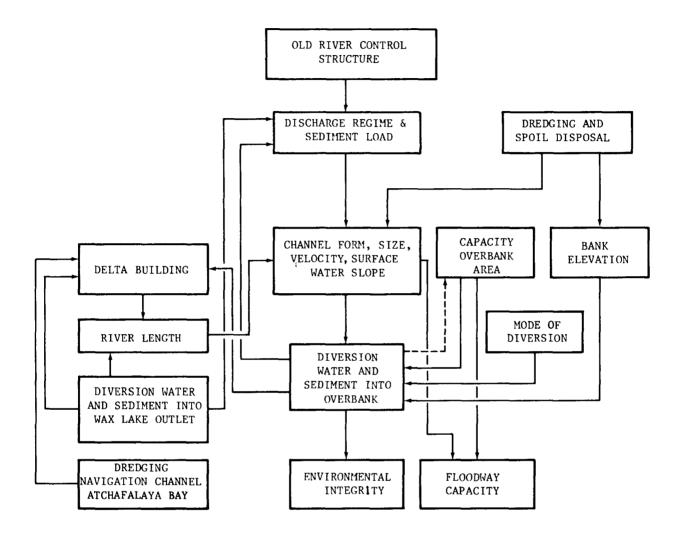


Figure 5. Relationships among hydraulic elements in the Atchafalaya Basin floodway system.

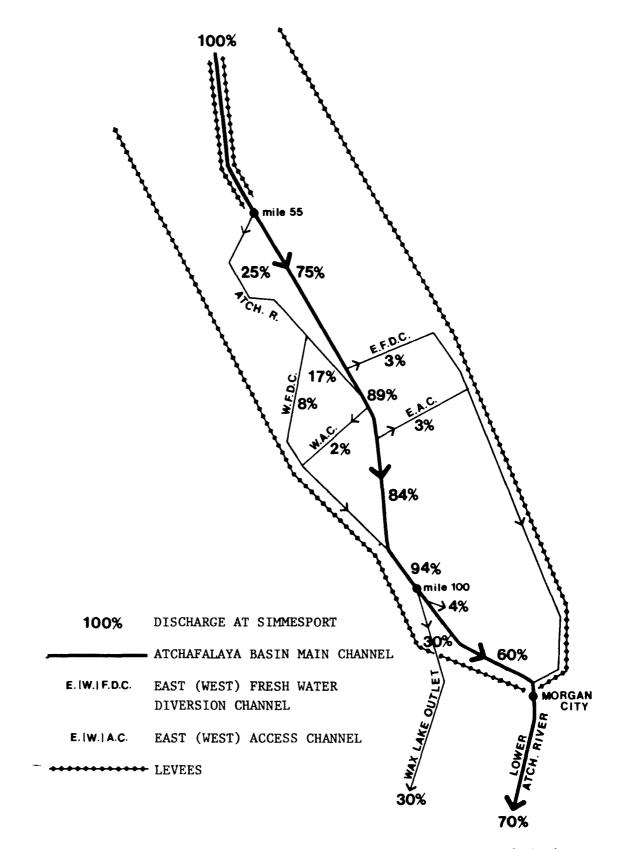


Figure 6. Diversion from the Atchafalaya Basin main channel during average annual flood.

River length must presently also be considered a variable parameter because of division of flows between the Lower Atchafalaya River and Wax Lake outlets and because of delta building in Atchafalaya Bay. Since the progradation of the delta in the 1950's, river length has increased from 135 to 145 miles at present. By the year 2020, length can be expected to have increased to 160 miles, or an increase of almost 20 percent. As a result, the water surface profile must be expected to continue to move upward in the lower part of the Atchafalaya River.

Diversion is mostly controlled by flood plain topography and by the natural or man-made changes (Figure 5) affecting bank elevation, storage capacity of the overbank area, and the mode of diversion--that is, whether diversion occurs through overflowing of the stream banks or through diversion channels.

Where diversion of water in the flood plain is prevented by artificial levees such as along the upper part of the Atchafalaya River, discharges of a given frequency are larger, and consequently the future stable channel will be larger, than along the lower reaches.

When diversion of water and sediment occurs from the channel into the flood plain mainly by overflow of the channel banks, most sediment is deposited on the stream bank as natural levee ridges (Figure 7A). The resultant increase in bank elevation confines larger discharges for a given frequency, thus allowing the river to maintain a larger channel. The process of enlargement will continue until the grade of the natural levee ridges follows the water surface profile for the discharge of the channel determinant frequency. This type of adjustment reduces adverse deposition of sediments in the backwater area to only flood occurrences greater than the determinant discharge.

When most of the diversion of water into the flood plain takes place through diversion channels, however, a quite different condition develops (Figure 7B), in particular where banks have been elevated by spoil until overflow no longer occurs on a regular basis. Under those circumstances, diversion of water takes place at high velocity into the flood plain, enabling the water to carry large quantities of sediment. Most of the sediment is deposited in the backwater area, gradually reducing overbank capacity. Any resultant increase in channel discharges as a result of loss in overbank capacity will perpetuate the process of backwater sedimentation as long as the greater channel discharges or overall adjustment of the river gradient elevate the water surface profile and thereby maintain the gradient Channel enlargement will take place at much less into the backwater area. than the potential rate since the increase in elevation of the water surface profile minimizes the losses of overbank storage relative to the river so that channel discharges increase only slowly. Loss of overbank storage relative to a fixed datum plain, however, is considerable and represents a major loss of floodway capacity.

Enlargement of the Atchafalaya Basin main channel through dredging must be viewed also in terms of the above discussed hydraulic relationships.

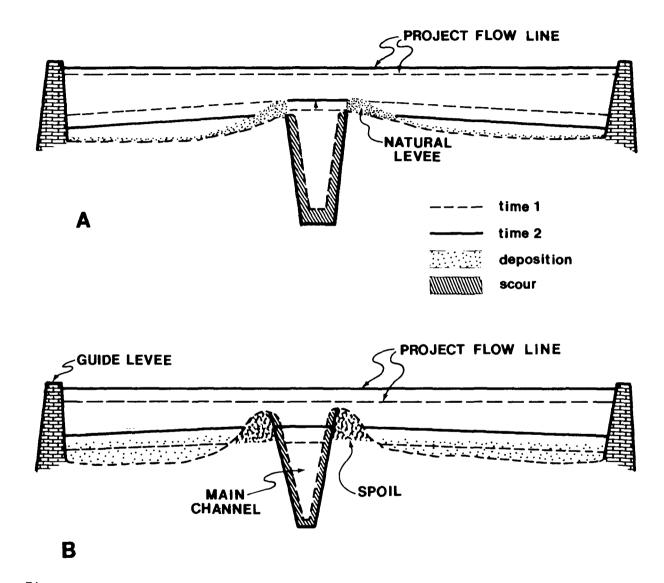


Figure 7. Annual flooding of backwater area and associated topographic and water level changes. (A) Overflow across stream banks. (B) Over-flow through channelized diversion.

Dredging will change the form, size, velocity, and water surface slope characteristics of the main channel, as shown in Figure 5. This in turn will affect the diversion of water and sediments into the overbank area and therefore the discharge regime of the main channel. Whether the acquired channel will be stable depends then on whether the new channel characteristics are in equilibrium with the then occurring discharge regime including the sediment load. Any major deviation from the required velocity and gradient for the channel determinant discharge and sediment loads will otherwise result in deposition within the channel. This would negate the channel enlargement accomplished by dredging, while any adverse impacts resulting from spoil disposal and from the decrease in annual duration and extent of flooding of the wetlands would remain.

The second effect of channel dredging stems from the associated spoil disposal if no measures are taken to control inflow through diversion channels. The spoil deposition would add to the relative change in bank elevation resulting from a lowering of the water surface profile. This is true in particular since dredging would take place along the lower course of the main channel where overbank flow at present is still significant. The elimination of the overbank flow process during average annual floods would change the mode of water diversion into the overbank area to channel flow at higher velocities. This would adversely affect the desired reduction of sediment diversion into the overbank area obtained through lowering of the flow line.

Along the lower course of the Atchafalaya River, the most important factor becomes the division of main channel flows between Wax Lake outlet and the Lower Atchafalaya River and the processes influenced by this division as shown in Figure 6. First, the division controls the channel determinant discharge for the remainder of the main channel and the Lower Atchafalaya River. Because of gradient advantage (the Wax Lake outlet route being some 15 miles shorter), discharges through Wax Lake outlet and, consequently, channel size have increased since construction. Conversely, the channel determinant discharge along the Lower Atchafalaya River route continues to decrease.

Present processes of deltaic growth reinforce this trend. With 70 percent of the total discharge still passing through the Lower Atchafalaya River, delta progradation is much more rapid on the east side of the Atchafalaya Bay causing a more rapid increase in length of the lower Atchafalaya River than of Wax Lake outlet. That process is further augmented by maintenance of a navigation channel through the Atchafalaya River delta.

PRESENT CONDITIONS AND TRENDS

With the above-described process relationships in mind, we may now focus on present conditions and trends of the Atchafalaya Basin main channel. At present, neither the flow line nor the cross-sectional area of the Atchafalaya Basin main channel is stable. Figure 8 illustrates the trend in flow line change for a discharge of 450,000 cfs at Simmesport. Since 1969 the flow line has decreased in elevation upstream from the Whiskey Bay Pilot Channel (WBPC) while below the Pilot Channel the flow line has increased in elevation.

Also shown in Figure 8 are the project flow lines as determined in 1963 and in 1973 during floodflows. The difference comprises a 4 ft upward revision as a result of sedimentation in the overbank areas and delta development. Since 1973, as a result of the flood and associated sedimentation, the project flow line is being revised upward again, but the new flow line has not been made available at present.

The change in flow line for the 450,000 cfs discharge has been associated with a change in cross-sectiona! area of the channel. This trend is best illustrated by the bank-full datum plane in Figure 8, which at one time followed natural stream bank elevation. The present flow line for 450,000 cfs is seen to lie well below this datum plane above mile 70 and far above this plane below mile 70. The change has been associated with strong scouring of the channel above mile 70 and with channel, levee, and flood plain development below mile 70. These two processes are schematically shown in Figure 9A and Figure 9B, respectively.

Figure 9A shows the scouring of the channel and the associated lowering of the water level for a given discharge. Since water levels in the channel become lower relative to the overbank area, less water will be diverted, and stages in the overbank area will decrease resulting in a loss of aquatic habitat and reduction of the area periodically flooded. Below mile 55 such loss is further augmented because sediment introduction into the overbank area occurs increasingly through diversion channels rather than through overbank flow, and therefore most sediment is deposited in the aquatic habitats rather than on the channel bank. The process illustrated in Figure 9A will continue until the flow line has stabilized, and future loss of aquatic habitat and wetlands to mixed forest hardwoods must thus be expected. Likewise, a shift to drier hardwoods must be expected, and therefore an increasing encouragement for agricultural development will follow forest clearing.

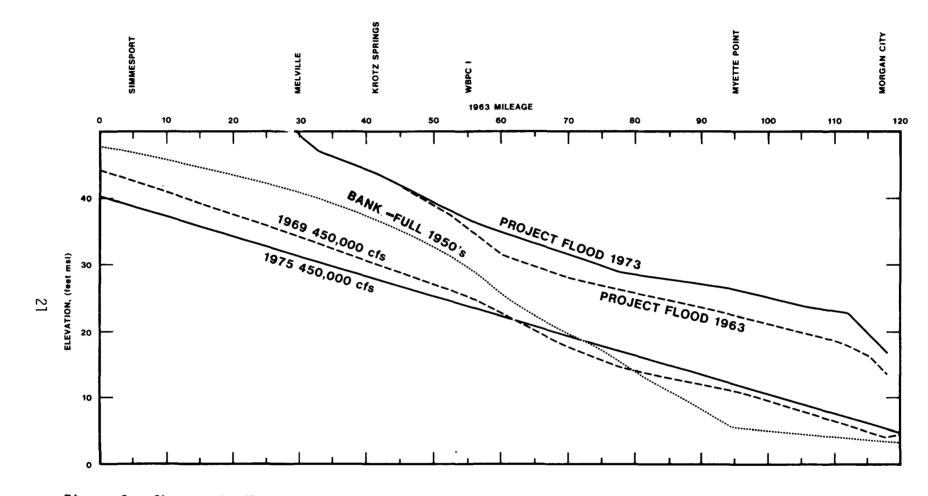


Figure 8. Changes in flow line along the Atchafalaya Basin main channel for the 450,000 cfs and project flood discharges. (The 1950's bank-full datum plane provides an additional references.)

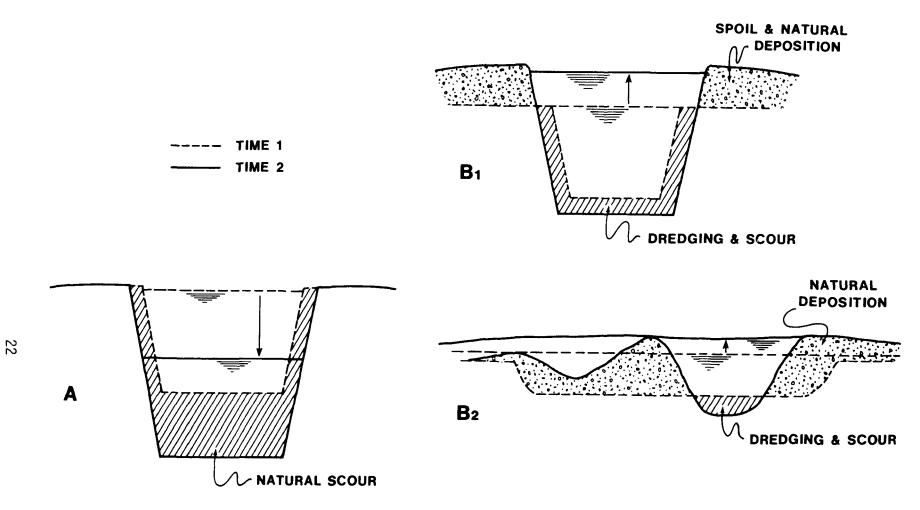


Figure 9. Schematic representation of channel and flow line changes along the Atchafalaya Basin main channel. (A) Channel scouring and associated lowering of flow line (above mile 70). (B1) Scouring of channel and rise in flow line (mile 70-85). (B2) Flow confinement through deposition, scouring of channel, and rise in flow line (mile 95-115).

Also illustrated in Figure 9A is the increase in channel area below a fixed reference level such as the project flood flow line. Consequently, the frequency at which use of the overbank area for flood control is necessitated diminishes and increases the likelihood of agricultural development and settlement. At present, the channel area below the 1963 and 1973 project flood flow lines exceeds $100,000 \text{ ft}^2$ as far downstream as mile 55, the $100,000 \text{ ft}^2$ dimension being the stated need for flood control by the USCE.

Figure 9B1 and 9B2 illustrates the two major processes occurring below mile 70. The two are successive in time, with the processes illustrated in Figure 9B1 preceding those in Figure 9B2. For mile 70 to mile 95, approximately Myette Point, channel development has long since progressed beyond the filling stage to the stage depicted in Figure 9B1. Although channel enlargement takes place, processes differ from those illustrated in Figure 9A. While overbank deposition and past spoiling tend to confine increasingly greater discharges to the channel thus resulting in channel enlargement, the flow line moves upward at the same time. This tends to partially offset the loss in overbank storage as well as to negate the need for the river to enlarge its channel through scour so as to maintain a cross-sectional area in equilibrium with the discharge regime. Consequently, the rate of channel enlargement is low.

Continuation of upward movement of the flow line is expected as a result of delta building, which lengthens the channel as a result of continuing sedimentation, which decreases storage in the overbank area, and as a result of overall adjustment of the stream gradient. Associated with this will be natural building of the channel banks in the form of natural levees where banks have not yet been elevated to greater elevation as a result of previous spoil deposition.

It is evident that elevating the stream banks beyond the natural levee height by spoil deposition makes flow into backwater areas increasingly dependent on diversion channels, thus enhancing sediment introduction into these areas with resultant loss of aquatic habitat, loss of periodically flooded areas, and loss of floodway capacity. Preservation of wetlands is much better served by natural building of stream banks so that overbank flow is maintained and sedimentation concentrated along the channel. It is furthermore apparent that the limitation of flow diversion into backwater areas to only the volume necesary to maintain water quality and high productivity increases the rate of channel development.

Channel development from mile 70 to mile 95, the reach represented by Figure 9B₁, has progressed to where the present channel size is approximately 70,000 ft² as measured below the 1963 project flow line and approximately 58,000 ft² as measured below the channel bank.

Between the time dredging was stopped in 1968 and early 1973, the channel increased in size from mile 70 to mile 83 and remained stable from mile 83 to mile 95. However, the 1973 flood produced a reduction as a result of sedimentation throughout the 25-mile reach. Table 1 summarizes the changes.

Period	Years	Channel Segment (mi)	Total Average Change (ft ²)	Average Annual Rate of Change (ft ²)
1969-1973	4	55 - 70	+ 5,746	+ 1,436
1973	1	55 - 70	+10,702	+10,702
1969-1973	4	70 - 83	+ 2,840	+ 710
1973	1	70 - 83	- 4,603	- 4,603
1969-1973	4	83 - 95	+ 48	+ 12
1973	1	83 - 95	- 3,343	- 3,343
1971-1973	2	95 - 103	+ 2,097	+ 1,048
1971-1973	2	103 - 112	+ 348	+ 174
1972-1973	1	112-120	- 17	- 17
1973	1	95 - 112	- 967	- 967
1973	1	112 - 120	+19,191	+19,191

TABLE 1. RATES OF CHANNEL DEVELOPMENT ALONG THE ATCHAFALAYA BASIN MAIN CHANNEL

Below Myette Point (mile 95), where the main channel follows Six Mile Lake, the flow conditions are rapidly changing as a result of the processes shown in Figure $9B_2$. Through deposition in the lake, on either side of the main current thread, the channel increasingly gains definition and the flows become more confined. This contributes further to the rise in flow line. With additional confinement of flows and an increase in velocities, the river will increase its depth by scour insofar as sufficient depth is not provided by the rise in flow line.

The above picture is complicated, however, by the partial diversion of discharge to Wax Lake outlet at approximately mile 103 and by the fact that the diversion ratio has been increasing because of gradient advantage. Related to this, the channel size from mile 95 to mile 103 averages 50,000

 ft^2 below the 1963 flow line but decreases to about 30,000 ft^2 into the confined reach of the Lower Atchafalaya River. The rate of channel development follows the same trend, being much greater above the diversion point than below that point as shown in Table 1 (mile 95 to 103 and 103 to 112). Deposition and decrease in channel size associated with the 1973 flood was about equal in both reaches.

At this point it must be emphasized again that a distinction must be made between active channel cross section and channel cross section as expressed by the USCE. The active channel cross section is the cross-sectional area of the channel occupied by the river during flood discharges representative for the river's regime. The cross-sectional area as expressed by the USCE is the area below a fixed datum plane in which channel flow conditions occur when water level in the river equals the level of the datum plane. This can be extremely misleading to those not familiar with the meaning of "channel cross section" as used by the USCE when considering changes in cross-sectional area of the channel. True changes can only be observed by considering both the change in water surface profile and cross-sectional area below a fixed datum plane. This is illustrated by Table 2.

We may now proceed with the assessment of dredging needs. Simultaneous consideration will be given to riverine processes and the trends of the water surface profile and channel cross section below a fixed datum plane indicate the following. Through a complex system of interacting processes (Figure 5) involving the river channel, overbank area, and delta, the Atchafalaya River attempts to achieve stability for the present discharge regime. This stability requires a change in water surface slope, active channel cross section, and velocity. Above approximately mile 70 the change involves a downward adjustment of the water surface profile associated with channel enlargement through scour (Condition 7, Table 2). Because the rate of scour greatly exceeds the rate of profile adjustment, the active channel is enlarging through scour.

Below mile 70 the gradient adjustment results in an upward movement of the water surface profile that is associated with a decreasing rate of scour from mile 70 to mile 95 (Condition 1, Table 2) and with essentially no change from mile 95 to Morgan City (Condition 2, Table 2) except between mile 95 and 103. Scouring between mile 95 and 103 is, however, a superimposed condition related to rapid scouring in the branch channel leading to Wax Lake outlet, which scoured at an average annual rate of 2,000 ft². Active channel cross sections are thus enlarging along both of the above reaches at greater rates than indicated by physical channel changes because of water surface profile adjustments. From mile 70 to 95, active channel enlargement amounts to approximately 1,200 ft² per year, which includes 700 ft² as a result of scour and 500 ft² as a result of increased water levels for the representative discharge. Below mile 95 the active channel enlargement represents primarily an increase in water levels and associated increase in elevation of the banks through deposition and amounts to about 250 ft^2 per year. The absence of scour suggests that, presently, changes in the discharge-channel relationships are still accommodated by a change in slope

	Water Surface Profile		Channel Cross-sectional Area Below Fixed Datum		
Condition	Direction of Change	Change In Cross. Area (A ₁)	Process of Change	Change In Cross. Area (A ₂)	Net Change in Cross Section for Discharge Representative of Discharge Regime $(A_1 + A_2)$
1	Up	$\Delta A_1 > 0$	Scour	ΔA ₂ > 0	$\Delta A_1 + \Delta A_2 > 0$
2	Up	$\Delta A_1 > 0$	Same	$\Delta A_2 = 0$	$\Delta A_1 + \Delta A_2 > 0$
3	Up	$\Delta A_1 > 0$	Deposition	ΔA ₂ < 0	$\Delta A_1 + \Delta A_2 >$, =, or < 0
4	Same	$\Delta A_1 = 0$	Scour	ΔA ₂ < 0	$\Delta A_1 + \Delta A_2 > 0$
5	Same	$\Delta A_1 = 0$	Same	$\Delta A_2 = 0$	$\Delta A_1 + \Delta A_2 = 0$
6	Same	$\Delta A_1 = 0$	Deposition	$\Delta A_2 < 0$	$\Delta A_1 + \Delta A_2 < 0$
7	Down	$\Delta A_1 < 0$	Scour	$\Delta A_2 > 0$	$\Delta A_1 + \Delta A_2 >$, =, or < 0
8	Down	$\Delta A_1 < 0$	Same	$\Delta A_2 = 0$	$\Delta A_1 + \Delta A_2 < 0$
9	Down	$\Delta A_1 < 0$	Deposition	ΔA ₂ < 0	$\Delta A_1 + \Delta A_2 < 0$

TABLE 2. POSSIBLE NET CHANGE IN CHANNEL CROSS SECTION FROM COMBINED CHANGES IN THE BED AND FLOW LINE

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and/or depths without necessitating scouring to satisfy hydraulic requirements. In other words, the channel appears stable for the given conditions of slope, water depth, and velocity. This is further indicated by a decrease in cross-sectional area through deposition following the termination of channel enlargement through dredging in 1963.

An important aspect brought out by the foregoing information is that the potential rate of channel enlargement through scour for average discharge conditions is on the order of at least 1,500 ft² per year when adjustment of surface slope insufficiently increases or diminishes water depth and forces a greater water depth through scour. This means that channel dimensions below the 1963 datum plane as considered for flood control could be attained according to the time frame given in Table 3 if the projected channels would be in accord with the stable conditions the river attempts to establish under present regime conditions. Clearly, the indicated duration required for natural channel enlargement eliminates the need and justification for dredging to an 80,000 ft² dimension above mile 95 (Myette Point). Since the 100,000 ft^2 dimension was eliminated as a viable alternative at the Agency Management Group* meeting of September 1977,** this leaves only enlargement of the channel segment to 80,000 ft² from Myette Point to Morgan City (mile 95 to 112). Considering that the main purpose is to lower the project flow line, channel enlargement through dredging along the latter channel segment appears equally unwarranted because of very limited long-term beneficial, and severe long-term adverse, effects as suggested by the results of the U.S. Geological Survey (USGS) simulation study (USGS 1977).

The most important results of the simulation study of flow and sediment transport in the Atchafalaya River Basin are summarized in Figure 10. Through use of a mathematical simulation model, channel and water surface profile changes for 50-year period are predicted under the present discharge regime. While the model admittedly has a number of major limitations, it represents the best available state-of-the-art and "has demonstrated the ability to reproduce, with reasonable accuracy, the historical changes in water surface elevation and bed profile" (USGS 1977). The model was calibrated and supplied by the Hydrologic Engineering Center and the New Orleans District, U.S. Army Corps of Engineers.

Figure 10 shows the water surface profiles for present and future (50 years) conditions for a discharge of 450,000 cfs and for the project flood (1,500,000 cfs) when, alternately, the channel is allowed to develop

^{*}Coordinating Committee for the Interagency Atchafalaya Basin Land and Resource Study.

^{**}Since this report was prepared, the 100,000 ft^2 channel is again being considered as an alternative.

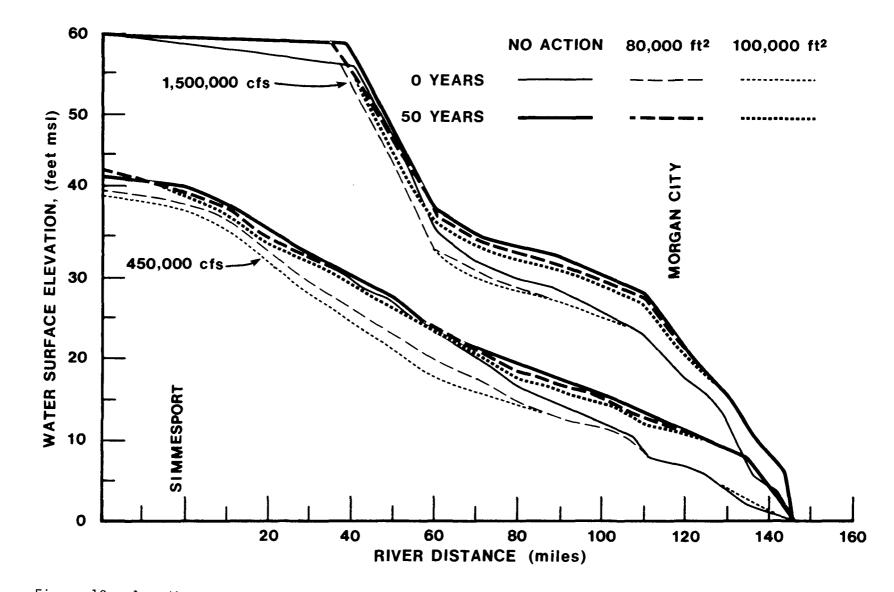


Figure 10. Immediate and future main channel flow lines for three alternatives derived through . mathematical modeling (USGS, 1977).

Channel Area below 1963 Datum Plane ft ²	Main Channel Segment River Miles	Estimate of Years Required this Report (Base Year 1973)	Estimate of Years Required USCE* (Base Year 1973)
100,000	0 - 55	0	0
80,000	0 - 55	0	0
100,000	55 - 95	20	32
80,000	55 - 95	7	3
100,000	95 - 105	33	60+
80,000	95 - 105	20	21
80,000	95 - 112	35	42

TABLE 3. ESTIMATED TIME REQUIREMENTS FOR NATURAL CHANNEL ENLARGEMENT TO ALTERNATIVE DIMENSIONS OF 100,000 ft² AND 80,000 ft²

*Source: New Orleans District, U.S. Army Corps of Engineers, Letter of March 24, 1978 to Victor W. Lambou, Project Officer for this study, from Early J. Rush III, District Engineer.

naturally or is dredged to dimensions of 80,000 ft² and 100,000 ft², respectively, below the 1963 datum plane. Channel enlargement through dredging is seen to produce an immediate lowering of the water surface profile for the 450,000 cfs discharge (approximately the average annual high water profile). The main effect is in the middle part of the floodway with lowering of stages decreasing below mile 70. The obtained reduction in stages is approximately equivalent to a reduction in mean annual peak discharge from 430,000 cfs to 330,000 cfs, or nearly 25 percent. After a period of 50 years, however, this profile is seen to have almost returned to conditions associated with natural development of the channel--that is, a continuation of the upward movement of the water surface profile below mile 70 with an increase to about 5 ft near Morgan City.

Concomitant with the dredged channel enlargement is a lowering of the project flood water surface profile on the order of 1 to 2 ft, of which approximately 1 ft is retained after 50 years. Since channel conditions at that time were nearly the same, the reduction must be considered to have been achieved through lesser overbank sedimentation as a result of lower stages

during the initial part of the 50-year period. The achieved reduction in water surface profile elevation represents an increased floodway capacity of approximately 40,000 cfs or 2.5 percent of the required capacity.

The two major points that are apparent are the following. First the channel enlargement through dredging produces only a very limited benefit with regard to flood control. Second, the lowering of the water surface profile constitutes a major perturbation of the environment. Below mile 70 the lowered annual flood stages aggravate the loss of aquatic habitat occurring as a result of present gradient adjustment and increase the feasibility of development in the upper part of the floodway system. A further consideration of importance is that a lowering of water levels in the Atchafalaya Basin channel system includes the alternate route of Intracoastal Waterway and other navigation channels, thus requiring additional dredging and spoil disposal to maintain authorized depths.

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CONSIDERATION OF ALTERNATIVES

After consideration of riverine processes and present trends of the Atchafalaya River channel, one cannot escape the conclusion that use of the Atchafalaya Basin for flood control must be within the constraints imposed by the presence of the Atchafalaya River. Ultimately, the excess capacity of the area within the guide levees for flood control use will be only the cross-sectional area above the stable active channel cross section and that above the overbank area (Figure 11). Any additional capacity can only be acquired by raising the guide levees. The inherent limitations of raising the guide levees must be resolved through the diversion of flood waters outside the basin above or at the latitude at which the project flow line exceeds the grade of the guide levees. The most effective alternative for achieving maximum long-term use for flood control at a minimum cost to the environment is to enhance the development of the channel in the direction of its ultimate stable conditions as determined by stream distance and flow-sediment regime while simultaneously minimizing sedimentation in the backwater areas.

The above alternative requires two separate but related actions that concern both the channel and overbank area and that must be executed simultaneously. Actions with regard to the limitation of sedimentation in the overbank area are the same as those desirable from an environmental point of view. Actions with regard to the Atchafalaya Basin main channel will be outlined below and include consideration of the delta system below Morgan City.

First there should be confinement of flows to the Atchafalaya Basin main channel and the channel leading to Wax Lake outlet for discharges of up to but no more than approximately 400,000 cfs at Simmesport. This should be accomplished without reducing peak flows through the Old River control structure. The decrease in discharge in a downstream direction should be minimized by limiting diversion through the east and west freshwater distribution channels, the east and west access channels, and any other minor channels, to only the volume necessary to enhance surface water quality and environmental integrity. Provided that internal circulation is improved through the measures indicated above, the limitation of diversion to 15 percent of the Simmesport discharge appears justified. This includes 3 to 5 percent for diversion into areas affected by the lowering of the water surface profile such as the Bayou des Glaises management unit. Confinement of flows below the diversion points should thus be for 340,000 cfs to 382,000 cfs until bifurcation occurs toward the Wax Lake outlet and Lower Atchafalaya

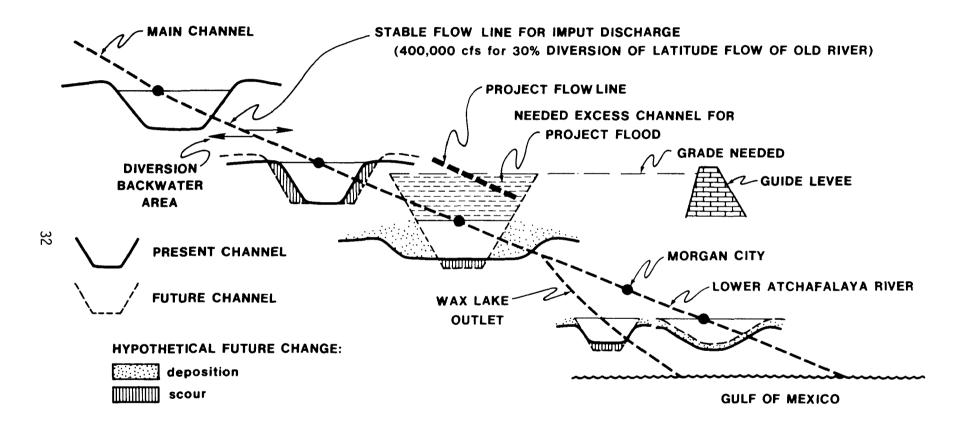


Figure 11. Representation of hypothetical channel changes resulting in stable flow line and the relationship between the future channel and floodway capacity.

River. From there flow should be confined in each of the two branch channels up to the proportion of the 340,000 cfs to 382,000 cfs received at the bifurcation point.

Confinement of flows should be achieved through the use of training levees. Levee material may be dredged from the main channel and should be deposited in a natural configuration on the channel banks with severe constraints on width and height of the deposits and on distance from the present channel. Prior to such dredging, it must be determined what the water surface profile will be for the confined, delineated discharges under present channel conditions. Height of the training levees should not exceed the elevation of the water surface profile so as to maintain the overbank flow process for greater discharges to maintain environmental integrity. It cannot be overemphaiszed that diversion into the overbank area for the greater discharges must be exclusively through overbank flow (except where structural control is exerted) so that sedimentation contributes primarily to natural increase in elevation of the channel banks and does not diminish the depth of the overbank area. Width of the levees should be no more than is necessary to support the needed height and to prevent frequent crevassing. Distance of levees from the center line of the channel should be in accord with the width of the channel expected to develop under the present discharge regime.

The above specifications for flow confinement establish a maximum limit that should not necessarily be interpreted as the recommended height of training embankments. The dredging of material from the Atchafalaya Basin main channel for the purpose of flow confinement should not result in channel enlargement to the extent that modification of the water surface profile adversely affects duration, depth, and extent of annual flooding. Flow confinement should proceed only to the extent allowed by annual flooding regime requirements, with further confinement to take place through the natural process of overbank flow and associated greatest deposition of sediment on the channel banks.

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APPENDIX

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CONVERSION FACTORS

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In this report, English units are frequently abbreviated using the notations shown below. The English units can be converted to metric units by multiplying by the factors given in the following list:

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English Unit to convert	Multiply by	Metric Unit to obtain
acres	4047	square meters
cubic feet per second (cfs)	0.02832	cubic meters per second
cubic yards (yd ³)	0.7646	cubic meters
feet (ft)	0.3048	meters
miles	1.6093	kilometers
square feet (ft ²)	0.09290	square meters
square miles (mi ²)	2.590002	square kilometers

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TECHNICAL REPORT DATA (Please read Instructions on the reverse before completing)			
1. REPORT NO. ЕРА-600/4-79-036	3. RECIPIENT'S ACC	CESSION NO.	
4. TITLE AND SUBTITLE HYDRAULICS OF THE ATCHAFALAYA BASIN MAIN CH SYSTEM: Considerations from a Multiuse Man Standpoint		GANIZATION CODE	
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9. PERFORMING ORGANIZATION NAME AND ADDRESS	10. PROGRAM ELE	MENT NO	
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The report examines the relationships among hydraulic elements in the Atchafalaya Basin floodway system in terms of discharge regime, sediment load, channel form and size, flood control, water surface slope, bank elevation, overbank capacity, dredging requirements, and spoil disposal. Hydraulic geometry of the present main channel system is analyzed and the rate of natural channel development along the main channel is presented with the net change in channel cross-sectional area from changes in bed and flow line.			
17. KEY WORDS AND DOCUMENT ANALYSIS			
a. DESCRIPTORS	b.IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group	
*Water resources development Flood control Sedimentation Hydrography	Atchafalaya Basin Wetlands Water management Channel stabilization	02 F 08 A, F, H 13 B	
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Atchafalaya Basin Master Plan for Flood Protection, Ecological Enhancement, Wetland Protection, and Coastal Restoration

Atchafalaya Basinkeeper, Gulf Restoration Network, Louisiana Crawfish Producers Association-West and Sierra Club Delta Chapter

Introduction

Floodplains are critical for flood protection, even more so in southern Louisiana than in most places in the country. Good water management and floodplain protection is crucial for future generations to live safely in southern Louisiana and enjoy the same natural world that we enjoy today. Ultimately, we are borrowing these natural resources for generations to come.

When floodplains disappear, their ability to absorb floodwaters is lost. Whether filling in the floodplains of the Atchafalaya Basin to create uplands, or building a levee to isolate the Basin, the effect is the same. The way that the Atchafalaya Basin (and the rest of coastal Louisiana) is being managed is unsustainable. As a result, we are destroying an irreplaceable ecosystem, and with it, ecosystem services that are integral to preventing flood disasters today and in the future.

When our levees work against us

The Atchafalaya Basin Spillway (or simply Spillway) illustrates how levees can intensify flooding in surrounding areas. The Spillway was designed by the Corps of Engineers to protect people and property from the flooding of the Mississippi River.

The ability of the Atchafalaya Spillway to absorb floods is immense. During the great flood of August 2016 Grand River at Bayou Sorrel crested August 17,2016, at 10.39, but the Spillway across the levee at the Bayou Sorrel Locks crested three days earlier, August14, 2016, at only 7.1'. Ongoing research conducted by Atchafalaya Basinkeeper on a property in the Iberville Parish community of Bayou Sorrel, recorded that during that flood the yard at the site of research was about 1.39 feet under water and the elevated house was about 1.6 feet above water. Without the levees that yard would have been about 1.5 feet above water. This is an instance where levees created a flood rather than preventing one.

In contrast, in 2011 the water stage inside the Spillway at Bayou Sorrel crested at 17.4 feet; without the levees that same house would have been more than 5 feet under water. Levees are built for flood protection; however, they can also be responsible for transforming our towns and cities into floodplains by preventing drainage into rivers and other natural waterways.

The Atchafalaya "Spillway" today

The Atchafalaya Basin Spillway is incredibly important for Louisiana, the nation, and the ecology of our planet. It contains the largest river swamp in North America. Producing the single largest wild harvest of crawfish in the world, the Atchafalaya Basin's swamps are considered to be the most productive wetlands on Earth. It is the last bastion of our Cajun culture. Situated at the doorway of the Mississippi Flyway, the Atchafalaya Basin is arguably the single most important ecosystem for migratory birds in the Western Hemisphere. It is a critical habitat for rich and diverse variety of wildlife, including threatened and endangered species. In a land of vanishing wetlands and sinking coast, the Atchafalaya Basin provides the only growing delta in the state.

As important as the Atchafalaya Basin is for ecological values, we must not forget that the Basin is also a spillway that is critical for flood control. As the Basin's swamps, lakes and bayous become uplands, the flooding capacity of the Basin is being compromised. Since 1932, there has been a net accretion of nearly 2.5 billion cubic meters of sediment in the Basin floodway, converting a substantial amount of open water and cypress swamps to bottomland hardwood forests. This greatly reduces the ability of the Spillway to handle floodwaters.

With responsible management, we could increase the ability of the Basin to handle floods inside and outside of the levees, build more land along the coast, and improve water quality and seafood production.

A holistic management plan for the Atchafalaya Basin Spillway

Holistic sustainable management of the Atchafalaya Basin should have three components:

1. Hydrology should be restored, as near as possible, to its original state (before levees were built) to allow the Spillway to capture floodwaters from both sides of the levees, thereby protecting communities from river flooding, as well as flooding from local rains. This would improve water quality, wildlife habitat, and ultimately seafood production.

- 2. Sediments should be managed and contained in the main river channel, away from swamps, lakes and bayous, to maintain the floodplain's ability to handle floodwaters, protect critical wetland habitat, and rebuild our coast.
- 3. The management design should be done in such a way as to preserve the ecosystem, thus maximizing natural ecosystem services such as sustainable flood protection.

Pumps versus channels and locks

Water pumps do not provide any significant ecological benefits to the Atchafalaya Basin and the communities who depend on the Basin's resources. Fish and shellfish cannot freely navigate through the pumps. Pumps can be also very expensive to operate and maintain.

In contrast, building channels to reconnect waterways could have extensive ecological benefits. These channels would allow fish and shellfish to migrate throughout the Basin, expanding the productivity of the entire Basin to the rest of coastal Louisiana. Channels and locks also allow natural systems to operate, exchanging nutrients and improving water quality. People could again navigate by boat into and out of the Atchafalaya Basin for fishing and recreation, which could ultimately promote ecotourism.

Water pumps could be strategically installed in addition to the channels, to provide additional protection, in the event of a flood during our annual high water season.

Here, by aerial photographs and added text, is an explanation of how the Atchafalaya Basin could be restored in a way that would protect South Louisiana from future flooding. This restoration plan would also protect the Basin from further destruction, as well as increase its productivity and environmental health. Suggested changes are marked in blue and red.

Restoration of hydrology for flood protection and ecological enhancement



Grand River to Grand River connection and lock



Locks should be kept open at low river stages; they should be closed for flood protection and sediment management during high river stages.



Cross Bayou to Spillway connection and lock

To be left open; closed only during high river stages.

Bayou Pigeon-Grand River connection and lock



To be left open; closed only during high river stages.

Old River-Belle River connection and lock

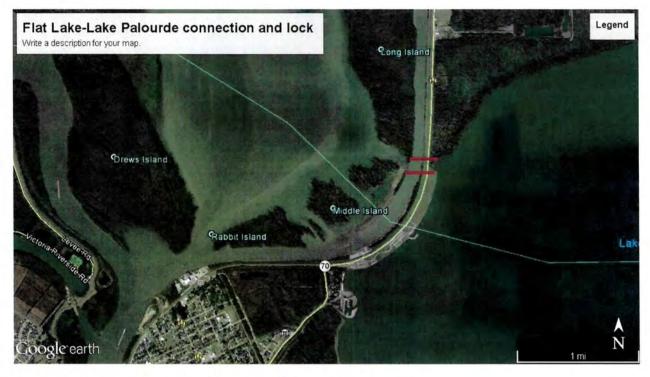


To be left open; closed only during high river stages.

Lower Bayou Sorrel-Belle River connection and lock



To be left open; closed only during high river stages.



Flat Lake-Lake Palourde connection and lock

To be left open; closed only during high river stages.

Lake Fausse Point-Grand Lake connection and lock



To be left open; closed only during high river stages.

Lake Dauterive-Bayou Benoit connection and lock Write a description for your map.

Lake Dauterive-Bayou Benoit connection and lock

To be left open; closed only during high river stages.

Bayou Amy-Henderson Lake connection and lock



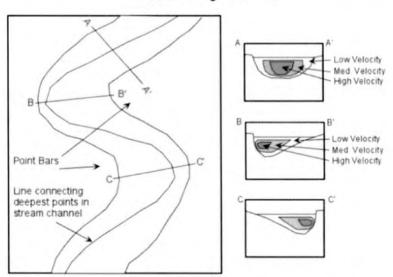
To be left open until needed for flood control.

Bayou Courtableau lock



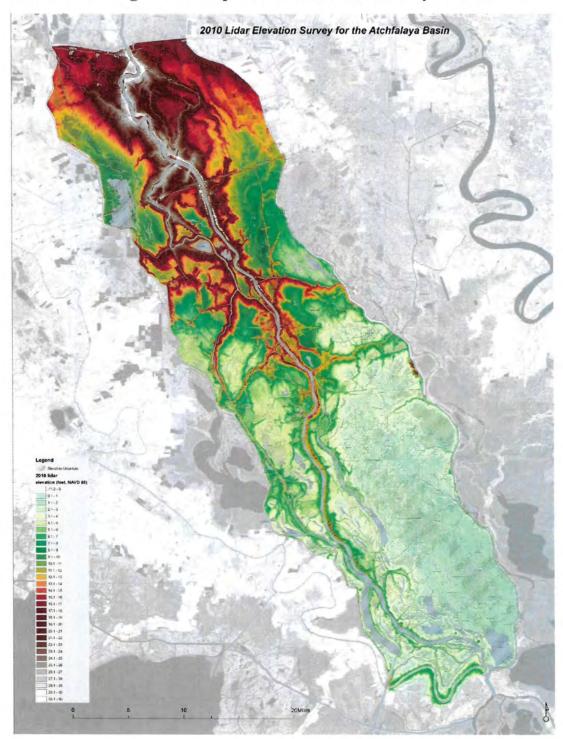
To be left open until needed for flood control.

Atchafalaya Basin floodplain sediment management plan for flood and ecological services protection and coastal restoration



Meandering Channels

Figure 6. Typical velocity sections across a river including a river meander.



LIDAR showing accretion problem in the Atchafalaya Basin.



Whiskey Bay/Atchafalaya River sediment guide weir

To keep bedload in the main channel away from the Basin's swamps, lakes and bayous. Sediment trap to capture and dispose sand back in channel.

Closure of Grand River to be replaced by reopening Tensas

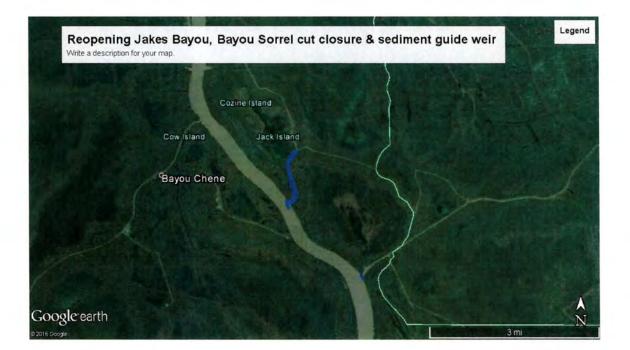
The realignment of Grand River in 1994 greatly increased sand and sediments in wetlands with significant negative effects to the hydrology of the floodplain, and ecological services. Sediment trap to be managed by disposing sand in channel.





Bayou Sorrel restoration. Bayou Sorrel cut closure, restoring Jakes Bayou, sediment guide weir and sediment trap.

The realignment and straightening of Bayou Sorrel and the closure of Jakes Bayou around 1969-1970 increased bedload and sediments moving into Bayou Sorrel with significant negative effects to the hydrology of the floodplain, and ecological services. This needs to be reversed. Sand should be guided to stay in the main channel of the river, and sand from the river into the bayou should thereby be reduced. Sediment trap should be managed by depositing sand back in channel.

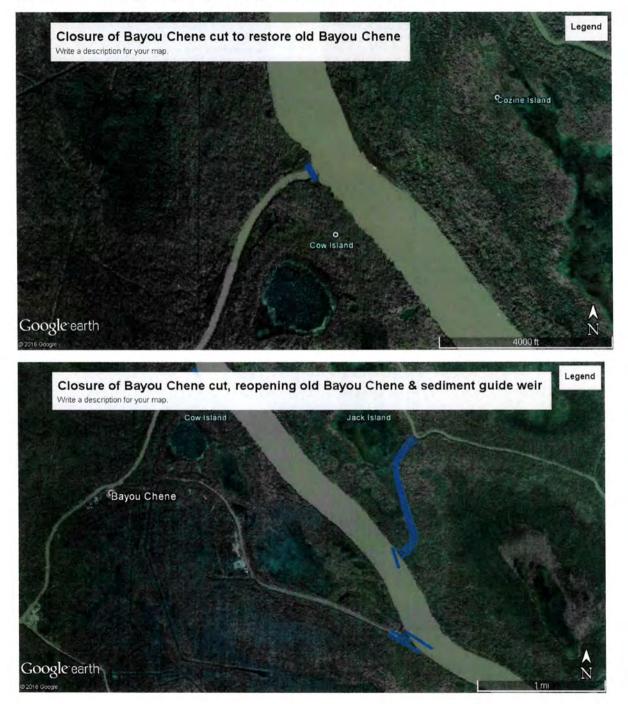






Bayou Chene restoration. Bayou Chene cut closure, restoring old Bayou Chene, sediment guide weir and sediment trap.

Bayou Chene was dammed around 1989, and flows from the river were diverted through a new straight cut at the end of a river bend. This increased sand distribution and sediments into the bayou with significant negative effects to the hydrology of the floodplain and ecological services. Sand should be guided to stay in the main river, and sand load from the river should be reduced. Sediment trap should be managed by depositing sand back in channel.





Coon Trap closure

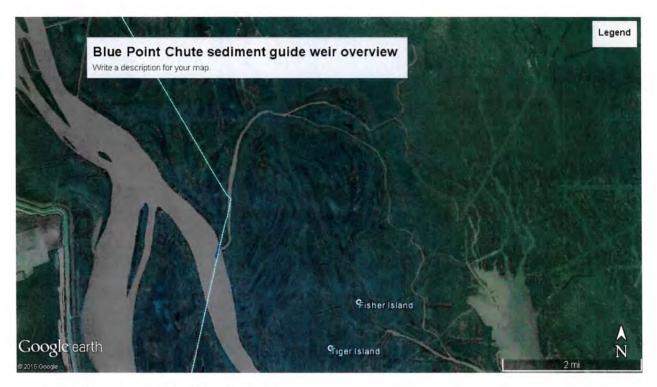
Coon trap was opened in the early 1990s serving as a direct route for sand and silt into different bayous and Grand Lake, which resulted in the silting of hundreds of acres of swamps. Coon Trap closed 2021. This closure needs to be maintained.



Blue point Chute sediment guide weir

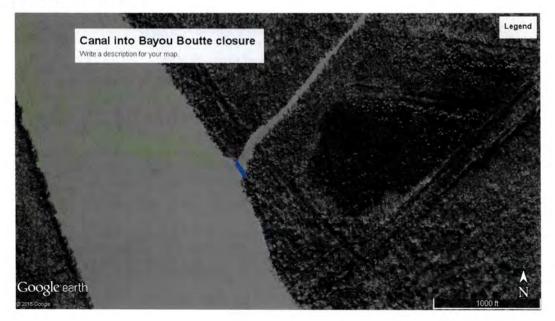
Sediments moving down Blue Point Chute have resulted in the rapid filling of open water and swamps. Sand should be guided to remain in the main Atchafalaya River channel. Sediment trap should be managed by depositing sand back in channel.

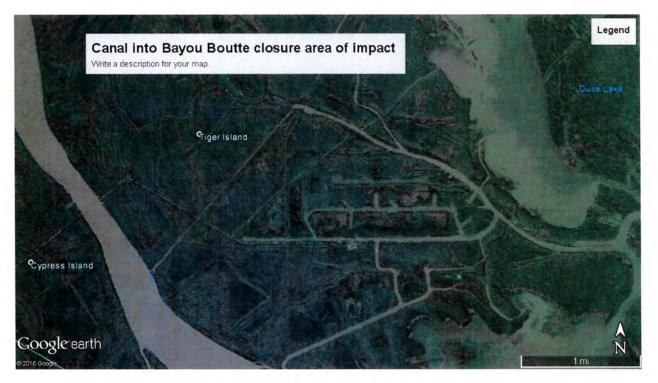




Canal into Bayou Boutte closure

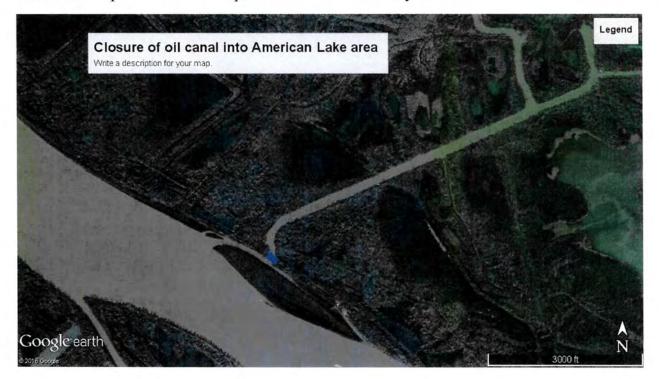
This canal brings vast quantities of sand and silt to Bayou Boutte and the Duck Lake area. Energy XXI made a major investment to restore Bayou Boutte; however, the effects of this restoration were temporary, and the bayou is again accumulating detrimental levels of silt. The canal provides a convenient short-cut, which some would prefer to maintain despite the damage it causes to the ecological health of the Basin. The area can be accessed through Blue Point Chute or American Pass.

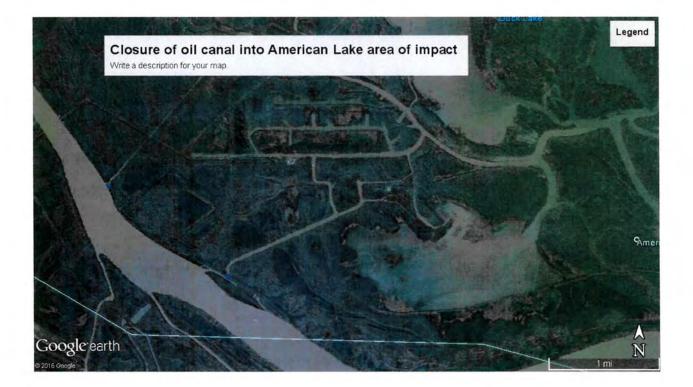




Closure of oil canal into American Lake area

This canal brings sediments into the Bayou Boutte-American Lake area, and must be closed to protect the floodplain and wetland ecosystems.





American Pass sediment protection weirs 1 & 2. Sediment traps

Sediments from the Atchafalaya River are seriously affecting American Pass and the Flat Lake area. These 2 sediment guide weirs should be built to alleviate this issue. Sediment traps should be managed by depositing sand back in channel.



Sand/sediment mining for Unlimited Material for Coastal Restoration

We are proposing to build one on two sediment transport pipelines from Lower Grand Lake/Six Mile Lake, Flat Lake and Lake Palourde above Morgan City, to strategic spots on the coast and suction dredge what used to be the bed on Grand Lake, Flat Lake and Lake Palourde to its original depths, transporting the sand and silt toward the coast to be used for coastal restoration. After Grand Lake is restored, the bed of Grand Lake will become a huge sediment trap where sand and silt can be mined forever, year after year. Enough sediment will be going through to keep the Atchafalaya Delta healthy and it will be a huge help for the Port of Morgan City and navigation by limiting or eliminating the need for dredging needed to keep the port open all year round.



Conclusion

We have something that no one else has, and that can never be re-created. Once it is gone, it is gone forever. The Atchafalaya Basin is of critical importance to the ecosystem and wildlife of the entire western hemisphere; and because of its beauty, ecological values, and ecosystem services including flood protection, it is a vital asset for future generations here in Louisiana and humanity as a whole. Louisiana should not be using public funds to fill valuable wetlands located far away from the coast. We are complaining about the loss of our coastal wetlands, to the detriment of the nation, and at the same time paying to destroy wetlands which should be protected for our children at all costs. Until sediments can be properly managed, DNR should immediately abandon any projects that will bring more sediments into open water and wetland ecosystems.

We have a vanishingly small, but nevertheless very real chance, of reversing the damage in the Basin, and finally doing what is right for this unparalleled natural resource. It is time that we commit ourselves to responsible stewardship as currently practiced by many other states managing resources of far less ecological and commercial value than found in our Atchafalaya Basin.

It is a nonsensical and egregious error that our state is creating projects which will bring more sediments into the Basin's wetlands, when it should be focused on protecting the Basin's abilities as a spillway for flood protection, and consequently preserving a critical ecosystem for migratory birds and other wildlife, for our livelihoods and our culture. Letter ID: 12 Name: Baer, Ted Org/Agency/Company: -

I support revisiting Bonnie Carrie Opening options, closing Mardi Gras Pass and not building the Mid-Breton Sound diversion as there are other mutually benefit options. My comments are expressed in a youtube video: https://youtube/watch?v=TAMmn7iLJ7B- Mid Breton Sound Diversion. [transcript from the youtube video: "Unintended consequences of from Mardi Gras Pass: lilies start to grow, obstruct waterways and kill marsh grass. This has never been a problem for over 100 years. This caused a loss of commercial species like shrimp and crab, and businesses are closing. Spillway opening caused dolphins died, algae blooms closed Miss. waters, tourists did not come, catches of speckled trout declined significantly, and jobs were lost in seconds. If Mid-Breton is built, it will be like having the Bonnet Carre spillway open all year. If built, the consequences in the Miss. Sound will be dire. There will be a loss of speckled trout and crab, loss of tourists and fishing business, and jobs will be lost."]

Letter ID: 181 Name: Bass, Joby Org/Agency/Company: -

It would be worth considering closing the road crossing the Old River Control Structure. One fertilizer truck changed the whole economy.

Letter ID: 169 Org/Agency/Company: Batture, LLC

I just want to make several comments. One is about the scale of the lower Mississippi River valley. What's being considered I think needs to be broadened slightly to include the entire historic flood plain of the river as it was before the levees. So that would include the Mermentau River. The Vermillion is now part of the study area. I think that needs to be broadened out a little bit more west to include

the Mermentau. They either bring water – just expand the scale slightly to include the historic range of the river where it influenced before. And then another comment would be when they are doing restoration projects, doing diversions, and particularly sediment diversions, that we really aggressively introduce sediment diversion as opposed to waiting for it to come down the road so it would be more effective. It could speed the process up, maybe use less water, you could operate at different times to alleviate, mitigate some of the ecological damages. And another thing is the fresh water Supply for New Orleans. The Corps is working on some things. I think with the salt water wedge that came up this year and last several years, we need a permanent solution in place instead of a contingency plan with emergency pumps. We need pipelines to deliver enough water to the greater New Orleans area to operate the city, whether it is fresh water from the river or not. And then some of the projects that are in the master plan, so control structures like the Bonnet Carre, for example. It's authorized for certain flood control. I think the authorization should be broadened so that there are structures that can be used for ecological restoration for moving the water back out of the system. One idea we put forth in the 2017 Louisiana Master Plan was to use the Bonnet Carre Spillway conduit as a method to get water over the lake and bring it over the land bridge. So there was a proposed diversion in the Bonnet Carre in 1965. They built the canal for the diversion. It got shut down because it was going to go right into the lake and some people were concerned about it impacting the lake. We could use that diversion channel that's already built, modify the structure slightly, still have it for flood control but actually have a structure already built to deliver sediment and river water onto the Maures Pas land bridge so you would get almost to the lake and then take a left. It's in the 2017 Master Plan. I don't remember the name of it. Ideas like that where you bring in the water and using it and get the landscape. I have some more but I'll write it down.

-Mark Schexnayder

Letter ID: 85 Org/Agency/Company: Bayou State Trail Association

This study should investigate the feasibility of implementing walking/biking paths on levees in the Mississippi River watershed. Many levees in the system already have walking paths, which offer numerous benefits to communities. The outdoor recreation and exercise opportunities these paths offer can go a long way in increasing the physical and mental health of nearby communities. Levees in more populated areas can serve as a non-motorized transportation avenue. These trails can be paved or unpaved and require little maintenance, but they are extremely popular where this infrastructure is currently in place. Levee trails offer communities a positive interaction with the River and the Army Corps' work, which may help build trust and reduce tension related to large-scale environmental management practices. These could be implemented across the management area, anywhere levees are used.

Letter ID: 32 Name: Bealmear, Paul Org/Agency/Company: -

The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944 and recommended by the Mississippi River Commission. Maintaining the 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commerical barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitve by making significant investments in their respective infrastructure.

Letter ID: 172 Name: Beninate, Frank Org/Agency/Company: -

My area of concern is the lower Mississippi because that's what I know the most about. And I'm trying to find out some things about the upper Mississippi, like locks and dams up there, if they are charged fees for use because I have a couple ideas that might work to get more sediment down here; kind of half-baked ideas but it might work. So I need to find out about costs, what does it cost for a barge to go from, let's say, St. Louis down to New Orleans. Also, what's the sediment loads now as compared to 50 years ago, 30 years ago, because, obviously, sediment is important to trying to preserve the 2100, 2200 square miles I think of land in Louisiana that's been lost. And the Barataria Basin wants to give us 120 square miles over 50 years. It's kind of a drop in the bucket. I'm not for carpet bombing. I'm for dedicated dredging. In fact, my siblings and I bought a piece of land on the other side of the river where the natural crevasse happened, where there was no levee. And people want to close it up because it's ruining the area over there but duck hunters are happy because it brought more fresh water and it started revegetating and growing and that's the natural scheme of things. My sister or somebody was saying, well, what happens in the summertime. Well, the river drops, and might get a little salt water back up into the river as has happened this year but just let it go and see what happens. You have so many different people that are either consumptive or nonconsumptive users of the areas on either side of the river. And some have, you know, man, it's got to go like this because everybody gets parochial about their little -- what they want to see happen with the lower end of the river. This is bringing memories here. When I was in high school, this goes way back, Belle Chasse used to be the place that people would evacuated to. Now, when you have a hurricane, everybody leaves and that's because you don't have the marsh protecting us. Some of the old timers used to call it the prairie because it was so big and extensive and it really mitigated the rising water and whatever. Now you get a strong south wind for two days and you have water up to the dock; whereas, before you had little or no action because of the tidal action. My next door neighbor had a camp below Myrtle Grove and it had been there, God, for probably a hundred years. And in the last years before Katrina and/or after Katrina, they had to drill holes in the floor for when the tide would come up and put the furniture on the cinder blocks. There's a lot of work to be done. But my point has always been we need to speed things up, speed up the process, streamline the process of saving whatever it is that we can save, not only down in South Louisiana but up the river too because, see, the last time -- when was the last time they had a flood, farmers were upset because they had sediment all in their fields, the ones bordering the river and some of the tributaries. They got something good. So that's my rambling. I think this is a good process.

Letter ID: 98 Name: Brenner, Charles Org/Agency/Company: -

The extensive engineering and floodway to the west of the Mississippi should be utilized by the Corps rather than further degrading Lake Pontchartrain, Lake Borgne and the Mississippi Sound with floodwaters.

Letter ID: 47 Name: Bristol, Brian Org/Agency/Company: -

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Letter ID: 36 Name: Brooks, Sim Org/Agency/Company: -

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Letter ID: 50 Name: Burchfield, Chance Org/Agency/Company: -

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Letter ID: 7 Name: Campbell, Carroll Org/Agency/Company: -

USACE must prioritize understanding impacts of current flood management to the Mississippi Sound Ecoystem and the Gulf of Mexico, and work creatively to find alternatives and, if possible, in cooperation with other stake holders, such as state and local governments and interested organizations.

<u>Dolphin mortality and Bonnet Carre Spillway Openings.</u> My greatest concern regarding the way the Mississippi River is managed is that apparently no account has been given to the way current flood management impacts the Mississippi Sound ecosystem. While the science is evolving on these questions, it appears that openings of the Bonnet-Carre spillway in recent years correlate with high dolphin mortality events. I refer you to "Examining the Effect of Salinity on Dolphin Mortality Using the LaGrangian Particle Tracking in a Hydrodymanic Model" by Mehrzhad Shahidzadehasadi, et al, published in the February 2024 issue of Estuarine, Coastal, and Shelf Science.

(https://www.sciencedirect.com/science/article/pii/S0272771423003955). Dr. Shahidzadehasadi, et al, have found in their study of the dolphin die-off event in the aftermath of the two Bonnet Carre spillway openings of 2019 that the dolphin deaths appear to be closely tied to severe reductions in salinity following the opening.

Oyster populations and Bonnet Carre Spillway Openings. The impacts to oyster populations in the Mississippi Sound is also the subject of study in the LMRCMS, as all indications are that lower salinity also results in high oyster mortality, according to the University of Southern Mississippi website at https://www.usm.edu/news/2023/release/bonnet-carre-spillway.php. Jessica Pruett and Stephanie Otts in their article "Mississippi's Oyster Journey from 'Seafood Capital of the World' to 21st Century Collapse, relate that "Researchers from the Mississippi Based RESTORE Act Center of Excellence (MBRACE) documented 100% oyster mortality by September 2019 on all reefs surveyed in the western Mississippi Sound. Almost no spat (baby oysters) settled between July and October. Oyster populations have yet to show signs of recovery," as of March, 2023. (Water Log, March, 2023, 43:13; https://masglp.olemiss.edu/waterlog/pdf/mar23/wl43.1 article1.pdf). Pruett and Ott describe how this has happened before: "In 1945, the Bonnet Carré Spillway was opened for the second time ever, resulting in up to 100% oyster mortality on western Mississippi Sound reefs. As a result, Congress authorized the U.S. Fish and Wildlife Service to appropriate \$3 million to Louisiana and Mississippi as reimbursement for damages to the oyster industry caused by the Spillway." Similar events occurred in 1973, 1979, and 1983 with likewise severe impacts to oyster populations ensuing (Ibid.).

Clearly current flood management practice must be modified in order to prevent future impacts to marine life in the Mississippi Sound, and the Lower Mississippi Comprehensive Management Study must include an investigation into how that will happen. USACE must explore how

diversions of Mississippi River water can improve outcomes when flooding risks arise after heavy rainfall. Dr. Ehab Meselhe of Tulane University Department of River-Coastal and Science Engineering has modeled how such diversions potentially could work. An article published on the Tulane.edu website, describes the potential solutions Dr. Meselhe defined. In his study,

...the first of the phases — uses digital models to simulate several diversions as possible flood control outlets. They include Ama North, Ama, Union and River Reintroduction in Lake Maurepas. Due to its small size, Maurepas had little impact but Ama North and Union, both individually and jointly, resulted in a noticeable reduction to the magnitude of the Bonnet Carré pulse.

Specifically, when the Ama North and Union diversions are operated jointly, the reduction in the flow volume released through the BCS ranged between 57 percent and 61 percent, while reducing the duration of the opening from 143 days to 96 days. (https://news.tulane.edu/pr/tulane-study-calls-alternatives-bonnet-carr%C3%A9-spillway-improve-river-maagement)

This serves as an example of the kinds of options that need to be considered in the LMRCMS. USACE must undertake such studies of its own, possibly working with state governments and interested organizations such as Environmental Defense Fund, which funded the Meselhe study, to come up with the best possible solutions to protect the Mississippi Sound ecosystem. Communication with other interested parties who have ideas for solutions can only strengthen the outcome of the Study. Gulf of Mexico Alliance, the Nature Conservancy, Lake Pontchartrain Basin Foundation, the National Wildlife Federation, Coalition to Restore Coastal Louisiana, National Audubon Society, Audubon Society Delta Chapter, and the Mississippi-Alabama Seagrant Consortium are all organizations that take an interest in the health of the Gulf of Mexico marine ecosystem. Some relevant governmental organizations are the Mississippi Department of Marine Resources, the Mississippi Commission on Marine Resources, and Mississippi Department of Wildlife, Fisheries and Parks.

In consultation with state and local organizations and other interested parties, USACE must explore ways to restore the damage done to the Mississippi Sound and the Gulf of Mexico and ways to fund that restoration. Nothing is more fundamental than the environment, as it ultimately is what sustains human life and well-being, and every effort must be made to prevent future damage to the Mississippi Sound and Gulf of Mexico ecosystem and to restore past damage. Therefore, USACE must likewise undertake as part of this study the manner in which USACE/the Federal Government will restore the health of the Mississippi Sound and Gulf of Mexico in conjunction with relevant agencies.

<u>USACE</u> must address the problem of massive amounts of pollutants in Mississippi's floodwaters, as these pollutants' flooding of the mouth of the Mississippi River contribute to the dead zone that forms there yearly. A Nature Conservancy article, "Gulf of Mexico Dead Zone," found here: https://www.nature.org/en-us/about-us/where-we-work/priority-landscapes/gulfofmexico/stories-in-the-gulf-of-mexico/gulf-of-mexico-dead-zone/ explains the way nutrients from farm land, houses, and other land use are flushed by rainwater into the Mississippi River from its upper reaches and tributaries. The chemicals provide sustenance for massive algae blooms that then induce hypoxia when the algae dies. Next, "fish and other commercial species usually

move out to sea in order to avoid the dead zone, fishermen are forced to travel farther from land—and spend more time and money—to make their catches, adding stress to an industry already hurt by hurricanes and the oil spill. Those species that can't move—or can't move fast enough—die off, leading to the name 'dead zone.'" The article cites NOAA's information that the Dead Zone costs Coastal business \$82,000,000 per year in lost revenue.

As a part of the scope of this Study, USACE, Congress, and the federal government must find ways to promote coordination among state and federal regulatory agencies to find ways to reduce the levels of chemicals winding up in the river and flowing downstream into the Gulf. USACE should study how reforestation of the banks of the Mississippi River and its tributaries could protect the river from the inflow of chemicals.

Farming practices are responsible in large part for the flow of pollution into the Gulf; therefore the LMRCMS must review farming methods. Are there alternatives to the way agriculture and animal husbandry are practiced now that could be promoted through grants and improved regulation? For example, is there a way to promote or require less damaging fertilizers, or less damaging or more sparing means of application? Could current animal husbandry practices be devolved in such a way that Confined Animal Feeding Operations no longer predominate, but instead cattle are grown, harvested, and sold locally as they were in times past, thereby removing the concentrations of manure and urea CAFO's create?

Non-point source pollution from human city and suburban infrastructure also contributes to the Dead Zone predicament. The LMRCMS must undertake to review to what extent nonpoint source pollution is contributing and discover ways municipalities, counties, and states can work together to reduce run-off. Can regulation be changed in the interest of better development practices? Can Low-Impact Development (LID) and Conservation Development become required practices? For more information on LID and Conservation Development, I refer you to Mississippi Department of Environmental Quality's Managing Stormwater for Healthy Watersheds in Coastal Mississippi, published in 2023, and which can be found here: https://www.mdeq.ms.gov/wp-content/uploads/2023/11/MDEQ-Watershed-Protection-Guidance_May-24-2023-HQ-print.pdf. Is there any way USACE, Congress, and State and local regulatory bodies can coordinate in the interest of achieving better stormwater management outcomes in the interest of protection the Mississippi River and the Gulf of Mexico, and the Mississippi Sound? The LMRCMS should investigate this possibility.

USACE must study methods to reconnect rivers to their floodplains, as advised by the Nature Conservancy here: https://www.nature.org/en-us/about-us/where-we-work/prioritylandscapes/gulf-of-mexico/stories-in-the-gulf-of-mexico/gulf-of-mexico-dead-zone/. Diverting water to natural floodplains, wetlands, and other riparian areas will remove flooding pressure from inhabited areas. Meanwhile, soaking flood waters into the soil will remove pollution from them. This LMRCMS must focus on ways to work with nature rather than relying entirely on the human-built infrastructure in the interest of saving taxpayer money, restoring lost habitat and promoting human safety and well-being.

Finally, the LMRCMS must consider the role of Climate Change in the current scenario. It is clear that increased temperatures have led to increased precipitation and melting of mountain snow pack, thus increasing the amount of freshwater in the Mississippi and thereby increasing the need for protection for flooding. The LMRCMS must define the process by which this is happening and how it results in ecological devastation that has consequences for the economy and also human well-being, and present it in a way that is intelligible to members of Congress so that they can take further action to reduce carbon emissions.

Letter ID: 9 Org/Agency/Company: Canal Barge

I enthusiastically support the LMR Comprehensive Management Study. My questions are: Will reducing greenhouse gas emissions for the maritime transportation users of the LMR through additional dredging to allow for additional tons per barge and/or dredging and/or other measures to reduce traffic delay be a consideration in the study? Thanks in advance, Doug Downing

Letter ID: 88 Org/Agency/Company: Canal Barge Company, Inc.

Maintaining a 12ft navigation channel is vital to the efficient movement of goods by water including key grain exports. It also brings climate/environmental benefits as it allows more goods to move by water and remove freight from truck and rail which means reduced emissions, fuel burn, and spills.

Southeast LA needs a long term solution to address saltwater intrusion near municipal water intakes.

Maintain close coordination with the State of LA and its coastal master plan to ensure that selected projects are implemented with minimal delays.

Review and revise as needed the overlapping authorities that govern the management of flows throughout the MS River system to best maintain a balance between navigation, flood control, ecological services, etc. Everything from Old River structure to MO River manual should be on the table. Communication and coordination among all stakeholders is vital during periods of high and low water.

Letter ID: 100 Name: Cheramie, Denna Org/Agency/Company: -

Concerned about serious loss of wetlands in south Louisiana

Letter ID: 26 Org/Agency/Company: City of Horn Lake

How can Sackett v. EPA (5/25/2023) Supreme Court case (CWA: WOTUS) impact MR&T management?

Letter ID: 112 Org/Agency/Company: City of New Orleans

There needs to be a comprehensive study on water quality and pollution up and down the Mississippi River, with particular focus on how industries treat the river as a sink for pollution, and the implications of this pollution on marginalized communities. The pollution that New Orleans Sewerage and Water Board has to clean for drinking water exists from industry upstream. The dead zone in the Gulf of Mexico exists because of excess nitrate and fertilizer runoff from the Midwest tributaries and headwaters of the Mississippi River. How can municipalities connected up and down the Mississippi River work together to reduce physical and liquid wastes that enter the river. I think a Mississippi River-wide circular economy master plan should be implemented to ensure river-adjacent municipalities adhere to common sense policies that reduce waste (via single use plastic bans, bottle bills, mandatory composting, skip the stuff bills, reuse incentives, etc) at its source to prevent it downstream.

Letter ID: 229 Org/Agency/Company: City of New Orleans

On behalf of the City of New Orleans, Louisiana I respectfully submit the following comments for consideration and inclusion in the scope of work for the Lower Mississippi River Comprehensive Study (the Study).

The Mississippi River is the water supply for the City of New Orleans and surrounding communities. During the summer of 2023, low-flow conditions in the river produced one of the most dramatic salt wedge events on record and threatened the resilience of the Greater New Orleans region's drinking water supply. The study should consider this matter under the USACE Water Supply mission as an urgent issue of Environmental Justice. While saltwater intrusion events have naturally occurred in the past, since the navigation channel deepening was completed there has been an annual salt wedge event. There is an urgent need for data collection and model development to develop a risk assessment for drinking water resilience that considers the impacts of navigation channel maintenance, sea level rise, changing precipitation patterns, and upstream river management on saltwater intrusion and water supply resilience for the Greater New Orleans region. The study should investigate alternative actions that USACE could take to mitigate risk to water supply and should include recommendations for any further investigations or new authorities for USACE to support drinking water resilience for our community.

New Orleans is a coastal city and is on the front lines of climate change impacts from sea level rise and coastal wetland loss. The Study should identify Ecosystem and Environmental restoration opportunities related to the USACE's navigation channel maintenance mission. Specifically, the Study should identify opportunities for Beneficial Use of Dredged Material (BUDMAT), including in areas where suspension dredging is typically used. The Study should calculate incremental savings from accomplishing multiple functions through BUDMAT. A key example of this opportunity is the Bayou Bienvenue restoration proposal, in which a proposed dedicated pipeline from the river would restore sediment-starved wetlands and accomplish multiple benefits that align across Corps mission areas.

Letter ID: 92 Name: Stuckwisch Wong, Courtney Org/Agency/Company: City of New Orleans, Office of Economic Development

In the fall of 2023, the threat of saltwater intrusion in New Orleans' water supply presented a major challenge to businesses of all kinds. We were fortunate that the saltwater wedge did not reach our parish; however, we know that this threat will continue in the future and it would be extremely disruptive. We request that you study solutions to protect our municipal water supply including a desalination facility that could serve the greater New Orleans region.

Letter ID: 101 Name: Clulee, Mary Org/Agency/Company: -

south Louisiana is basically the flood plain of central United States. Any project should mimic the activity of a flood plain with mulitple openings to provide for the disbursement of fresh water and sediment to maintain the healthy continuation of the vegetation and habitat of south Louisiana--but in a way to maintain the continued opportunity of river traffic.

Letter ID: 21 Name: Colclasure, Chris Org/Agency/Company: -

Do we plan to go into groundwater supply and recharge?

Letter ID: 184 Name: Cordell, Martha Org/Agency/Company: -

So one of my concerns is how the work of the Corps on this study over the next couple of years is going to insulate itself from political pressures at the state and federal level, because that's gonna come. So I just want to make sure that the State of Mississippi, you know, is protected from the bigger dogs, the bigger state, the bigger money, the bigger economies, and that, you know, that those factors are not going to be impacting their recommendations and their final report.

Letter ID: 73 Name: Coughlin, Darrel Org/Agency/Company: -

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Letter ID: 178 Name: Cvitanovich, Dave Org/Agency/Company: -

I started when I was very young. I own 125,000 acres of marshes in this area. I've been in the oyster business all of my life and I was a pilot for the oil rigs that go through the lease through the areas and all. My name is Dave Cvitanovich. I'm a marsh land owner and I've been in the oyster business since 1973. Ultimately, I became a consultant for the oil companies in the exploration in the oyster areas throughout south Louisiana. The Neptune Pass area, light 24, on the east side of the Mississippi River across the river from Buras, this land has been there forever. Ultimately, hurricanes have destroyed the levee over there and water started going through there. There are multiple pipelines that were laid in the 50s and 60s that transport oil and petrochemical products there. These pipelines were laid in marsh with probably 10- to 12-foot of cover in the early 50s and 60s. Well, since Neptune Pass has opened up, Chet Morrison contractors from Houma is doing to work for one of these companies right now, the pipeline is 60 feet off the bottom in the water. This pipeline was laid on what was marsh way back in the 50s and 60s. This is a catastrophe waiting to happen. One these pipelines transports 28,000 barrels of oil a day. Like I said, 1960 these lines were laid whether it was Shell Oil, Gulf Oil and United Gas. There are three pipelines paralleling the river. You have multiple breaks. The currents have gotten out of the river, into the marsh destroying the existing marsh. That's what's keeping the water out of the Mississippi River going the shortest way to the sea. It's just changed the environment tremendously. We're losing more land with the rapid water that was coming out of the river thus losing the water going into the channel of the river. Thank you.

Letter ID: 1 Name: Daspit, Scott Org/Agency/Company: -

I feel we should do everything possible to start regaining sediment deposits. I've been commercial fishing my entire life and I'm totally disappointed in the results of the current set up of the Mississippi River!

Letter ID: 166 Name: Day, John Org/Agency/Company: -

I just want to make a statement. I'm from Pierre Part, Louisiana and I moved there in the '80s late '80s, early '90s. I built a house and I never had issues with water, and a lot of that backwater seems to be backing into Pierre Part. I think it's coming up through Vermilion. I think some type of structure needs to handle that water. You're talking about handling everything west, but that water that they're handling west is ending up east and ending up backing up into Pierre Part in the drainage shed. I just want to see if y'all could address that in your study — five year study. That's all. Letter ID: 58 Name: Deering, Brian Org/Agency/Company: -

The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944 and recommended by the Mississippi River Commission. Maintaining the 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commerical barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitve by making significant investments in their respective infrastructure.

Letter ID: 164 Name: DeGraff, MJ Org/Agency/Company: -

Does the Corps own any part of Devil's Island, which is in the Mississippi River a bit north of Cape Girardeau, Missouri? Several maps show the northern tip of the island is owned by "USA", and other federal agencies (Interior and USDA) say the land is not theirs. The northern part of the island is a part of Union County, Illinois. If you aren't the appropriate person to answer this question, I would appreciate it if you could find out who is and let me know. Thank you for your help.

Letter ID: 179 Org/Agency/Company: Delta Discovery Tours

My name is Ritchie Blink. I operate Delta Discovery Tours. It's an ecotourism outfitter located in Empire, Louisiana. I'm on the water probably about 250 days annually and I bring scientists, bird watchers, other professionals out into the Mississippi River delta. What's going on, the delta has changed an incredible amount just over my lifetime with reductions in flows due to Mardi Gras pass and Neptune Pass. Because of this reduction in flow, what's going on is there's sediment that's accreting in the shipping channel. And in the area of Pilot Town between West Bay -- the West Bay Diversion and the head of passes, some of the dredging burden could be alleviated by creating a large sand bar at that location. A sand bar that would take the place of the Pilot Town Anchorage would force river power into the shipping channel, reducing shoaling. An additional boat travel lane could be built along the west side of the river which would accommodate smaller boat traffic and make the river safer for all users. The next part of my comment is going to center around Neptune Pass. Neptune Pass has developed since 2019. It's creating a subdelta that is about 11 square miles in size currently. There are many sand bars that are starting to break the surface in that area. Bay Denise in the interior of the marsh in that area is effectively filled in from this new development and so there's an incredible amount of ecological good that's happened as a result of Neptune Pass' development. One mechanism that the Corps could use to help slow down the flow in Neptune Pass and also get rid of dredged spoil before it needs to be handled again in the subdelta is creating a hopper dredge disposal area at the confluence of the Mississippi and Neptune Pass. This would allow sediment to work its way into the new delta helping to plug up the flow, slowing down the flow, get river power back up for shipping. The proposed closure at Neptune Pass could be further optimized by creating a very deep spot down to the channel of the river and deleting flow in the higher part of the water column. Mardi Gras Pass is another new distributary of the Mississippi. There's been many many gains there in regard to marsh that's been created. Bays are filling in. Bayous are constricting. New marshes are arising from the bottom of bays. Already there's been incredible amount of land loss in that area before Mardi Gras pass opened up and it's serving to fill in that area and create a robust wetland buffer around the shipping channel. The Corps of Engineers talk a lot about synergies with their projects and the development of Neptune Pass and Mardi Gras pass are definitely synergistic to protecting the levee system and the shipping channel. So this comment centers around some of the point bars in the Mississippi in the stretch between, say, like mile marker 60 and the head of 19 passes. What's happening, because there's a reduction in the amount of stream flow, also we're on the heels of two low river years, the point bars are extending further towards the center of the river and so there's some shoaling there, restricting or helping those sand bars out by restricting the flow there by adding more sand to them, possibly bringing them above the surface would constrict the width of the river and increase flow in the shipping channel. This would help reduce some of the dredging burden. It would keep the shipping channel deeper so ships could keep their speed and such. Also, this might be a question but it's something that needs to be considered by the Corps. In regard to the tradeoffs that need to be analyzed for this study, there's the opportunity through Neptune Pass and Mardi Gras pass to create many tens of thousands of acres of wetlands in the relatively short period of time, maybe 20 years. Concepts like one-way navigation in turns of the river should be considered. If the river pilots simply had to make a passing arrangement, maybe half-hour ahead of time instead of

five or ten minutes ahead of time, there could be many many tens of thousands of acres gained by reducing the river channel in key stretches. This may need to be looked at further. I would suggest maybe doing some modeling around this, getting some input from the pilots. Of course, they are going to be very resistant. They want their job to be as easy as possible but they are also paid \$600,000 annually and can make some concessions for the sake of a healthy coast and everybody's protection. In regard to salt water infiltrating the drinking water supply, there's a technical measures that could be taken. For instance, permanent reverse osmosis machines could be added to the municipal water intakes in Plaquemines Parish or a regional reverse osmosis machinery could be added upriver somewhere or emergency reverse osmosis machines on barges could be available to municipalities that need them. FEMA could help pay for some of that cost.

Letter ID: 122 Org/Agency/Company: Delta Wildlife and Forestry Inc.

My concern is the completion of the of the Yazoo Backwater Pump Project. In the past there has been back water events that has devastated the timber, wildlife and farming in the back water area. By finishing the Yazoo Backwater Pump Project it will greatly enhance the future of the back water are.

Letter ID: 102 Name: Difatta, Phillip Org/Agency/Company: -

USACE please stop putting more freshwater into the adjacent estuaries of the mouth of the Mississippi River. You have three real main objectives dealing with the Mississippi River, 1 reduce hurricane surge damage 2 enable and support vessel traffic and commerce along the River 3 minimize the negative impact on the fisheries industries in the Coastal and Inland waters.

So first off, plug up the UNCONTROLLED outflows of the River, Mardi Gras Pass and Neptune Pass. Do not build more outflows such as Mid Breton and Mid B Diversions. By plugging the uncontrolled outflows, you will increase the speed of river flow and minimize the amount of sediment drop in the river that causes so much more very expensive dredging to take place and to keep the deeper draft ships ability to navigate the river. Next, the recreational and commercial fishing industries can come back into operation as the salinity to brackish waters return to these estuaries.

Letter ID: 161 Org/Agency/Company: Dredge the Vermillion

I'm a lawyer, still licensed — not practicing much, but I am on the board of Dredge the Vermilion with Dave Dixon, who's the president, and Harold, who is basically our — one of our — knows more about the Teche-Vermilion watershed probably than anybody I know. He's been fishing and canoeing and paddling up and down these rivers since he was 15-years-old, and he's about 85 now, so he knows a lot. He knows things on the ground. I've learned very vast amounts of very accurate information.

Our organization, we collect data from NOAA and the Corps and from public sources, but we don't do engineering models to try to figure out what's going to happen. What we do is we go around and look at things during storms, after storms, before storms. We look at what's happened to try and figure out what's going to happen, because we really -- we think models have a very limited use.

But anyway, the main point that I wanted to make in talking here was that we've got this thing called the Teche-Vermilion Fresh Water District that pumps thousands and thousands of gallons of water down Bayou Courtableau. It goes to Krotz Springs, then it goes to Arnaudville, where it splits off into the Teche and the Vermilion River. There's a dam on the Teche called the Keystone Dam, so the main effect of that is that two-thirds of the water, it comes to Arnaudville where the Teche splits into the Teche and the Vermilion, goes down the Vermilion and not the Teche. And if it's a heavy rainfall event and water's coming down from the swamps and wetlands above us in St. Landry, Evangeline, Avoyelles Parish, that water is forced through Lafayette, right through the middle of town. I experienced that firsthand in 2016 when my house flooded, and it's a nice house. I don't want to brag, but it was an expensive house and I had three kids living with me, and I got kicked out of there. I was forced to, you know, evacuate for six months, and I was prepared to -- unlike a lot of people in Lafayette, I was fortunate because I had assets and means to refurbish my house and fix it while I was waiting for my insurance money, because I did have flood insurance. At any rate, so what we're advocating, one thing that I want to make clear is we want the Corps of Engineers, Mississippi River Commission -whoever says grace over the operating manual for the Teche-Vermilion Fresh Water District, to put it in their operations manual that they will have one of their responsibilities to try to do everything they can do to lower water levels on Bayou Courtableau in anticipation of a weather event like a hurricane or a big rain storm, which is what we had in 2016, because now, they talk like they do the flood and we call up and ask them to shut the gates down, we -- during Hurricane Barry, we had to literally raise all kind of hell with them just to get them to lower the pool stages on the Courtableau. They did and it worked, so -- but they still -- for some reason, they're very reticent -- I don't know why -- to write that into their operations manual, and it needs to happen. Well, it's important because it'll have a very positive effect. They did it on an ad hoc basis before and it worked wonderfully. Just one of the many things you can do.

Flooding and water, especially flooding, is an incremental thing, and there are all sorts of features in the Teche-Vermilion watershed that need to be looked at to try and — and actions. Each one will have its own mitigating effect or benefit, depending on the type of weather event that you had, and all of those things need to be addressed. So anyway, I also want to make

the point that Lafayette — the Teche-Vermilion Fresh Water District, Mr. Sagrera's organization, is funded by parishes. It's funded by Lafayette Parish, I think Vermilion Parish, St. Martin Parish. I don't think St. Landry contributes any money, but 60 percent of the money that he gets to run that thing comes from Lafayette Parish — the taxpayers in Lafayette Parish. Probably 90 percent of the benefit flows to the taxpayers in Vermilion Parish. And there's some people in Lafayette that are pretty unhappy about the fact that he gets all the money, Vermilion Parish gets all the benefit, and we, arguably, get hurt by it. So anyway, things need to change and that's one of the things that need to change. Thank you very much. —Bob Hammock

Letter ID: 160 Org/Agency/Company: Dredge the Vermillion

My name is Dave Dixon of Lafayette, Louisiana. I'm president of Dredge the Vermilion, a nonprofit dedicated to flood management in the Teche-Vermilion fresh water -- Teche-Vermilion watershed. I'm also a commissioner on the Bayou Vermilion District in Lafayette.

The issues I have identified here are upstream of Lafayette at Bayou Courtableau. Bayou Courtableau is the main drain for all of Central Louisiana that would drain into the — naturally drain into the Atchafalaya River. That drain was blocked entirely when the levee system was built after the 1927 Flood and they built the West Atchafalaya flood way. The intent was to route the water down to Bayou Pitt, now called Bayou Amy, down to Lake Fausse Pointe, which is on the land side of the west guide levee, south of there — greatly south of there. Well, it didn't work as intended. There were major issues — backup issues that pushed water back toward Lafayette and flooded the Vermilion River at a level seven feet higher than the 2016 major flood. It was devastating to the communities along the Vermilion River, including Abbeville and Lafayette — the major communities there. Well, three years after that flood of 1940, after blocking Bayou Courtableau and trying to run the water down toward Lake Fausse Pointe, there was a second major flood that was over 16 feet as recorded at the Surrey Street gauge in Lafayette. And then four years after that, there was a third major flood over 16 feet.

Well, the Corps of Engineers did step up to action and they put a gate there, which was completed in '57 where they dredged the Vermilion River in the early '50s, and they quit working on drainage north of there that flowed into Bayou Courtableau, Bayou Boeuf, and Bayou Cocodrie, which formed together north of Washington, Louisiana and formed Bayou Courtableau. So Bayou Courtableau is disconnected. It's still disconnected to the Atchafalaya River entirely. If that connection would have been made, if there would be a gate and the connection would have been restored, the river was only at nine feet during the 2016 flood and the land side got to 22 or better. So we've been able to dump the entire flood from Central Louisiana into the Atchafalaya River at that time, if that connection would have been there — the natural connection; okay?

All right, let's move on to the outflow of the Bayou Courtableau gate. During 2020, there were two hurricanes that hit Lake Charles and they came up through Central Louisiana, and they caused backwater flooding all the way to Alexandria. In conjunction with the levee board in Alexandria — the Red River and Bayou Boeuf Levee Board — we conducted an investigation, collected data that we sent to the Corps of Engineers. We sent it to Mr. Jeff Varisco, who is our responsible party for our watershed at the time, saying that, look, in our analysis, we have some extreme restrictions south of the outfall there, of which one of them we knew about. We knew about south of the river outfall, there was a pipeline that was put in in the 1960s called the Dixie Pipeline, and at the time it was installed in the early 60s, they dug a canal, dropped the pipe in there, and they didn't backfill the canal. They put some fill on top of the pipe, but they left the canal, they left the spoil banks, and they all grew up; okay? So since then, we've gotten CPRA — State of Louisiana Coastal Protection Agency — working with some funding from the state. We've regapped that pipeline spoil banks, which should have never been there. And where the Corps fell down on this is that they didn't enforce the restrictions in the permit that the canal be backfilled, or the trench for the pipeline be backfilled. It was left open

for whatever reason.

Anyway, so let's move on to a couple other issues here. During Hurricane Barry, we had put together an informal flood management team prior to Hurricane Barry that lowered, or requested lowering of the Bayou Courtableau pool stage by two feet prior to the impending hurricane hitting the area, and we were successful in getting the Colonel at the time in New Orleans to agree to that, even though the procedures written for the Teche-Vermilion Fresh Water District said to maintain a pool stage of 17.5. We reduced it to 15.5 over a period of a number of days. It took a lot longer than several days because the Basin was high, okay, and we couldn't open the gates and run water back to the Basin. But we managed to get it down a couple feet, the hurricane came, and no one flooded. It proved proof of concept of lowering that pool stage in Bayou Courtableau greatly enhanced the ability to manage a flood. Bayou Courtableau has about four major natural overflow swamps -- the Cocodrie Bluff Swamp, the Thistlewaite Swamp, the Darbonne Swamp, and there's one more. I have to think about the name of it. I don't remember it right now, but anyway, it was a successful operation. Flash forward to another hurricane threat and change of colonels in New Orleans to Colonel Jones, who's there now, and he refused to allow the preemptive lowering of the pool stage of Bayou Courtableau, which is a ridiculous position to take because the written procedures for Bayou Courtableau calls for a lowering of the pool stage during the month of January and December because of anticipated great rains to allow the room for those rains. Well, a tropical storm or hurricane or a stalled front is the same sort of thing as a lot of anticipated rain, so why should we not lower this thing? We need to use common sense. Just because it's written in a book you do this doesn't make a lot of sense. So you've got people that are so risk adverse in making these decisions that hurt, damage the public. So with that, I'll conclude my remarks.

Letter ID: 40 Name: Duvall, Jerry Org/Agency/Company: -

The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944 and recommended by the Mississippi River Commission. Maintaining the 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commercial barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitve by making significant investments in their respective infrastructure.

Letter ID: 188 Name: Elot, Rafferty Org/Agency/Company: -

With the MR and T, do you plan on expanding /changing the footprint of the Mississippi to include other communities?

Letter ID: 147 Org/Agency/Company: Environmental Defense Fund

On behalf of our over two million members and supporters, Environmental Defense Fund (EDF) appreciates the opportunity to provide comments for the scoping of the U.S. Army Corps of Engineers' (Corps) Lower Mississippi River Comprehensive Management Study (LMRCMS). The LMRCMS provides an unprecedented opportunity to establish the foundation for a sustainable and contemporary river system.

EDF is a leading international, non-partisan, nonprofit organization dedicated to protecting human health and the environment by effectively applying science, economics, law, and innovative private-sector partnerships. As environmental advocates with direct experience in coastal resilience activities, large-scale ecosystem restoration, and coordinated governance, we are pleased to provide comments on critical overarching subjects that both align with the authorized intent of the LMRCMS and would make the most of the potential that this study presents for a transformational reassessment of the status quo. The following includes our comments and suggestions for achieving this enhanced and improved vision for the management of the Lower Mississippi River to achieve multiple benefits in the decades to come.

1. Explore and capitalize on opportunities to break down mission area siloes to achieve multi-objective, systemic benefits.

The legislative language authorizing the LMRCMS sets an ambitious vision for reimagining how the Corps and partners manage the Lower Mississippi River. The LMRCMS provides an opportunity to consider and recommend a transformative approach to river management that breaks down the existing Corps mission area silos between navigation, flood risk reduction, and ecosystem restoration. It further gives the Corps an opportunity to fully embrace an expanded view of the system, and to revise its traditional mission emphasis upon navigation and flood control, thereby allowing those systems to harmonize with restoration for a healthier, sustainable Lower Mississippi River natural and sociopolitical system. We urge the Study team to utilize a systemic and multi-objective approach in their analysis that recognizes the potential synergies between mission areas and specific projects – and the need to manage trade-offs. Actions and projects that produce multiple benefits for people and ecosystems should be prioritized and advanced (e.g., floodplain reconnection projects can simultaneously enhance flood protection while restoring habitat for fish and wildlife).

Critically, USACE should not limit itself during this study to consideration of already conceptualized place-based projects that are brought forward by the districts or stakeholders. Some of the most promising opportunities to improve the health and resilience of the system are likely not yet conceptualized projects; this should not deter their evaluation. The Corps has a unique opportunity and responsibility to take a holistic view of the system and identify areas of opportunity to modernize the system and achieve multiple sustainable benefits.

2. Utilize the best available science for data analysis and decision-making.

In planning for the future operation of the MR&T system, it will be extremely important to

account for the predicted effects of climate change on river flows. We urge the Study team to take advantage of the many robust climate and hydrologic models and data sets developed by other Federal agencies, States, academic institutions, and other stakeholders as explicitly authorized by the Study's legislative language (Implementation Guidance for WRDA 2020 Section 213 (b)). In addition, the LMRCMS provides an opportunity to systematically assess the Corps' internal modeling capabilities and relevant data and reports to assist in ensuring the use of state-of-the-art models and the best available data. The Corps should consider assessing models and materials developed by (and further partnering with, where possible) the Mississippi River Geomorphology and Potamology program, the Institute for Water Resources Hydrologic Engineering Center, Engineering with Nature (EWN), and the Engineering Research and Development Center (ERDC).

We urge the Study team to incorporate the "best available actionable science on both current and future risk when planning proposed water resources investments" as detailed in the proposed Principles, Rules, and Guidelines Agency Specific Procedures (PR&G ASPs) on Page 12078.

Notably, several peer-reviewed studies123 (and the MRP&G Study No. 28) have shown that precipitation – the most important driver of river floods – will increase in amount and intensity in the coming decades, especially after 2040 and especially in the spring season. We recommend that the Corps use climate data from the most recent (CMIP6) climate models4 to predict future flood volumes, and design new projects in accordance with these predictions.

Further, recognizing that there are uncertainties around the future trajectory of greenhouse gas emissions and therefore changes in climate variables, we strongly encourage the Corps to quantify the levels of uncertainty associated with project designs. This will help stakeholders form a more realistic understanding of the feasible flood protection levels.

3. Consider the Lower Mississippi River as a socio-ecological system.

It will be important for the Corps to consider the Lower Mississippi River as an interconnected socio-ecological system to be managed as a whole, rather than a disjunct assortment of sites to be treated through individual projects. We encourage the Corps to adopt a tiered, cross-scale approach, in which basin-scale goals are translated first into sub-basin scale objectives and then into site-level actions. The alternative approach, of identifying site-level actions first and aggregating those across the Study area, risks failing to achieve the basin-level goals.

We encourage the Corps to consider the Lower Mississippi River as this socio-ecological system, recognizing that many of the challenges – and opportunities – to better manage the River are found at the intersection of the social and ecological components of the system with the existing (engineered) infrastructure. This means recognizing the interconnectedness between ecological and social components, and how interventions might influence outcomes in unanticipated ways across the Mississippi River basin. The proposed guidance set forth in the PR&G ASPs expands on the maximization of net public benefits that encompasses three goals: economic, environmental, and social (p. 12072). The proposed guidance states that there is no hierarchy among these goals, rather they are interrelated and should be considered equally. In this way, actionable recommendations (interventions) could be seen as ways of establishing positive feedback loops in relations between elements of the system. For example, engineered solutions

could solve an immediate problem in one place, but create another in another place. In another way, emerging social conditions could render certain management interventions impractical.

We urge the Corps to carefully consider multiple options for dealing with the problem of aging infrastructure such as levees, as there is a risk that simply hardening these structures (for example by raising levee height) further locks in historic and current inequities. Instead, we urge the Corps to examine where existing infrastructure creates disproportionate burdens on those communities least able to bear them, and to explore alternatives that seek to accomplish and balance desired social, economic, and ecological goals.

We further urge the Corps to utilize a systemic, inclusive, and integrated approach to scientific inquiry across the study area, moving beyond confining the conceptualization of actions and projects within the siloes of mission areas and beyond disconnected, discrete project areas. All interventions will have potential equity and justice implications that should be deeply considered along with potentially impacted people prior to any intervention taking place. One way to understand and address the social equity aspects of the system is to more deeply engage the full diversity of potentially affected and concerned communities in the beginning of the study, particularly those who might be most adversely affected. Deeper public engagement will require more investment in and design of new and different kinds of engagement processes.

It is important to note we appreciate your efforts to increase and extend accessibility to the scoping process throughout the project area to affected communities, many of which are disadvantaged. Through our networks and partnerships with other local and national NGOs and community organizations, we would like to help you continue to reach stakeholders on this critical study consideration; please let us know how we can best assist in these efforts.

4. Realize the value of nature-based solutions and natural infrastructure to reduce risk for vulnerable populations.

We believe that a fundamental guiding principle for the Study is to identify opportunities to restore hydrologic connections between the river, its floodplains, and its wetlands. Doing so can achieve flood risk reduction at a lower cost and greater public benefit (e.g. provision of water quality improvement, fish and wildlife habitat) than engineered solutions alone. Of note, included in Page 12072 of the proposed rule for the PR&G ASPs, "In some cases, for example, nature-based solutions may be both more resilient and maximize net public benefits." We strongly encourage the Corps to holistically analyze how nature-based solutions and natural infrastructure can be used for more cost-effective, sustainable, and efficient water management and other ecosystem services – in combination with engineered water resources projects, or as standalone projects.

There are opportunities to reduce flood risk through nature-based solutions that reduce risk exposure through relocation of vulnerable populations or restoration of wetlands and floodplains rather than through additional expenditures on water resources projects and engineered infrastructure. Natural solutions can deliver multiple social and environmental benefits (e.g., beyond flood control to include benefits to recreation, cleaner water, etc.) and provide those benefits to a wider variety of people (i.e., those most immediately effected in local area and populations of people most underserved).

Further, we suggest that instead of designing site-level projects such as levees to be "fail-safe" (which can often lead to disastrous consequences when the structure fails), the Corps should instead focus on approaches which can prevent disastrous consequences in the event of infrastructure failure. Such approaches draw on adaptive planning and management that enable institutions to respond rapidly at moments of crisis.

While we recognize that the boundaries of the LMRCMS are largely defined by the existing MR&T system, we encourage the Corps to recognize that this portion of the River is inextricably connected both upstream to the Upper Mississippi River and Ohio River systems and downstream to the Gulf of Mexico. Water quality problems such as hypoxia and algal blooms in the Gulf of Mexico are ultimately driven by nutrient loads originating in the Upper Mississippi River Basin. The LMRCMS provides an opportunity to address these challenges by increasing the nutrient-retention and processing capacity of the Lower Mississippi River, by reconnecting the River to its historic floodplain at strategic locations thereby reducing risk to vulnerable populations utilizing the river as a resource for a variety of uses.

5. Incorporate resilience and adaptive management thinking in LMRCMS analysis and decision-making.

Recognizing both that the effects of climate change are unpredictable, and that climate change is not the only stressor likely to influence river operations in coming decades, we urge the Corps to incorporate concepts from resilience thinking and adaptive management in the LMRCMS. By resilience thinking, we mean not only improving the robustness of built infrastructure, with its emphasis on predictability and controllability, but looking for opportunities to adapt and even transform the river system so that it is less vulnerable to future stressors. Increasing the resilience of the socio-ecological system will require identifying opportunities to increase the connectivity, diversity, and redundancy of components of the system. On the ground, this could mean integrating the use of grey and green infrastructure for flood control, and reconnecting floodplains at scales larger than a single river reach.

The LMRCMS provides a chance for USACE to prioritize incorporation and/or adoption of adaptive management plans with clear triggers and criteria for existing and proposed water resources development projects. The goal of adaptive management is to acknowledge uncertainties that exist within the system, and ideally the aim is to reduce critical ones over time. When applied rigorously, adaptive management is an approach for designing and implementing management actions to maximize learning about critical uncertainties that affect decisions while simultaneously striving to meet multiple management objectives. Critically, stakeholders are an essential source of input for adaptive management plans should be informed by extensive outreach and engagement opportunities with community members, scientific and academic communities, residents, navigation representatives, and other stakeholder groups. EDF has worked extensively to promote and push forward adaptive management plans for large-scale projects such as the Mid Barataria Sediment Diversion, and we would be happy to provide resources and expertise in this area, if needed.

We appreciate the opportunity to provide input during the scoping phase of the LMRCMS. We urge the Corps to utilize this opportunity to bring management of the Lower Mississippi River

into a more inclusive, equitable, resilient, and sustainable era: moving beyond siloed mission objectives into comprehensive management of the resources at hand. Thank you for considering these comments, and we hope to continue working with you on this critical study.

Footnotes:

1 Lewis, J.W., Lytle, S.E. and Tavakoly, A.A., 2023. Climate change projections of continentalscale streamflow across the Mississippi River Basin. Theoretical and Applied Climatology, 151(3), pp.1013-1034. 2 Dunne, K.B.J., Dee, S.G., Reinders, J., Muñoz, S.E. and Nittrouer, J.A., 2022. Examining the impact of emissions scenario on lower Mississippi River flood hazard projections. Environmental Research Communications, 4(9), p.091001. 3 Su, Y., Smith, J.A. and Villarini, G., 2023. The hydrometeorology of extreme floods in the lower Mississippi River. Journal of hydrometeorology, 24(2), pp.203-219.

4 CMIP6 refers to Phase 6 of the Coupled Model Intercomparison Project, in which nearly 50 independent scientific groups are testing state-of-the-art climate models to predict future climate change. The CMIP6 models are more sophisticated in their treatment of the climate system and are showing much greater expected climate impacts than earlier climate models.

Letter ID: 82 Name: Freeman, Marlene Org/Agency/Company: -

I live in East Cape Girardeau, McClure, IL, just across the Bill Emerson Bridge connecting Missouri and Illinois. In 2019, seep water caused by rain and high river levels, left our village an island. If not for neighbors working together sandbagging, and the help of the National Guard, our village would been flooded. Our village was not just impacted, but also surrounding counties, and Missouri. Highway 3, 146 and Grape Vine Trail Road were closed due to flood water from just south of McClure to Gale, and to the Bill Emerson Bridge. People here had to walk through flood water, or boat, to get to their cars near the bridge. People from Missouri working in Illinois; people from Illinois who worked in Missouri; people needing to see doctors in Missouri; all these people had to drive miles out of the way. I think it would be of beneficial use for the Army Corps to put permanent pumps on the levee on either side of Highway 146 just over the Bill Emerson Bridge in Illinois. Letter ID: 155 Name: Gardiner, Robert Org/Agency/Company: -

This new river study provides a most welcome opportunity to adjust the way the river has been managed for decades, including many years when we have learned many negative consequences of the inflexible management system that ought to have been cause for changes years ago. I present a long list of changes that ought to be evaluated, and I am aware that the evaluation method used by USACE for many construction projects is not well suited for consideration of many dynamic elements that need to be maximized in different and complex situations, but that is the type of outcome that is needed.

The greatest problem with the current management system is that the historic prioritization of flood control and navigation goals for the system has caused all the river sediments and nutrients to be flushed far out to sea, where they create the huge fisheries dead zone. Instead, the sediments are needed to bolster the massive wetlands of South Louisiana that are gradually subsiding into the Gulf waters for lack of periodic, replenishing flood waters. Above all other changes, this is the single most important one.

Louisiana has invested billions of dollars building large and small river diversion projects-many of which have not yet been fully built--to address this need. These diversions do not need to be open all of the time; in fact, a regime that floods wetlands at some times and then allows them to dry out for vegetative reproduction is a more ideal answer. So one fundamental change that will be needed is to have a flexible plan that depends on varying river conditions and produces different results in different seasons. Louisiana needs to be given wide latitude to do so. This would be very different from today.

Some changes that would assist in achieving such a system would include:

1. Developing a wider range of flow regimes between the Mississippi and Atchafalaya Rivers to allow more than 30% of the combined water flows to go to the Atchafalaya in flood periods and more than 70 % to go to the Mississippi in low flow periods.

2. More frequent use of Morganza spillway in floods, less dependence on Bonnet Carre spillway, and heavier use of all diversions to spread the impacts--both positive and negative-- over a wider area.

3. Priority for all flowage above the minimum required for navigation be given to wetlands replenishment goals. Without replenishment, wetlands will be consumed by the gulf, leaving the lower river navigation system to collapse and the flood protection systems of South Louisiana unable to survive the onslaught of intensifying hurricanes.

Flood control and wildlife habitat management are closely related objectives. USACE must recognize that in the upper portion of the watershed, more flooding should be tolerated and even deliberately achieved in places like bottomland hardwood swales. The same is true in south Louisiana where fisheries and wildlife thrive in areas where flooding periodically strengthens the

land base that would otherwise subside into the gulf waters. The benefits of these changes may be hard to quantify, but without them none of the Corps' multiple goals will be achieved.

Dredging the river to maintain a deep and potentially even deeper channel for commerce will bring new issues into play. Most dredging currently merely pushes sediments further downriver or dumps them in convenient areas. Because of the need for sediments to be deposited within wetlands for replenishment purposes, the calculations for the costs of dredging should include the lost opportunity costs of letting wetlands decline and the drastic consequences that would follow if policies do not change.

The benefits of dredging are shared by half of the states in the Union, as the economies of river transport are integrated throughout the midsection of America. The cost of making good use of dredge spoils will be somewhat higher in most cases, but the long-term system benefits are impressive. It is wrong to force Louisiana to pay for all costs above the cheapest alternative disposal method, when all states benefit from both the wetlands protection and economic vitality of the entire drainage area. The Corps should cover all costs of beneficial use of spoils.

The building of levees below New Orleans over 150 years has caused more deposition in the Bird's Foot area, where it does little long term good. The Corps needs to address the long term need to find a shorter route to the ocean and allow the Bird's Foot to wash away until it may help form barrier islands that may bring important benefits.

The difficulties of maintaining a deep draft shipping channel while allowing wetlands replenishment at the same time should be identified as a goal for some future study with a larger scope.

Allowing the east bank levees to accommodate the growth of crevasses south of Bohemia should be studied to determine how generous we should be in allowing nature to take its natural course. However, the argument that too much flowage to eastern wetlands, especially to those that are far downriver, will unreasonably reduce our ability to manage the overall sediment load for the highest benefit should be acknowledged. Some mix of managed and natural sediment deposition should be found and incorporated into the management system, because we can't afford to ignore what nature is already doing.

[[ER, MVN] Use beneficial use of dredged material to build wetlands in Barataria and Breton Basins] Hurricane protection is one of many benefits of healthy wetlands. Currently, the wetlands of Barataria Bay and Breton Sound are providing less benefit because they have subsided so much in the last century. Without restoration of these and nearby wetlands, the entire infrastructure of the New Orleans area will be at risk with many higher costs than anyone has yet tried to calculate. The societal, environmental, and cultural costs on top of the economic losses are unimaginable. With proper river management and use of dredge spoils, this can be averted.

One common thread that connects most of my points is that it is important to value the benefits of wetlands more highly. If that is done properly, we will see how necessary it is to adjust the management system to blend environmentally sound methods of wetlands replenishment in with the other priorities for river management systems. In order to achieve all goals in an optimal way, USACE must adopt a highly flexible management system that calls for different protocols

at different water levels, different seasons, and various locations that include all available diversions.

Letter ID: 176 Name: Gardiner, Robert Org/Agency/Company: -

This is Mr. Robert H. Gardiner. I think the alternatives that get studied need to be a dynamic system to address all the complexities of the factors involved in ideal management of the river system so that at low water conditions there are certain priorities which may be changed when you get to a medium or higher water level conditions. For example, navigational requirements are going to take, I think, a certain priority at low water levels in the river. But beyond a certain height of water of river levels, the other purposes besides navigation could benefit greatly if things were skewed heavily in favor. For example, wetland replenishment with sediments getting out of the river and into the wetlands adjoining in Louisiana. I realize that you can't divert water into those new diversions at super low water levels in the river. But as it gets above necessary -- levels necessary for navigation, a lot more water could be put into the river. It needs to be an extremely dynamic system to allow for a maximization of all of these objectives.

A new subject: Acquiring land or the right to flood land in the upper basin to manage flow levels and habitat and those positive purposes up there would help because the choke points of New Orleans and Morgan City where the excessive flood waters put those highly at risk can be moderated the more the water can be held in the upper parts of the basin for longer. And I hope that the acquisition of land or the acquisition of the right to flood land to produce these results is considered in the alternatives because I think it's a lot of benefit for the extreme conditions when you have extremely high water.

A new subject: The addition of new diversions, getting water and sediments out of the river and into the wetlands in addition to the old river control structure in the Carnarvon and Davis Pond, with the addition of Maures Pas and the Mid-Barataria diversions is going to be a need to -- an opportunity, not a need, an opportunity to manage those in combination for maximum rebuilding of wetlands adjoining the river should be considered as a whole package. And if we add new ones, like Mid-Breton sound or something at Union, we would benefit greatly in the habitat and ecosystem management categories. That would be important to study. I think we need to develop alternatives to using the Bonnet Carre Spillway. We have been dependent on the Bonnet Carre too much in the past and flooded out that ecosystem in the Pontchartrain Basin to an extent that is not ideal and the Morganza Spillway has been very little used. So I would like to see a more even balance between the ways of spilling surplus water in these diversions; the more upriver they are, the more beneficial they can be, not just to build land but to serve as water distribution in the highest water conditions. I realize that Morganza Spillway feeds into the water shed above Morgan City and we need to look at how much Morgan City can tolerate. If it can tolerate higher water levels by any means possible, to be able to spill more water than the 30 percent currently allocated into the Atchafalaya Basin would be a real benefit for managing flood control and habitat better than we do today.

A new subject. Sediments are precious to South Louisiana. We need to get the sediments into the adjoining wetlands as much as possible. I think all dredging should require that, except in extreme circumstances, dredge spoil should be utilized within the sustainable wetland areas of South Louisiana, that sending it further out off the edge of the continental shelf into the gulf is

not the right answer. You want to get it into the wetlands near the dry lands so that we can restore those wetlands and build their resilience to sea level rise and subsidence.

Letter ID: 104 Name: Goodwin, Dan Org/Agency/Company: -

I live in Mississippi and like to fish on the coast. When the mgmt functions in Louisiana open spillways (such as Bonnie Carrie) the salinity drops way down and the fishing is bad and the marine life is severely impacted. This is a big draw for MS coast and horrible for marine life in the sound. Please consider all aspects of the river mgmt system. I think as natural as possible is better.

Letter ID: 174 Org/Agency/Company: Greater New Orleans, Inc.

(1) On behalf of the Regional Economic Development Organization, we just want to uplift the importance of the water supply for our ten parishes and our residents, businesses and facilities along the river that depend on consistent fresh water supply. And we urge collaboration between the Corps and our political subdivisions and local government partners on towards operations and new technologies and facilities that would address the threat of salt water intrusion and provide for reliable water supply for the aforementioned entities that depend on it. (2) And meanwhile, we do urge maximized sediment supply to southeast Louisiana in order to use that sediment beneficially for coastal restoration projects and marsh restoration which inevitably lead to less damages and less federal governmental costs expended in the future if we correctively restore these wetlands.

-Peter Waggonner

Letter ID: 216

Org/Agency/Company: Greater New Orleans, Inc.

April 2, 2024

Submitted via email to Imrcomp@usace.army.mil

RE: Comment on Lower Mississippi River Comprehensive Management Study (LMR Comp)

Dear LMR Comp Study Team:

Greater New Orleans, Inc. (GNO, Inc.) is the regional economic development organization for the ten parishes of Southeast Louisiana. GNO, Inc.'s mission is to create a region with a thriving economy and an excellent quality of life, for everyone.

GNO, Inc. appreciates the leadership and civilian employees of the U.S. Army Corps of Engineers, particularly those within the New Orleans District, for undertaking and delivering this 5-year study, which will ensure a sustainable and contemporary river system for generations ahead. GNO, Inc. recognizes LMR Comp's cardinal importance to the future our region and our residents. LMR Comp's resulting recommendations will decisively influence our quality of life, environment, and economy.

GNO, Inc. underscores the critical need for LMR Comp's scope to prioritize analysis of, impacts to, and benefits for the Greater New Orleans region specifically. This prioritization should occur across all authorized purposes of the study – hurricane and storm damage reduction, flood risk management, structural and nonstructural flood control, floodplain management strategies, navigation, ecosystem and environmental restoration, water supply, hydropower production, recreation, and other purposes as determined by the Secretary of the Army.

The Mississippi River and Tributaries project (MR&T) and the entire Mississippi River Valley would have greatly impaired economic value without connection to the Gulf of Mexico, as directly provided by the Greater New Orleans region. The Greater New Orleans region, spanning from the "mouth of the Mississippi" in Plaquemines Parish to the "River Region" in St. James Parish, is centered as the commercial, logistical, and navigational ingress to and egress from the Mississippi River.

From our region, we fuel and feed the world. The Port of South Louisiana handles approximately 50 percent of the country's grain exports, largely grown by farmers within the Mississippi River Valley. The Port of New Orleans is building a new \$1.8B container terminal to enhance international trade capacity of the Mississippi River Valley. In Plaquemines Parish, Venture Global is building a \$21B liquified natural gas (LNG) terminal, which is the largest final investment decision in human history. In St. James Parish, Shell is converting their refinery to produce sustainable aviation fuel (SAF) and renewable diesel – one of many future energy projects in our region. We are actively investing in the workforce – through 13 regional higher education institutions – and energy facilities that will produce clean fuels that reduce carbon emissions across our country.

We are, simultaneously, making transformative investments in resilience. The \$3B Mid-Barataria Sediment Diversion – the largest ecosystem restoration in U.S. history – has broken ground. Meanwhile, we continue to rebuild surface and subsurface infrastructure damaged by Hurricane Katrina with a \$2B

FEMA settlement, while putting \$315M towards novel stormwater and green infrastructure projects, which will cumulatively store 47 million gallons of stormwater and reduce flooding by 14 inches.

Despite these assets and activities, we are exposed to downstream consequences of inefficient, uncoordinated, or improper water management in the Mississippi River's 31-state drainage basin and the seven-state LMR Comp study area. For example, per- and polyfluoroalkyl substances (PFAS) have been found in the river in St. James Parish from upriver sources, while downriver, saltwater intrusion made Plaquemines Parish's public water system impotable for four months in 2023. Moreover, we experience the heightened risk of intensifying hurricanes and accompanying damage to our New Orleans Hurricane and Storm Damage Risk Reduction System (HSDRRS) due to an eroding coastline. Our risk of pluvial flooding is worsened by failing internal drainage infrastructure beneath continuously subsiding streets, largely caused by the lack of river-floodplain connectivity, which built the land that our region rests on.

Arguably, we are both the most valuable and most vulnerable community within the LMR Comp study area, if not the country.

For GNO, Inc., economic development and environmental management, particularly coastal restoration, are mutually dependent. By investing – philosophically, legislatively, and financially – in resilient infrastructure and restoring the coast, we believe that we can better protect and promote existing and future investment throughout Louisiana. A healthy coast supports our economy agnostically across key sectors, from trade and energy to health sciences and advanced manufacturing. Our coast protects critical facilities, infrastructure, and assets that are uniquely located in Louisiana, yet have implications on the national and global economies.

Accordingly, GNO, Inc. is deeply vested in ensuring that we have a sustainable and resilient coastal environment. In hand, GNO, Inc. has a history of collaboration with the Coastal Protection and Restoration Authority (CPRA), local governments, non-governmental organizations, and the private sector towards project implementation in the Greater New Orleans region. GNO, Inc. also advocates at the federal level for authorization of and appropriations for relevant U.S. Army Corps of Engineers projects.

For these purposes, ten years ago, GNO, Inc. established the Coalition for Coastal Resilience and Economy (CCRE). This neutral, nonpartisan group of business leaders from Southeast Louisiana acts as an informed, unified voice to advance the resilience of coastal Louisiana's wetlands, rivers, deltas, and their associated economic benefits. CCRE is a business-led group whose mission is to:

- Support the full adoption and implementation of the Louisiana Coastal Master Plan
- Advocate for maintenance of existing and enactment of new revenue streams (e.g., GOMESA, RISEE Act, Coastal Carbon Markets)
- Market the business case for coastal restoration in Louisiana
- Create opportunities to engage local business and workforce in the Master Plan's implementation

Together, GNO, Inc. and CCRE support LMR Comp's work towards solutions addressing all Southeast Louisiana issues, not limited to:

• Providing consistent freshwater supply in Southeast Louisiana, via the Mississippi River, for energy production and industrial operations that serve the world

- Providing consistent freshwater supply in Southeast Louisiana, via the Mississippi River, for communities and residents that work at port facilities, industrial facilities, and critical infrastructure that serve the world
- Sustaining and easing navigation at the Birdsfoot to maintain national security, prevent economic losses, and maximize the economic potential of the entire Mississippi River Valley
- Continuously monitoring river depth and navigational challenges affecting the Lower Mississippi River's deepwater ports in Southeast Louisiana, which the Mississippi River Valley's economy depends on for exports, particularly given private and public investment in the new Louisiana International Terminal in St. Bernard Parish
- Reducing sedimentation and improving sediment flow throughout the Lower Mississippi River, while maximizing sediment availability in South Louisiana for Coastal Master Plan implementation
- Increasing dredging, while ensuring that dredged sediment is prioritized for ecosystem and environmental restoration where rates of land loss are most egregious, in accordance with Sec. 8130 of WRDA 2022
- Installing, maintaining, and coordinating new or existing sediment pipelines or siphons and sediment supply for such infrastructure
- Ensuring that the Mid-Barataria Sediment Diversion has sufficient sediment to achieve, or outpace, wetland acreage creation projections in final environmental impact statement
- Encouraging implementation of innovative, entrepreneurial solutions to environmental and ecosystem challenges, such as sea water air conditioning, glass recycling, and artificial reefs
- Maximizing federal resources for repairs and modernized local public infrastructure (roadways, water lines, drain lines, gas lines, electrical grid) to offset historic and/or ongoing acute impacts (subsidence, saltwater intrusion, coastal erosion) of the federal MR&T project on Southeast Louisiana
- Preventing saltwater intrusion and/or minimizing long-term impacts through new permanent interventions, like an underwater sill, a regional desalination plant, or a freshwater pipeline
- Preventing saltwater intrusion and/or remediating short-term impacts on existing infrastructure, like damage to water treatment plants and corrosion of water service lines
- Analyzing and monitoring downstream impacts of upriver activities on water quality, as part of water supply considerations for communities near the Gulf of Mexico
- Aligning and supporting implementation of state, local, and regional planning efforts like the 50year, \$50B 2023 Coastal Master Plan and the 2013 Greater New Orleans Urban Water Plan
- Redressing floodplain-river connectivity impeded by the MR&T project, contributing to ecosystem and environmental erosion in Southeast Louisiana
- Redressing floodplain-river connectivity impeded by the MR&T project, contributing to subsidence in Greater New Orleans, by investing in groundwater monitoring, urban water management project construction, and drainage infrastructure improvements inside HSDRRS
- Advancing federal ecosystem restoration projects near the mouth of the Mississippi River, like the Mississippi River Gulf Outlet ecosystem restoration
- Advancing flood risk management projects, like Lake Pontchartrain and Vicinity levee lifts, to protect workforce, infrastructure, and industrial facilities in Southeast Louisiana
- Studying and advancing nonstructural flood risk management projects within HSDRRS
- Maximizing federal cost-share for implementation of each LMR Comp recommendation
- Evaluating staffing needs at the New Orleans District for implementation of all LMR Comp recommendations

By including South Louisiana-specific evaluations in LMR Comp, and by addressing matters suggested above, the viability of local and state economies throughout the Mississippi River Valley will benefit. Taking on these challenges proactively will protect communities, reduce the risk of economic and flood losses, reduce the loss of human life, and lessen federal spending after declared disasters, like Hurricane Katrina in 2005 or saltwater intrusion in 2023. Social, geographic, economic, engineering, and biological considerations may assist in delivering pareto-optimal recommendations for our region and nation.

As the study progresses, we encourage engagement of and involvement from Louisiana's federal, state, and local government partners, like CPRA and various parish governments, and other stakeholders within Louisiana, including economic development organizations, non-governmental organizations, business, industry, and universities. GNO, Inc. and CCRE are on call to activate, assist, and support LMR Comp throughout the 5-year process, and in its implementation afterwards.

There is hope for Louisiana's economic and environmental wellbeing, especially with appropriate support from LMR Comp. Louisiana has been losing coastal wetlands since at least the 1930s, after the leveeing of the Mississippi River and the subsequent starvation of sediment supply. But, the long-term rate of land loss has slowed since its peak in the 1970s and has further slowed since 2010. Imminent projects like the Mid-Barataria Sediment Diversion and the Maurepas Swamp Diversion will restore connectivity with the river. Cumulatively, implementing all projects identified in the 2023 Coastal Master Plan could make our coastal communities less vulnerable to tropical storms and hurricanes in 50 years than they are today.

Still, it is worth reiterating the unique need for prioritizing coastal investments in Louisiana now. Since the 1930s, Louisiana has lost over 1 million acres or 2,000 square miles of land, an area larger than the State of Rhode Island and about the size of the State of Delaware. Louisiana accounts for 80 percent of the nation's coastal land loss, and we are often cited as having the highest rates of land loss in the world.

In closing, it's critical to consistently and urgently advance LMR Comp and invest in its implementation. Recommendations and projects should prioritize direct and downstream impacts on Southeast Louisiana. GNO, Inc. and CCRE applaud the record-breaking quantity and value of various projects affecting Coastal Louisiana currently being undertaken by the Army Corps in various stages. LMR Comp is an unprecedented opportunity for the Army Corps to rectify past issues and futureproof our region through a new era of systematized studies and projects. Thank you for the opportunity to comment, and thank you for your consideration of coastal Louisiana's symbiotic relationship with economic development and quality of life across the Mississippi River Valley.

Sincerely,

Michael Hecht President & CEO

1100 Poydras Street, Suite 3475, New Orleans, LA 70163 Phone: 504.527.6900 Fax: 504.527.6970 www.gnoinc.org Letter ID: 17 Name: Guice, Reed Org/Agency/Company: -

I'm a lifelong Gulf Coast resident. My mother's family came to the Mississippi Gulf Coast in the late 1700s, early 1800s. It was a Spanish land grant that ran all of the way from the beach to the Bay, and they call that area "Rhodes' Point" after my mothers family. My great-great-great grandfather has Schooners. He made his living from the fishing industry; oysters in season and shrimp in season. I've been involved with promoting tourism on the Gulf Coast just about all my adult life, and I'm a recreational fisherman. My fear is that after centuries of my family being in the area, that within just a few years, our way of life will be dead. Without oysters, without shrimp, without clean water, we don't stand a chance down here. They talk about the entirety of the river, and it is hundreds and hundreds of miles all the way from Montana down to here. But by the time that water gets here, it's sewage, and we don't want to be the cesspool anymore. We can't stand to be the cesspool. It would be the end of our life as we know it. Thank you.

Letter ID: 163 Org/Agency/Company: Gulf Intracoastal Canal Association (GICA)

The Gulf Intracoastal Canal Association is a 119-year-old trade association representing over 150 members throughout the 1200 miles of Gulf Intracoastal Waterway (GIWW) between Brownsville, Texas and St. Marks, Florida. GICA is committed to facilitating commerce by ensuring safe, reliable, and efficient Gulf Coast waterways. The GIWW is the third busiest waterway in the United States for tonnage handled after the Mississippi and Ohio Rivers. However, most of the cargoes transported on the Mississippi and Ohio Rivers are non-hazardous, dry bulk, agricultural products unlike the GIWW whose primary cargoes are petro-chemical in nature. As a result, the cargo value and the risk posed by accidents involving towing vessels on the GIWW are both significantly higher and require tremendous due diligence to mitigate risk.

The Atchafalaya River is one of the main tributaries of the Mississippi River and one of the focus areas of the LMRCMS. The Atchafalaya River intersects the GIWW in Morgan City. LA. The GIWW from Morgan City, LA to the Calcasieu Lock in Lake Charles, LA is the most sensitive portion of the entire 1200 miles of GIWW and is the connective tissue which links our nation's petrochemical epicenters in western Louisiana and Texas with the rest of the nation via access to the Mississippi River. This portion of the GIWW services the highest concentration of traffic and highest tonnage on the entire waterway. Any closure or disruption in this area creates a single point of failure as there is no alternate route or by-pass.

In support of the LMRCMS focus area "Stabilize Channels and Improve Channel Resilience", GICA recommends the USACE carefully consider any impacts created by altering the flow of the Atchafalaya River. The Morgan City area experiences seasonal high water, and associated strong currents from the Atchafalaya River, which pose a significant navigation safety risk. The risks are well documented, and the U.S. Coast Guard established a Regulated Navigation Area (RNA) several years ago in the Morgan City area to manage the elevated risks posed by the high water facilitated by the Atchafalaya River. The RNA mandates strict operating restrictions to reduce risk and ensure navigation safety including tow size limitations and the mandated use of assist boats to transit though the area during elevated high-water conditions. These mitigations, although necessary, greatly impact cargo movement efficiency and the economic benefits associated with barge transportation on the GIWW.

It is imperative that ANY proposed changes to the present management of the Atchafalaya River's flow south from the Mississippi River take into consideration ALL potential impacts on navigation including but not limited to:

1. Increased current/velocities creating elevated navigation safety risk along the length of the Atchafalaya River, in particular in the vicinity of its intersection with the GIWW in the Morgan City area, and the potential impacts they may have on routine GIWW transits.

2. Increased shoaling due to increased sediment deposition along the entire length of the Atchafalaya River and in particular at the intersection of the Atchafalaya River and GIWW in

Morgan City with the potential to negatively impact navigation.

<u>In support of the LMRCMS focus area "Stabilize Channels and Improve Channel Resilience".</u> <u>GICA recommends the USACE move the federal channel along the Atchafalaya River in the</u> <u>vicinity of Stouts Pass (ACH MM 113 – 117) to Little Island Pass.</u> Stouts Pass has been a longtime, perennial shoaling problem area for many years requiring extensive dredging to maintain a viable navigation channel. This dredging often results in several weeks of dredging each year and associated navigation operating restrictions including tow size limitations and delayed towing vessel transits to facilitate safe navigation while the dredge is working the area. Shifting the preferred federal channel to Little Island Pass will circumvent this chronic shoaling location, minimize impacts on routine commercial navigation and reduce the USACE's overall maintenance dredging budget for the area.

In support of the LMRCMS focus area "Reduce Flood Risk to Disadvantaged Communities", <u>GICA recommends the USACE move forward with the replacement of the Inner Harbor</u> <u>Navigation Canal (IHNC) Lock in New Orlean adjacent to the Mississippi River.</u> The IHNC Lock provides the ONLY access for commercial towing vessels to service the "East Canal", and all points east of New Orleans along the GIWW, including the oil refineries in Pascagoula, MS and the ports of Mobile, AL, and Pensacola and Panama City, FL. There is no viable alternate route to circumvent this lock to access the East Canal. In addition, our understanding is the IHNC Lock is the weakest link in the Post-Katrina flood protection system, the Hurricane Storm Damage Risk Reduction System (HSDRRS), intended to protect the city of New Orleans, including the Lower 9th Ward, from flooding. A new, modern lock, designed and built to 21st century engineering standards, will greatly improve the resiliency of this critical flood protection system in one of the most vulnerable urban areas throughout the entire LMRCMS target area in addition to bolstering the efficacy and efficiency of inland barge transportation east of New Orleans on the GIWW.

<u>In support of the LMRCMS focus area "Improve Economic Efficiencies in Inland Navigation",</u> <u>GICA recommends replacing the Bayou Sorrel Lock.</u> The Port Allen – Morgan City Alternate route, supported by Bayou Sorrel Lock, links our nation's petrochemical epicenters in Louisiana and Texas with the rest of the nation through direct access to the Mississippi River system. The link to the Mississippi River, facilitated by the Bayou Sorrel Lock, is one of two primary access points to the river, the other being the Algiers Canal, supported by the Algiers Lock in New Orleans. The Port Allen – Morgan City Alternate through the Bayou Sorrel Lock constitutes one of the most sensitive strategic lines of communication anywhere in our nation's inland maritime transportation system.

The importance of the Bayou Sorrel Lock was highlighted in 2021 after Hurricane IDA severed access to the Mississippi River via the Algiers Canal for over 60 days forcing most inland barges to access the Mississippi River via the Port Allen – Morgan City Alternate Route and Bayou Sorrel Lock. Had the Bayou Sorrel Lock failed, our nation's petro-chemical epicenters would have been isolated from the inland marine transportation system creating unprecedented supply chain implications. In addition, post storm recovery on the local, regional, and national level would have been severally impacted.

The Bayou Sorrel Lock is not a navigation structure. It was designed and built to facilitate the

continued passage of inland towing vessels through the East Atchafalaya Basin Protection Levee, a critical flood control and levee system serving south Louisiana. However, the vintage 1951 midtwentieth century design is inadequate to meet the demands of 21st century inland marine transportation.

The lock's small chamber measures only <u>797 feet long by 56 feet wide as compared to the Port</u> <u>Allen Lock just upstream which measures 1180 feet long by 84 feet wide.</u> A large percentage of the petro-chemical tank barges relying on the Port Allen-Morgan City Alternate Route, serviced by the Bayou Sorrel Lock, are 295 feet long by 54 feet wide affording only one (1) foot of clearance on either side of the barges as they maneuver to enter, transit, and clear the Bayou Sorrel Lock. Most of these inland towing vessels transport two barges strung out with an average overall length of 600 feet. The risks associated with maneuvering large tows with such minimal horizontal clearance are self-evident and induce an unnecessary level of increased risk complicating the transit through the lock, increasing potential impact damage to the structure, while concurrently inducing transit delays.

In addition, many towing vessels transport standard size river barges measuring 195 feet long by 35 feet wide. Many of these towing vessels move four to six standard river barges two abreast with an overall width of 70 feet. The undersized and antiquated design of the 56-foot-wide Bayou Sorrel Lock chamber requires these tows to break down and "trip" each single string of barges through the lock. The "trips" effectively double the number of transits and the amount of time to pass the lock for these towing vessels. Tripping barges through the lock is highly inefficient, creating cascading delays for other vessels waiting "on turn" to transit the lock. The delays cost the inland towing industry millions of dollars a year in lost revenue in addition to untold supply chain and cargo delivery schedule impacts.

The delays induced by the lock's antiquated design noted above were compounded in 2021 after Hurricane IDA closed the GIWW south of New Orleans for over 60-days forcing most barge traffic onto the Port Allen-Morgan City Alternate Route to access the Mississippi River. Considering Louisiana's geographic location and history of significant tropical weather impacts, the importance of the Bayou Sorrel Lock to support post-storm recovery and maritime transportation system demands must be taken into consideration.

GICA stands ready to work shoulder to shoulder with the USACE and all other stakeholders to ensure the LMRCMS is a resounding success. The first step in this process is to ensure ALL proposed changes take into consideration the needs of commercial navigation and the safety of our mariners and communities from the outset.

Letter ID: 156 Name: Meinzinger, Pam Org/Agency/Company: Gulfport Premium Outlets

It is imperative U.S. Army Corps of Engineers protect the Mississippi Sound from future openings of Bonne Carre Spillway. Our shopping center has a very large tourism base. When the Spillway was opened the last two times, tourism was heavily damaged, and our stores saw that impact. It was not a minor effect where proceeding months would take care of the impact. It was a MAJOR impact effecting store sales and eventually store staffing reduction. There must be a balance of Louisiana flooding and protecting seafood production in the MS Sound. I will be unable to attend the public meetings but would like my opinion noted. -Pam Meinzinger

Letter ID: 34 Name: Gullett, Mark Org/Agency/Company: -

The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944 and recommended by the Mississippi River Commission. Maintaining the 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commercial barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitve by making significant investments in their respective infrastructure.

Letter ID: 189 Name: Hamilton, Richard Org/Agency/Company: -

There was a meeting with locals, with FEMA to look over the local floodplain maps and watershed maps to determine local flooding - would the two agencies work together with the data avalable from these meetings. My concern for the city I work with, how do i ensure that the degree of safety we need will always be there? Sometimes when working with the corps, it takes them forever to get anything done. Things get lost in the process, and the process takes forever. We have influences from the Ohio and the Mississippi river.

Letter ID: 39 Name: Hansford, Jackie Org/Agency/Company: -

The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944 and recommended by the Mississippi River Commission. Maintaining the 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commerical barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitve by making significant investments in their respective infrastructure.

Letter ID: 62 Name: Hart, Kassie Org/Agency/Company: -

The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944 and recommended by the Mississippi River Commission. Maintaining the 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commerical barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitve by making significant investments in their respective infrastructure.

Letter ID: 170 Name: Haydel, Don Org/Agency/Company: -

I was the director of the Atchafalaya Basin Program when it was at the Department of Natural Resources. When I retired, they transferred that over to CPRA, so I was responsible for trying to work with the Corps, other federal agencies, state partners, the parishes, communities to build physical projects in the Atchafalaya Basin to follow the Corps' 1998 Master Plan and the state master plan that was issued in the year 2000. The original intent was for the Corps to build all these projects that improved water quality. The main issue in the Basin is that it receives a lot of sediment that stays in the Basin, so it was creating dry land, and it also has areas that when the water levels drop, the water becomes stagnant and it's not good for the fish. In the years that I was with the state, you know, again, we were disappointed that the Corps, because they either didn't have authorization or they didn't have the funding -- the Corps was not able to build the projects that were originally in those master plans. The state's part was to come in after the Corps built the projects and do the maintenance to make sure that they worked moving forward. That was the way the arrangements were made.

So in the new Comprehensive Study, I hope that the Basin is a major part of the ecosystem restoration portion of the things that the study is intended to do. It's a million acres of what used to be, you know, an amazing old growth cypress forest, and it's still the largest river basin in the country and it deserves a lot more attention than anybody's been giving it.

The other thing that I mentioned was that we recognize that there are navigation and flood control issues that are — you know, those issues save people's lives, they save towns from flooding; but at the same time, there ought to be enough money recommended in the plan to do the — how can I say it? Not crucial issues of saving life and property, but saving a national treasure like the Basin for people to be able to visit and fish in and birding and kayaking, and be able to do those things for the knowable future.

So the money part of it is going to be what I'd like to recommend, you know, some sort of priority matrix of, you know, navigation gets X amount of the money and ecosystem restoration gets a lower percentage of the money, but then you recognize the highest priority project in each of those so they can be funded simultaneously so that nothing, you know, has no movement. Every part and aspect of this Comprehensive Plan receives funding and authorization so projects can move forward in all the different areas that are recognized, and that's about it.

Letter ID: 232 Name: Haydel, Don

This quote from the Basinkeeper website is why I believe we need a report from the Corps' Buffalo Cove Project:

"Diversion projects in the Basin such as those occurring in Buffalo Cove, Coon Trap and Beau Bayou have already filled thousands of acres of swamp wetlands."

A candid Corps report on the successes / problems of these projects would assist stakeholders as we seek a path forward in enhancing and restoring the unique ecosystem of the Atchafalaya Basin. Future efforts for the ARBRE Task Force, the update of the Atchafalaya State Master Plan, and the Comprehensive Mississippi River Study all would benefit from critical examination of past projects. Who else should I express these thoughts to? Finally - if the Corps is offering an opportunity to ride on the MV Mississippi the day prior to the hearing in Baton Rouge, I would appreciate being included.

Letter ID: 151 Org/Agency/Company: Healthy Gulf

I, Andrew Whitehurst, attended the March 11th evening meeting in Vicksburg and our New Orleans organizer Sage Michael Pellet attended a February 28th meeting on the Lower Mississippi River Comprehensive Management Study at the New Orleans District, both representing Healthy Gulf. Our organization is a 28-year-old non-profit advocacy organization active in the five Gulf States.

Our purpose is to collaborate with and serve communities who love the Gulf of Mexico by providing the research, communications and coalition building tools needed to reverse the long pattern of over exploitation of the Gulf's natural resources.

Mr. Pellet and I both grew up in New Orleans and so we are familiar with the mission of the Army Corps of Engineers and the Mississippi River and Tributaries Project. I grew up three blocks from the Corps Headquarters on Hillary Street. Mr. Pellet is a resident of New Orleans East. Both our lives and our safety, and that of our families, have depended on federal and state levees – and whether they work or fail.

My understanding of the rationale behind this Lower Mississippi River Comprehensive Study is that it is driven by legal action taken by cities and Counties on the Mississippi Gulf Coast against the Army Corps of Engineers in the aftermath of the long Mississippi River flood of 2019-2020. The Bonnet Carre Spillway was opened for what may have been the longest run of consecutive days in any year since it was built. As a result of Mississippi River floodwater being diverted through Lake Pontchartrain into the Mississippi Sound, salinities became extremely low and the habitats of the Lake Pontchartrain and the estuaries that connect it to the western Mississippi Sound were changed to nearly fresh. This resulted in total mortality of oysters in southeast Louisiana growing areas and in the western Mississippi Sound. Economic damage began with the loss of fishing but included harmful algae blooms that closed beaches in coastal Mississippi. The Mississippi Coast tourism economy was adversely affected by the beach closures and the bad news about water quality in coastal waters. Many businesses lost money, so eventually the municipalities organized themselves, found legal representation and sued the Corps.

It was interesting at the time to hear how the 2019-2020 flood was described by the Mississippi Department of Marine Resources that said "continental runoff water" had come though the Mississippi Sound, carrying high levels of nutrients. This made a distinction between the freshwater discharge coming from the coastal plain rivers; the Pearl and the Pascagoula Rivers that constantly contribute fresh water to the Mississippi Sound, and this Mississippi River flood water. This water was seen as foreign, extrinsic, or exotic to these brackish habitats. It had a long enough residence time over many consecutive months to make salinities so low that they were undetectable. The damage that was done to the brackish and marine habitats was undeniable. The fishing industry in Louisiana took a huge hit, and the fishing and tourism industries in Mississippi were severely impacted. The economic impact of this flood disaster to Louisiana's fishing industry was estimated at approximately \$338 million, which included \$177 million in current losses and \$161 million in projected future losses.

In 2019-2020, the environmental conditions that usually happen in the late summer months in the Gulf of Mexico in the nearshore areas south and west of the mouth of the Mississippi River (the Gulf Hypoxia Zone), happened in a new location when Mississippi River water was shunted through the Bonnet Carre Spillway for such a long period.

Wherever the nutrient-laden Mississippi flood waters go, it seems that bad things happen - harmful algae blooms, hypoxia zones, benthic areas devoid of marine life - to name a few.

This unfortunate fact would be a good place for the Army Corps to start in organizing the new Lower Mississippi River Comprehensive Study. It follows the logic of why the Corps is undertaking this study (legal action) and it takes into account the longstanding recognition that the Gulf hypoxia zone is a problem that no state or federal agency or department seems to be able to improve.

There is a long list of resources in the study area that the Corps listed on a PowerPoint slide at the scoping meeting: terrestrial habitats, wildlife resources, aquatic resources and fisheries, protected, threatened and endangered species, groundwater, water quality, geology and soils, air quality and greenhouse gasses, recreation and aesthetics, cultural historic and tribal resources, environmental justice, socioeconomics.

Nutrients

Nutrients (excessive amounts of dissolved nitrogen and phosphorous compounds) in river water should be in this list, whether their origin is from a point source or a non-point source. When the Mississippi DMR described the flood water coming in as "continental runoff water", it set it apart as something more than ordinary river discharge because of the high concentrations of nitrogen and phosphorous compounds dissolved in it. The state agency didn't refer to the outflow of the Pearl River or Pascagoula as "interstate runoff water," although this terminology fits. Does Mississippi river water demand that we make a special category for it? The Army Corps should ponder this question before writing the study.

The Corps should start its study by characterizing the water that created the problems in 2019-2020. Does the Corps consider Mississippi River flood water to be different enough from other kinds of fresh water to give it a special designation? The Mississippi River's 1927 flood ushered in the last 95 years during which the largest number of professional engineers assembled in any modern organization have fought floods, built levees and control structures, made navigation possible, invented new ways to study channels and any number of other pursuits. Can the Army Corps take a new approach to the way it and the nation view the nitrogen and phosphorous compounds that are carried by the great river's water? Is the Mississippi River water in its untreated form actually toxic to life under certain conditions? Can framing the question in such a way give the study some needed urgency?

Many unsuccessful attempts have been made at the state level and at the national level to manage and/or regulate the amount of nutrient pollution in the Mississippi River and its tributaries. Without creating some kind of limits on what cities, industries and agricultural producers can discharge or allow to runoff into the Mississippi drainage basin, the dead zone (and the dissolved compounds that help set the stage for it every year) will continue to be a problem in coastal areas

that receive Mississippi River flood water. In some years it is a background problem- off the Louisiana and Texas coasts and out of sight; and in some years, it is a "front and center" problem when dead fish wash up on tourist beaches, dead dolphins float in sight of Highway 90, and state agencies tell people that harmful algae blooms can kill their pets and make them sick after contact with the water. So, to the list of "resources in the study area", the Corps needs to add "nutrients" and give this category a serious and thoughtful treatment.

Water Quality/ Chemicals in river water

Thirty-four years ago, at the first "Basics of the Pontchartrain Basin" conference at the University of New Orleans, USGS scientists gave results of sampling in Lake Pontchartrain after a recent (shorter than 2019) opening of the Bonnet Carre Spillway. The most abundant larval fish type found in the sampled water was that of invasive Asian carp, and the single chemical found in greatest concentrations in water samples in the lake was atrazine – a herbicide sprayed on crop fields – part of runoff from the states up the Mississippi River valley that grow the most corn and commodity crops. Today, the Asian carp are even more abundant in the Mississippi River, and atrazine may be replaced by glyphosate or some other agricultural chemical for the #1 spot on the list of chemicals found in the greatest concentration in flood waters. The Corps' Comprehensive Mississippi River study needs to be frank about what kind of chemicals are in Mississippi River water in 2024. The report, if it is honest, will alarm people who must drink the water in cities along the Mississippi River - perhaps enough that they can organize their concerns in a way to force industry, agency regulators and maybe Congress to come up with ways to better control agricultural chemicals and municipal wastewater in the Mississippi River.

New Orleans, a major historical city that attracts millions of visitors, draws its drinking water from the Mississippi River. North and South Mississippi communities that use this water as a resource deserve the same initial water quality. The fact that all problems and pollution run downriver, coupled with the issue of saltwater intrusion at the mouth of the river make treating the Mississippi River's for use as drinking water difficult in Orleans, Plaquemines and St. Bernard Parishes.

All of this may be academic to some, but Sage Michael Pellet and I have consumed New Orleans drinking water for our entire lives. Whatever is in it, we have ingested it, and our liver metabolisms have attempted to detoxify and excrete the compounds that cannot be removed by the processes used by the Sewerage and Water Board of New Orleans at their large water works. Unless the Army Corps staff at the offices at Leake Avenue have another source of water, they drink it too from their building's water fountains. My 94-year-old mother mixes her morning orange juice and her evening scotch drink with New Orleans tap water. The quality of the water in the river makes a difference to me, to Sage Michael, to my mother, to the city's school children, to people bathing, brushing teeth and cooking gumbo and red beans and rice all over New Orleans. Lead that leaches into New Orleans drinking water from distribution lines poses another problem that this study should acknowledge. If water quality is a necessary component of the Army Corps' 2024 Mississippi River Comprehensive study, then the water quality and drinking water sections ought to be written responsibly, with complete and current data, in a form that is understandable by people who drink treated river water. The Corps needs to charge the study's authors with a sense of duty to people who use the water, and with a sense of urgency - as if getting the best information in our hands is vital to our lives - because it is.

Are changes needed to the MR&T project within the study area?

The 2024 Comprehensive Mississippi River Study should take a hard and compelling look at nutrients, water quality and drinking water as discussed above. The most challenging alternatives presented, or final recommendations that might be produced by the comprehensive study would be those that would require changing the management of flood water – perhaps by sending a greater volume of it down the Atchafalaya River basin to avoid diverting so much through the Bonnet Carre Spillway. Clearly this is the direction that the Mississippi Coast cities and Counties had in mind when they filed suit, and the Corps will doubtless need to explore it. If the flood waters are destructive, Mississippi feels that it should not have to bear all the bad consequences from another long flood on the river. Ther is a whole suite of considerations that come into play for the Corps in considering an alternate pathway to the Gulf for this floodwater. Sediment management is one of the considerations, as are the ecological health of the Atchafalaya Basin, environmental justice and impacts to underserved communities including the socioeconomic health of communities along the Atchafalaya Basin, many of which are low income, African American, and Native American.

Increasing the volume of floodwaters and sediment routed down the Atchafalaya would require the Army to Change its current MR&T management framework as provided by internal guidance documents or statutes. This would be a major undertaking.

What are the greatest concerns about the current state of the river?

Climate Change

After New Orleans residents were allowed back into the City by Mayor Nagin in 2005 after the Katrina evacuation, one of the first things I did after summarizing damage to my mother's house/roof/windows was to go up to the levee and look at the debris line left by Katrina's storm surge along the concrete apron of the levee at Carrollton. From a dead low (normal August low water level) river, the water rose about 13 feet up onto the levee's concrete apron and left a debris line at that mark. What this told me was that if a late Mississippi River flood coincided with a large storm surge from an early hurricane season, it would be possible that water could be pushed over the main river levees into my mother's neighborhood – the Black Pearl – right next to the Army Corps offices on Leake Avenue. Crevasses have certainly happened in the past, letting water into the city from the river levees. The Army Corps in the past three years has created a flood wall on its New Orleans District property that ties into the levee on either side of the office areas and work yards. The Corps of Engineers knows what I realized that day in October 2005 - that Katrina or some other storm since then could push a flooded river over the levee around its buildings into the Black Pearl, so it has acted to bolster the levee/floodwall protection. The Corps knows that climate change is real and is happening, and it has spent money to improve the levees in response.

Climate change is not mentioned in the scoping factors that the Corps presented it's PowerPoint that asked the public to make comments. Surely climate change is making an impact in the Mississippi River Drainage Basin and this study needs to take that into account. The case can be made, no doubt, that climate change is a root cause of the long Mississippi River flood of 2019-2020 and the "wet" months that raised the Mississippi River in that extended period, and

contributed to the low dissolved oxygen conditions, fishery mortality, harmful algae blooms and beach closures that ensued in the wake of the long opening of the Bonnet Carre Spillway. Surely there is a need for a robust look at climate change and adaptive river management ideas that track its effects in the river basin in the 2024 Comprehensive Study of the Lower Mississippi.

Conclusion

This five-year \$25 million study of the lower Mississippi River could be something singular and significant that changes the direction of Mississippi river management, and farm and municipal nutrient management in response to climate change and in response to the needs of Mississippi municipalities, communities in both Louisiana and Mississippi, and the fishing industry in both states. It should be a document that the people in the states along the Mississippi River Basin will read, use and talk about. It should not end up as a missed opportunity that goes on the shelf.

The study should be comprehensive, honest, frank and understandable by readers from the communities that use the Mississippi and drink its treated water - a forward-looking report produced by the world's largest and best resourced civil engineering organization about the most important river in North America. Or the Army Corps can write a pro-forma document as hard to read and inaccessible as the economics appendix of a run-of-the-mill ACOE Environmental Impact Statement. The Army Corps of Engineers has the talent and the resources to produce something excellent, lasting and significant and we at Healthy Gulf hope that it will.

Letter ID: 187 Name: Hettel, Martin Org/Agency/Company: -

Flood control act of 1944 - flood was up to 12 feet. With the recent droughts, we were using more tug boats and barges to move dredge material to deepen the channel for navigation. Costs of navigation on inland waterways decreases with the use of the 12 foot level management on the Mississippi river water level management standard.

Letter ID: 83 Name: Hitchcock, Bridget Org/Agency/Company: -

I'm very concerned about the [Bonnet Carre] spillway and the devastating effects it has had on the sea life in the Mississippi Sound. There must be a better way to control and prevent flooding. It seems to me there has been indescriminate use of the the spillway without much or any consideration of life in the Sound, including it's job economy. Please work together to help everyone. Letter ID: 84 Name: Hockensmith, Andrew Org/Agency/Company: -

It is my understanding that the Wolf River in Memphis has been destroyed by the USACOE many decades ago. It used to be a shallower, slower-moving river, which included many natural sandy beaches which could be safely approached and used for recreation. There are only a few points left which can be safely enjoyed now, due to the channelization of the river. I understand that the negative effects of channelization wasn't understood decades ago, and that it is an avoided practice now, but I am worried that the USACOE is still trying to "manage" creeks, rivers, and wetlands that need to be left alone. Rather than "managing" floodwaters, I would hope that this organization is working hard to prevent developers from building close to creeks, rivers, and wetlands, as it simply makes more sense to not build close to the water, rather than making the water go somewhere else.

Letter ID: 107 Name: Hooper, Bill Org/Agency/Company: -

Extremely concerned about the past damage to the Mississippi Sound, the Mississippi Coastal Waters, the fish and game in the Mississippi waters and the damage to the associated businesses that have occurred by the past actions and management by the Corps of Engineers. A solid corrective action plan must implemented so that this damage never occurs again.

Letter ID: 108 Name: Hotard, Jon Org/Agency/Company: -

The left descending bank from College Point to the North 1 mile has seen tremendous erosion over the last couple years due to barge mooring activity. The river bank has become close to the rear toe of the levee. During this past summer's low level and lack of rain has created some cracks on the levee crown.

Letter ID: 46 Name: Huff, Alexandra Org/Agency/Company: -

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Letter ID: 57 Name: Hundhausen, Stephanie Org/Agency/Company: -

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Letter ID: 109 Name: Hutson, Nathan Org/Agency/Company: -

The Mississippi Sound should be a top priority of this study. As a fishing guide on the Mississippi Coast, water quality has a direct effect on my business and more importantly our ecosystems. If our water quality suffers so does our economy and way of life. It should be our goal to protect our precious resources that we have here in Mississippi and not repeat the disaster of 2018. Alternative options such as river diversions to the correct areas benefit Louisiana and Mississippi. Generations to come will feel the affects of these decisions. I hope to see positive change for our coast.

Letter ID: 18 Org/Agency/Company: Ingram Barge Company

We are one of the larger family-owned companies, with 4,000 barges and 2,500 employees. We are concerned about disruptions to the navigational channel. There needs to be better operation and management of dredging. Going to the 12' channel will help insulate against low water stages. This is not conducive, however, if the harbors aren't at 12', too.

Letter ID: 105 Org/Agency/Company: Ingram Barge Company & Inland Waterways Industry

DELTA POINT PROJECT

Ingram Barge is adamantly opposed to the proposed protection dike around the USACE Matt Yard at Delta Point, LA in the Vicksburg District. We have provided ride alongs to USACE and demonstrated the significant negative impacts the dike will have on our ability to safely transit the area. This is not a good project for the inland waterways industry.

PROPOSED I-55 BRIDGE IN MEMPHIS, TN

Our industry has been expressing opposition to this project for several years. We understand the current plan is to build the new bridge 250' below the existing bridge, which will result in vessels not being able to safely navigate the bridge especially during high water. Industry has asked for a cable suspension bridge with a span from the L/D shore to the R/D pier of the existing center alternate span. We understand that the Tennessee Department of Transportation owns this project. However, we need to ensure the Mississippi River users' needs and concerns are considered while making the final decision on the approach, so the efficiency of our nation's supply chain is not diminished.

HICKMAN CONTROL POINT

A USACE study (Effects of Geologic Outcrops on Long-Term Geomorphic Trends), published in June 2021, concluded that removing or decreasing the rock outcrop near river mile 921 would not likely impact "reach-scale degradation." Navigation is severely affected during low water due to these rock outcroppings. We urge USACE to identify real solutions to this challenging area of the LMR.

FLOOD CONTROL / MANAGEMENT

Channels: We suggest deepening all channels to 13' or 14'. This would create natural storage of water at the bottom of the river during high water.

Spillways: Consider the effects on navigation when opening spillways such as Bonnet Carre, Morganza and Old River. The impacts to the eddies are severe and far-reaching, above and below, whenever these spillways are opened. Any added controls will likely compound the navigation issues we already encounter.

BUOY MANAGEMENT & LIGHTS / DAYBOARD MAINTENANCE

Until the new cutter vessels are available, we recommend allowing industry to provide vessels and crews to run continuous reconnaissance routes. We would enlist members of the USCG to support the crews and ensure adherence to government standards/requirements. We recommend industry work together on a rotation, so no operator takes on the full burden of taking multiple vessels out of operation for extended periods. USACE does not have enough resources to maintain lights and day boards our mariners use to navigate in addition to digital charts. Since electric charts are not mandatory, some operators must rely on these visuals. Similar to the buoy management suggestion, we recommend engaging industry to help maintain these important aids to navigation.

OLMSTEAD LOCK RIVER LEVELS

We experience fluctuations in river levels downstream from the Olmstead lock. In times of low water, a 3' - 5' unanticipated rise or drop results in significant navigation hindrances to our industry. We need USACE and Tennessee Valley Authority to collaborate on water management to better control the water levels. It is impossible to set barge drafts and tow size when these significant river level changes occur.

Letter ID: 106 Org/Agency/Company: Inland Waterway Industry and American Commercial Barge Line, LLC

This study is a great opportunity to look at the USACE maintaining a 12' Navigation Channel as authorized by Congress in the Flood Control Act of 1944, and recommended by the Mississippi River Commission.

Letter ID: 202 Name: Janet, Perez Org/Agency/Company: -

First, I am angered that the USACE did not hold a single public hearing in St. Bernard as part of this study. Nor did you advertise in any local newspapers about either virtual meetings or those held in neighboring parishes. Given the impact and scope of the proposed LIT will have on St. Bernard and the enormous effect this project would have on the Mississippi River here, the residents of St. Bernard deserved the opportunity to have a public comment meeting in St. Bernard.

Letter ID: 203 Name: Janet, Perez Org/Agency/Company: -

I have deep concerns regarding the proposed container terminal that is being planned for Violet, St. Bernard Parish by the Port of New Orleans. Their permit for this project is currently in the hands of the USACE and I feel that it should be denied for many reasons. First and foremost is that this project has not been fully vetted. PONO is taking advantage of an opportune moment in procuring land in St. Bernard, but that does not make this location the best for this type of project. It is not safe for ships the size they hope to attract to travel 80+ miles upriver. They will pose a threat to our levee protection as well as to other river traffic. This project will have detrimental effects on our residents, environment, infrastructure, wildlife, and quality of life. The permit on file is NOT for the full scope of their project and the scope of what they have submitted has changed several times since the permit was filed. I am asking that the USACE deny any permits for the LIT.

Letter ID: 53 Name: Kiger, Heidi Org/Agency/Company: -

Letter ID: 110 Name: Knotts, Chris Org/Agency/Company: -

Revisit the time frame over which the Congressionally mandated 70/30 split between the Miss River and Atch River is evaluated.

Also, review flood protection for the Lake Pontchartrain north shore area. Other flood protection efforts have focused more of the surge on the unprotected areas.

Letter ID: 76 Name: Lacour, George Org/Agency/Company: -

My first comment is I think the Corps should reevaluate the 70/30 distribution at Old River. I think the river's changed since it was enacted. I think the Corps should go back to an annual 70/30. The division should be on an annual basis and not a daily basis. When they made the change to a daily basis, it appears that our flooding has drastically increased. I wish they would go back and revisit that. The second comment is I think the Corps should reconsider the purpose of the Kentucky and the Barkley Dam to improve navigation and not just flood control, because in the droughts the last few years, navigation has been drastically curtailed. The lower river has run out of fresh water, while at the same time, the lakes have been maintained at a certain level. They could use more of that water, lower the lakes to benefit navigation and drinking water, and not to hold onto it just for recreation. The third — the final thing is I'd like the Corps to look at widening that Calumet Pass. It drastically needs to be widened because there's silt deposit building up just north of it because it's slowed down. Water flow slows down because it can't get out at Morgan City, and the Calumet Pass is not wide enough. That works.

Letter ID: 16 Name: Ladner, Marlin Org/Agency/Company: -

I appreciate the five-year study; however, I think we need to be a little concerned about what's going to happen in the next five years. And I hope they can deal with the devastation that's being caused by the Bonnet Carre Spillway and the other diversions that are going to further damage our Mississippi Sound. So great for the five-year study, I hope it gets finished. But we need to deal with the problem now as well, so that we don't damage and kill our Mississippi Sound. If you continue to flood and pollute the Mississippi Sound with freshwater from the Mississippi River into the sound, it's going to kill it and we're going to lose our oysters permanently, and, of course, all our seafood that's adversely affected by it. Take a look at the dolphins that washed up on the beach during the spillway opening in 2019. That was pitiful, and that's the top of the food chain. And what happened to the top of the food chain is close to us. We're the next in line. Sort of like the canary in the coal mine. So I hope they pay attention, yes, to the five-year study, but pay attention to the damages that are being done now and possibly next year and the year after. Thank you.

Letter ID: 31 Name: Ladner, Rustin Org/Agency/Company: -

Letter ID: 87 Name: Lagarde, Matthew Org/Agency/Company: -

I believe in examining the navigation impacts to the overall system in conjunction with managing the environmental impacts we need to re-evaluate the system working together as a whole instead of looking at mechanisms, triggers and operating standards for individual projects. We need to reexamine, surface velocities and publish those results as tables. We need to examine opening Morganza sooner in conjunction with Bonne Carre openings to manage velocity and spread the discharged water into a wider area for less overall impact to the Lake Pontchartrain Basin and surface velocities at Baton Rouge. Navigation is a key interest that needs to be maintained as an economic engine for the nation as well as a source of tax dollars that go back into system maintenance. I also think the USACE needs to take a more active role in helping manage development along the waterways instead of just evaluating permits for specific impacts to individual USACE projects. Systematic approach.

Letter ID: 51 Name: Lasher, Brent Org/Agency/Company: -

Letter ID: 113 Name: Latiolais, Mike Org/Agency/Company: -

The Intercoastal Waterway, also known as upper Grand River in the Bayou Sorrell community has not been dredged in 40 years. This is causing a bottleneck at the fork of upper grand river, and the Bayou sorrel locks. at this location, the river goes from 25 feet to 6 feet causing water to stay higher for longer periods of time. On behalf of the Bayou Sorrel community, I would like to discuss this issue with someone as soon as possible.

Letter ID: 121 Org/Agency/Company: Levee District #3, Wyatt, MO

In the virtual meeting, one of the slides was titled "HERE ARE SOME OF THE RESOURCES IN THE STUDY AREA." Of the bullet points listed, the is no mention of industry or agriculture, both of which make up a huge portion of the resources protected by our wonderful levee system. This really gives the impression that the Corps concerns only lie with creatures, fish, greenhouse gas, minority communities, and economic justice. Please be respectful of the majority of the residents and business living and operating in land within the Mississippi River corridor. We matter too.

Please devote more funding to maintaining our current federal levee system. According to updated National Levee Safety Program, many areas are graded deficient, but federal funding is not allocated for all their repairs required to make them meet original specifications.

Thank you

In this scoping study, it appears the Corps is looking for future projects to work on within the Mississippi River system. I know that within the Mississippi River Mainline Levee Supplemental Environmental Impact Statement II, there are decades worth of uncompleted projects that are not even funded. Can you please complete the workload you have on your plate before beginning dream up other things to spend federal dollars on?

After reading much of the Mississippi River Mainline Levee Supplemental Enviornmental Impact Statement II (SEIS II), I realize that much of the levee enlargement fill soil required to improve the levees is taken from acquired adjoining farmland. Most farmers in SE Missouri are very blessed to have wonderful, productive farmland. People are not interested in selling acres adjoining a levee enlargement project when there is usually an existing viable levee borrow area that could be used at no cost to the SEIS II project.

I am extremely thankful for our federal levee system. Without it, the majority of SE Missouri would not be the agriculturally productive region we are. There could be very few residents who would live in constant fear of another catastrophic flood. Please continue partnering with local residents and levee boards to make practical solutions to specific SEIS II project problems, regardless of how someone without "boots on the ground" initially wrote their federal plans.

Please continue to dredge the Mississippi and Ohio River main channels to keep navigation open, regardless of drought and water level. Also, please work with land owners and levee boards to transfer dredge material to accepting boards and land owners. I understand the river needs a certain amount of sediment, but small amounts of dredge material put on bank/in borrow holes should not negatively affect dissolved downstream sediment levels. Dredge material could also be used to build up existing levees, as designed in the SEIS II plan.

Regarding the Bird's Point - New Madrid, MO spillway:

Can the cities of Cairo, IL and Hickman, KY be fortified so that the spillway could be allowed to

overtop instead of explosive activation? This would greatly reduce to cost to the Corps of Engineers for levee replacement, litigation, repair to roads in the counties where overloaded trucks are bringing fill, among other contractor costs. Farmers within the spillway would overwhelmingly agree this is preferred in the event of another catastrophic flood.

-Ryan Moxley

Letter ID: 167 Name: Logan, R. B. Org/Agency/Company: -

So historical form – CWPPRA and BP Horizon, they put mud. My guess is after the hurricanes, there's nothing left out there. I asked CWPPRA for an aerial of the Gulf and levees and stuff and the islands they had put up pumped with mud. I have yet to receive it. That was in 2019.

In addition to that, some other things: y'all need to look at putting the shell beach back across the coast because the coast is washing away, as well as remove some of the rock and dams y'all created, especially the ones like the Red River, half the Arkansas, part of the Missouri, Tombigbee -- remove it. You think they're for commerce, but all you're doing is stopping sediment. That's part of the lifeblood. You need the reefs back so the mud has a place to accumulate and not flow out. In the '70s, I worked on shell dredges and the guys on the boat said that at low tide, there was no tide in Vermilion Bay because all you could see was the top of the reefs. There are no reefs anymore. In Hurricane Audrey, Abbeville did not flood. In Hurricane Rita -- Hurricane Audrey was 1957. Rita was 2007, I believe, and Abbeville had water in it. The difference was we removed the Point Au Fer reef, which protected all of Vermilion Bay. If they had dredged out Southwest Pass like y'all are being asked to do, there would probably be no island and Abbeville would be beachfront property. Same thing's going on on the west side -- I mean, the east side and the west side. A lot of the reefs have been removed, and that would trap the sediment. When you send sediment, you better have some reefs back. Those reefs took millions of years to develop. You can put them back pretty quickly by just putting some structures in, a lot better than mud. Instead of throwing that money in mud and dredging, you should have put the reefs back. If you go dig on any of the -- if you look at the high areas of the coast and you dig down any of them -- Pecan Island, you're going to hit mud at about two feet, one to two feet. If you go all the way up to other towns, Baton Rouge and everything, you'll find as you go up, that shell will get deeper and that's where oil and gas is, underneath the shell. You put the shell on top, you protect Lake Pontchartrain, you protect New Orleans, south of New Orleans.

You know, y'all need to fill back in the MRGO. Y'all dredged that and I know you put the Great Wall of Louisiana, but that's a temporary fix. You destroyed the marsh and you're about to take New Orleans out, so I suggest you work on filling in MRGO over there or putting levee across it. I'd take every levee south of New Orleans down. I know y'all are going to say, "Oh, we've got shipping." You want to have a New Orleans, that's enough. That's enough for them to digest — try to digest. Take your \$2 billion you're spending on diversions and put it in reefs. The diversions won't work. They haven't worked. You have seven already. The one down south of New Orleans in Venice, you don't even count. It's there, but it's buried up now and nobody talks about it. Those other diversions are not going to move. You're going to have to move sediment from the bottom of the river. Go read Rising Tide and read Mr. Eads' notes. You need to go read the book and made it standard reading at the Corps because the Corps would have fallen. If it hadn't been for General Grant, there wouldn't be no Southwest Pass or New Orleans — South Pass.

Letter ID: 219 Org/Agency/Company: Louisiana Future Energy

On behalf of Louisiana Future Energy (LFE), Greater New Orleans, Inc. (GNO, Inc.) – the regional economic development organization for the ten parishes of Southeast Louisiana – respectfully submits the following comment to urge the consideration of Louisiana's energy industry and workforce, and its impact on energy security, in developing and delivering LMR Comp. GNO, Inc. was awarded a \$50 million grant from the Economic Development Administration (EDA) in September 2022, matched with \$24.5 million from Louisiana Economic Development, for the H2theFuture initiative. H2theFuture is a 25-organization partnership with the objective to develop a world-leading clean energy cluster across South Louisiana.

Louisiana has been a leader in energy production and innovation for generations. The longevity of energy leadership and workforce experience postures the state to lead clean energy development and widespread market viability of emission reducing technologies, as championed by LFE. The expertise of industry leaders and organizational partners in Louisiana was leveraged to develop the concerns and recommendations expressed in this public comment.

Between 2018 and 2023, Louisiana has seen a renaissance in our energy sector thanks to clean energy projects. An all-of-the-above energy strategy postures the state to advance and leverage new energy and decarbonization opportunities including, but not limited to, offshore wind, solar expansion, electrolytic hydrogen production, direct air capture of greenhouse gas emissions, lithium-ion batteries, and renewable fuels. According to Louisiana Economic Development, over the last five years the State of Louisiana has announced:

- 35 clean energy projects
- Totaling \$45.6 billion in capital expenditure (capex)
- Creating 23,000 new jobs: 5,268 direct jobs and 17,831 indirect jobs
- Generating an average salary of \$79,900
- \$23.3 billion in capex for renewable-powered industrial projects (50.7% of total)

Future energy projects and development in Louisiana have been supported by a total of \$1.47 billion in discretionary federal grant funding. Advancing an all-of-the-above energy strategy has increased the attractiveness and competitiveness of Louisiana and has instilled federal confidence in the growth of renewable energy in the state.

Green hydrogen - in contrast to traditional "gray" or "blue" hydrogen extracted from fossil fuels - is produced by splitting water (H2O) with electrolyzers powered by renewable electricity, such as wind. Freshwater supply is an integral component of this process. Thus, maintaining consistent freshwater supply via the Mississippi River is the most important factor behind actualization of this vision, these clean energy proposals in Louisiana, and large-scale decarbonization across our country. Thus, supply of clean hydrogen for the nation is dependent on outcomes of LMR Comp.

According to a recent McKinsey analysis, Louisiana consumes 30% of the U.S. hydrogen market. End-use hydrogen demand in the state underpins the economic bottom-line for companies seeking to produce low-or no-emission hydrogen. The advancement of electrolytic hydrogen production has the potential to reduce total emissions of the hardest-to-abate sectors in South Louisiana by as much as 68%.1 As a flexible, zero-carbon energy carrier, electrolytic hydrogen can decarbonize hydrogen-intensive assets and utilize existing infrastructure located in South Louisiana, including the following:

- Fifteen oil refineries which represent 15% of U.S. oil capacity
- Four ammonia facilities which represent 35% of national capacity

• One of the densest networks of pipelines, including the largest hydrogen system, stretching more than 700 miles from Galveston Bay in Texas to New Orleans

Long-term end-use hydrogen demand in Louisiana (see figures below) creates stable and reliable conditions for businesses seeking to develop electrolytic hydrogen production facilities to leverage high hydrogen consumption to reach price parity. The following data of market demand displays a compelling case for electrolytic hydrogen production in Louisiana:

• Louisiana was the largest national hydrogen consumer in 2020, totaling 2.8 metric tons of hydrogen

• Louisiana is projected to be the 2nd largest consumer of hydrogen in 2050, following Texas

•The primary offtake for end-use hydrogen demand is bulk chemical, which likely includes foundational Louisiana sectors such as ammonia and fertilizer, oil product refining, petrochemical, and steel manufacturing

For these reasons, hydrogen producers have identified Louisiana as a natural investment location for clean hydrogen and ammonia production. GNO, Inc. and our economic development partners are currently working to secure electrolytic hydrogen and ammonia projects representing a total of \$6.5 billion in prospective capex in business development pipelines. Our work in developing local talent, attracting private capital, and catalyzing expansive development of electrolysis facilities in South Louisiana aligns with federal goals. President Biden has set an ambitious U.S. goal of achieving a carbon pollution-free power sector by 2035 and net zero emissions economy by no later than 2050. Furthermore, the Biden Administration aims to produce 50 million metric tons of clean hydrogen fuel domestically by 2050. In all, this work – centering South Louisiana

as a clean hydrogen production and deployment hub for our country – enables the United States to achieve goals set by the Paris Agreement – while renewable energy resources are developed and deployed.

Ensuring consistent supply of freshwater from the river is a necessity for industrial operations and energy production, particularly clean hydrogen. Moreover, prioritizing water supply within South Louisiana as an LMR Comp objective provides stability for residents of South Louisiana and the energy workforce that depends on availability of river-supplied drinking water for sustenance. LMR Comp should keep in mind the need to protect and the critical workers that service forthcoming and existing critical infrastructure and facilities. LMR Comp's South Louisiana-specific work to advance hurricane and storm damage reduction, flood risk management, structural and nonstructural flood control, floodplain management strategies, and ecosystem and environmental restoration all safeguards populations necessary to delivering American energy supply. Investments in levees, internal drainage projects, and coastal wetlands via efficient beneficial use can limit intensification of severe weather or impacts of such and protect energy facilities themselves. Evaluations conducted for LMR Comp must consider the broad impacts of effective, long-term management of the Mississippi River on energy assets throughout the coastal region. Signaling long-term investment and management in freshwater supply, coastal restoration, and flood protection will strengthen business retention efforts and attract more development than obstruct. An example of how insufficient management strategies can affect business development can be found in Plaquemines Parish: Phillips 66 Co. announced in 2021 that it would permanently shut down its Alliance Refinery in Belle Chasse after assessing the damage caused by flooding from Hurricane Ida. Additionally, events such as the 2023 Saltwater Intrusion Emergency hinder economic advantages of businesses and industries along the Mississippi River, while affecting quality of life for families living in the Greater New Orleans region. Consideration of South Louisiana's current and developing energy assets particularly the growth of clean technologies reliant on freshwater supplies – must be a priority for the LMR Comp.

Letter ID: 226 Org/Agency/Company: Louisiana State University, School of Renewable Natural Resources

Climate change has been projected to increase: 1) discharge of the MR, 2) extreme precipitation events and floods as well as droughts, 3) frequency and intensity of tropical storms, and 4) sea level rise.

I was wondering how these issues caused by climate forcings will be addressed in the LMRCMS?

Jun Xu

Letter ID: 199 Org/Agency/Company: Lower Mississippi River Conservation Committee

Since 1994, the Lower Mississippi River Conservation Committee (LMRCC) has provided a regional forum dedicated to conserving the natural resources of the Mississippi's floodplain, focusing on habitat restoration, long-term conservation planning and scientific assessment of the river's health. We are a coalition of 12 state natural resource conservation and environmental quality agencies in Arkansas, Kentucky, Louisiana, Mississippi, Missouri and Tennessee, incorporated as a 501(c)(3) non-profit organization.

The LMRCC works in cooperation with numerous federal, state, and non-governmental organizations for continual improvements to the Lower Mississippi River (LMR), recognizing its value as a multi-purpose river. Through these partnerships, we promote holistic management of its numerous resources from navigation and flood risk management to conservation and restoration of ecosystems, to improvements for recreational opportunities. The LMR supports a diversity of aquatic and terrestrial species, including several of conservation concern: Pallid Sturgeon (Scaphirhynchus albus), Fat Pocketbook Mussel (Potamilus capax), and Interior Least Tern (Sterna antillarum athalassos). It contains incredibly rich bottomland hardwood forests and a variety of features to create habitat complexes, critical for the long term management of the LMR.

The LMRCC has worked cooperatively with U.S. Army Corps of Engineers (USACE) for over 30 years, with USACE being instrumental in the formation of our organization. We have worked together in unique ways and have also gone through traditional paths such as via feasibility studies. Through this partnership, we have amassed an impressive amount of information that is evidenced in the Lower Mississippi River Resource Assessment (LMRRA). A key outcome of the LMRRA was the development of conservation reaches. We established eight such reaches on the LMR that could be further investigated to identify more comprehensive restoration, each in an approximately 40-mile stretch of river. These reaches contain a variety of the unique habitats that exist on the LMR, contain wide batture areas in some cases, and although collectively they only represent approximately 30% of the LMR, they provide an excellent starting point as we begin to think collectively about LMR restoration opportunities.

We are currently working with the Memphis District and Regional Planning and Environmental Division South to finalize the Hatchie-Loosahatchie Mississippi River Ecosystem Restoration Study. This is one of the eight conservation reaches identified in the LMRRA and subsequently authorized for feasibility study via Water Resources Development Act (WRDA) of 2018. The Hatchie-Loosahatchie Study is a great opportunity to think holistically about restoration opportunities on the LMR, but also serves as a template and model for how we approach the remaining seven reaches.

The LMRCC understands the tremendous task of the Lower Mississippi River Comprehensive (LMR Comp) Study, authorized in WRDA 2020, amended in WRDA 2022 to be 100% federally funded. While we are pleased with Congressional direction to look at the river comprehensively, we recognize the delicate balance that is required. The LMRCC would like to request USACE incorporate the remaining seven conservation reaches into the LMR Comp Study and allow

LMRCC the opportunity to provide input on appropriate scoping of those reaches. As we have spent the past three years working on the Hatchie-Loosahatchie Study, there have been many lessons learned and we believe these lessons can be applied and incorporated into the LMR Comp Study. For example, while it is important to consider a variety of restoration measures within a particular conservation reach, we recognize there are components of these restoration efforts that may be better suited for partner entities to execute (i.e., reforestation efforts). The LMRCC believes we can work with USACE to develop a narrowed scope for the remaining seven reaches, which will create efficiencies in the process while also allowing the most rare and important habitats on the LMR be conserved and/or restored. For example, we know the river is no longer creating oxbow lakes and meander scarps due to the channel improvement measures to provide a safe and reliable navigation channel. We also know these are invaluable habitats for our native animals and plants, provide floodwater attenuation benefits, allow spaces for natural nutrient reduction, and serve as incredibly important areas for safe recreational activities. So, perhaps we provide some focus to these and other higher priority habitats.

The LMRCC has worked for decades on the LMR to show that ecosystem restoration can be conducted in a manner that does not jeopardize the critically important navigation and flood risk management systems. We want to strongly encourage USACE to use existing resources that have been developed cooperatively over numerous decades to steer and guide the LMR Comp Study. The LMR is a model for cooperation, exemplified in the Conservation Plan for the Interior Least Tern, Pallid Sturgeon, and Fat Pocketbook Mussel in the Lower Mississippi River and the resulting non-jeopardy Biological Opinion issued by the U.S. Fish and Wildlife Service. There are numerous resources from which to pull to inform the LMR Comp Study and we ask USACE to please consider all these pathways and consult with LMRCC and its many partners to develop the ecosystem restoration pieces of the LMR Comp Study, which in many cases, work brilliantly with other critical LMR uses, such as flood risk reduction. We believe incorporating the remaining seven conservation reaches is an efficient and effective way to utilize information already gained through other USACE study efforts, while also accomplishing ecosystem restoration objectives in the LMR Comp Study.

We appreciate your consideration of these comments and look forward to working with you.

Letter ID: 146 Name: Luckett, Homer Org/Agency/Company: -

Finish the pumps on Steele Bayou. Flooding destroys timber and kills wildlife. Farmers of row crops can't farm under water!

Letter ID: 4 Name: Luckett, J.H. Org/Agency/Company: -

I would like to see the completion of the Yazoo Backwater pumping plant.

Letter ID: 171 Name: Mariana, Michael Org/Agency/Company: -

I'm a life-long resident of Plaquemines Parish and we have to work to restore our coast. About 100 years ago with the levees being put in by the federal government, though it kept us dry, it absolutely cut off what our coast needed, what our wetlands needed, eastbank, westbank. We have no real distributary to the river and the sediment and fresh water that the river once provided, are cut off and gone. They go out to the continental shelf. We need to stop that. We need to find a way to not only support the freshwater diversion that the State is working on right now, but we need to have many distributaries of the river and mimic what the river once did when it flowed naturally. We don't want to flood people out, but we have got to be able to put sediment and the fresh water from the river back into the wetlands of Plaquemines Parish in a broad way, eastbank and westbank. We've got to try and find a meaningful way to mimic what nature did. In the last hundred years, we've lost about two-thirds of the wetlands in Plaquemines Parish. We've lost a tremendous amount of species at a negative impact on our culture. We've got to be able to reverse that and actually make the wetlands grow again or we are going to lose everything that we have here. I ask you to please take this concern very seriously. Again, we need the levees but we also need the fresh water and the sediment that the river provides. We've got to find a way to get it in a large scale manner back into the wetlands of Plaquemines Parish. This not only helps to rebuild the land itself but it helps to provide tremendous amount of storm surge protection for not just our parish but New Orleans and a great deal of southeast Louisiana. If we look back at the history of this, we have a strong and long history of using our wetlands for the Sportsman's Paradise that it once was. If we don't act soon, that is going to go away. Thank you for listening.

Letter ID: 116 Name: Mariana, Mike Org/Agency/Company: -

My interest in the Mississippi River is returning it to the greatest degree possible given current land use and development to its original state before European settlement in this region. Let me be clear, I am not talking about moving people out of their homes. What I mean is reconnecting as many natural distributaries of the river in Southeast Louisiana to our wetlands thus allowing nature, freshwater, and sediment to take their course again. I am also in favor, by the way, of the bigger Mid-Barataria and Mid-Breton diversions that the state is working on. The Mississippi River is the key. It brings freshwater and sediment to our parish 24/7/365. WE CANNOT ALLOW IT TO CONTINUE BEING DUMPED OFF OF THE CONTINENTAL SHELF.

The current federal levees protect us from floods, but the have been killing our coastal wetlands for almost 100 years. This is not a zero sum game. We can have both levee protection and use the river to build and rebuild our coast. Please help now!

Letter ID: 125 Org/Agency/Company: Marquette Transportation

More cohesive strategy between divisions to optimize water management as a system.

Missouri river basin needs to understand their storage affects the entire system not just that stakeholders in their district. Nashville district needs to coordinate with Missouri and Arkansas.

Break down divisional stakeholder barriers and take a systematic approach.

Break down ridged constraints of water management (old River, Lake Michigan/IR). Are we really constrained to release 3500 cfs from Lake Michigan to the Illinois given a SCOTUS decision in 1932 when 5000 cfs can be the difference in navigation.

Use AI to optimize system.

Factor long range forecasting into decision making.

Weather

Lake of the Ozarks needs to be another water management tool for USACE and not a private reservoir.

Can we expand reservoir capacity? Grand River, Missouri

Maintain a 12 foot channel.

Letter ID: 28 Org/Agency/Company: Marquette Transportation Company

Districts do a great job internally, but they don't work well with others and integrate their decisions. Suggestion is to coordinate internally with other Districts. For example, Lake Barkley went down to winter pool as normal, but the Missouri River was shut down 30 days early when just holding the water that 30 days would have made all the difference. Work towards cohesion in decisions (e.g., pulsing water) and think broadly. The Illinois River water release was set by Supreme Court in 1933 – can that be changed some? In the future, consider that Fall is when most of their grain product is shipped. Navigation needs are comprehensive management and time releases when the consumers need it.

Letter ID: 42 Name: Martello, Jordanna Org/Agency/Company: -

Letter ID: 208 Name: Martin, William

Letter ID: 201 Name: McCarthy, Theresa Org/Agency/Company: -

Please note that I am vehemently opposed to this being placed in St. Bernard. The destruction it will cause to our infrastructure, wildlife and health should be enough to shut this project down.

Letter ID: 61 Name: McMahan, Peter Org/Agency/Company: -

Letter ID: 65 Name: Melton, Shea Org/Agency/Company: -

Letter ID: 38 Name: Meyer, Craig Org/Agency/Company: -

Letter ID: 118 Name: Michel, Andrew Org/Agency/Company: -

My family has been in this area for nine generations. Most of us, and most of the people in our community, are conservationist, sports persons and just simply love the outdoors and the great diversity flora and fauna in this area. We work hard to preserve our heritage and will offer any assistance to the Corp in that regard. But you must know our first priority, and what should be the first priority of our government, is to not have our homes flooded by springtime rising water on the Mississippi and in the Atchafalaya Basin. We support any plan that makes this better and no plan that could make it worse.

Letter ID: 119 Name: Miller, Ovide Org/Agency/Company: -

It was a goood meeting. The Corps did a great job of managing the meeting.

Letter ID: 127 Org/Agency/Company: Mississippi Institute of Dolphin Science (MSIDS)

MSIDS was on the water during the entire duration of the BCS opening and documented health status and skin lesions of bottlenose dolphins in the MS Sound. MSIDS supports the position of the MS Sound Coalition to update the antiquated 1927 management policies for management of the MS River Flood plan. Furthermore, MSIDS opposes the Mid-Bretton Sound river diversion project as this will cause similar habitat altering conditions as the BCS opening and lead to death of federally protected species and destruction of crucial salt marsh wetlands habitats.

Letter ID: 162 Org/Agency/Company: Mississippi Levee Commissioners

I attended the Lower Mississippi River Comprehensive Management Study (LMRCMS) " Public" Meeting in Stoneville, MS, on February 28, 2024. This was NOT a public meeting! Audio/videotaped welcomes were presented from Ann Hijuelos, Gen. Kirn Peeples, and Col. Cullen Jones. Ann Hijuelos did a taped audio over a power point presentation. After the taped videos and taped presentation ended Mr. Barry Moore with the Vicksburg District thanked everyone for coming and told us we could submit written comments. He said they were not allowing open discussion, oral testimony, or giving us a chance to talk.

Apparently, the New Orleans District is leading the effort and they chose the format. They did not want people asking questions or expressing their opinions. I had invited my entire Board to attend and I was completely embarrassed that they did not have a chance to interact on this LMRCMS "public" meeting. They were looking forward to hearing from the public on their thoughts, ideas, and concerns. My Board also wanted a chance to speak and be heard. Mississippi Gov. Tate Reeves recently appointed Mr. Chat Phillips to the LMRCMS Oversight Group. Mr. Phillips attended this "public' meeting, and he did not get a chance to hear anyone speak, voice the or ideas, or their concerns. I am assuming you guys are just "checking the box' that you hosted 28 public" meetings throughout the Lower Mississippi River Valley. You are completely wrong, and I am seriously appalled at this pathetic attempt to get the public involved. This leads me to believe that the New Orleans District has a set agenda and really does not want to hear from the public. Regardless of my skepticism of this process, I am going to write you my comments for the record and I truly hope you listen to them and include them to help formulate this study. I hope this \$25M study is not a complete waste of time and money. Remember that this is the Lower Mississippi River - not just the New Orleans District.

OPENING COMMENTS

The Mississippi River & Tributaries (MR&T) Project started in 1928 for Flood Control following the

devastating 1927 Flood. It was built for flood control and navigation. Keep Flood Control the #1 Mission! Keep Navigation the #2 Mission! The MR&T Project is currently incomplete - it is only 89% complete. We must first finish the current MR&T Project before we start tweaking the system!

Since the 2011 Epic Mississippi River Flood, the Corps has been focusing on completing the Mainline Mississippi River Levee (MRL) enlargement and seepage control projects while a lot of other authorized work planned for interior streams and backwater areas have been put on hold. Many project partners have been waiting patiently, in many cases for decades, for their projects to be completed or maintained. Let's not develop a new list of priority items that will make them wait for several more decades. Now that we are getting close to getting the MRL completed, we need to start focusing on completing the remaining MR&T authorized work before we start spending limited resources on new projects created by this LMRCMS.

YAZOO BACKWATER PUMPS

Finish the Yazoo Backwater (YBW) Pumps! The new YBW Project allows 135,000 acres to flood below the pump-on elevation of 90', but it can protect lands above 90' during the growing season. During the non-crop season, the new project will allow up to 253,000 acres to flood below 93 '. The new project allows the Mississippi River to back into the Mississippi Delta to a certain elevation - this reconnects the Mississippi River to its old floodplain. The new project also has supplemental low-flow wells in the upper Delta along the levee to keep water in our interior streams during the Fall low-flow season when our interior streams run dry. This project will not only provide flood protection for people, homes, businesses, and crop land above 90', but it will also provide a tremendous amount of environmental benefits and help protect our wildlife and the environment.

YAZOO BACKWATER LEVEE

Raise the Yazoo Backwater (YBW) Levee up to its authorized grade. It is supposed to overtop when the Mississippi River gets to 2' below a Project Design Flood (PDF). Adjust all 4 Major Backwater Areas in the Lower Mississippi River Valley so they all work together during a PDF at the same time.

NEW FLOODWAYS

Evaluate the need for additional floodways due to climate change - such as reopening the Cypress Creek natural flood way in southeast Arkansas and Louisiana. Until the closure of the natural outlet at Cypress Creek, there was no need for backwater improvements in the Mississippi Delta.

FLOOD CONTROL MAINTENANCE

We must continue to provide major maintenance on levees and structures. Our aging MR&T infrastructure must be maintained, and we need to replace older structures and dams - like Steele Bayou Structure (built in 1969) and Arkabutla Dam (built in 1943).

INTERIOR STREAMS

The Corps enlarged and improved interior streams in the 1950's and 1960's for flood control. These streams have silted in over the past 75 years and they need to be dredged back down to the original project design grade so that they properly function again. Like I mentioned earlier, we have been patiently waiting for decades for this maintenance work and do not want it pushed back any further by new projects proposed by this LMRCMS. Let us get this maintenance work done before we start new projects. Add weirs to our Interior Streams for water supply, groundwater aquifer recharge, and channel maintenance. Make Water Supply a mission for Corps. The groundwater aquifer is being depleted and we need to find ways to recharge it.

AGGRADATION BELOW OLD RIVER CONTROL STRUCTURE

A sediment buildup has happened below the Old River Control Structure near Natchez, MS. Look at tweaking the Old River Control Structure flows from the current 70/30 split. Maybe look

at 100% flood pulses down the Mississippi River at strategic times to push the sediment buildup down. Remove the sediment buildup in Mississippi River below Natchez. Deepen the existing 9' deep channel to the authorized 12' deep channel all the way from Baton Rouge, LA, to Cairo, IL.

NAVIGATION

We must continue to maintain the Mississippi River for navigation. We must continue building and maintaining revetment and dikes. Look for innovative environmental benefits such as notching the

dikes. Continue annual dredging of Ports. Find beneficial uses of dredge material such as building up areas along the River for ports and river industry.

PUBLIC ACCESS

Explore more opportunities to build boat ramps for public access to the Mississippi River.

LEARN FROM THE MISSOURI RIVER DISASTER

Be very careful that the Corps does not lose focus on Flood Control and Navigation. A long time ago an area along the Missouri River used to consistently flood, and the local residents asked the Corps to help them. The Corps built a good flood control project along the Missouri River and it worked! People were able to farm the area. However, in 2004 the US Fish & Wildlife Service said the Corps was violating the Endangered Species Act and needed to restore the fish & wildlife. The Corps had to switch management of the Missouri River from flood control and navigation to benefiting endangered species which led to floods. The farmland started flooding again. On March 5, 2014, a class action lawsuit called Jdeker Farms vs. USA was filed on behalf of 372 plaintiffs that alleged the Corps took private property without just compensation. On March 13, 2018, the trial court ruled in favor of the landowners by saying the Corps bore the responsibility for causing recurring flooding in 2007, 2008, 2010, 2013, & 2014, and the Corps will have to compensate farmers and landowners. The Corps appealed the ruling and on June 16, 2023, the US Court of Appeals for the Federal Circuit ruled in favor of the landowners. This is estimated to cost the Corps hundreds of millions of dollars. More importantly the Missouri River now offers no flood protection, and the navigation system has been severely diminished. If we are not careful and lose our focus on flood control and navigation, I can see this LMRCMS resulting in another Jdeker case on the MR&T Project in the future!

BOTTOM LINE

Do not screw up the Lower Mississippi River like it was screwed up on the Missouri River because of the USFWS. Do not shift the priorities from flood control and navigation to ecosystem restoration and

environmental restoration. Look for ways to tweak the current system to include good environmental benefits but not at the loss of flood control or navigation. Keep Flood Control and Navigation the top priority!

I appreciate the opportunity to submit these comments as part of the process to develop the

Lower Mississippi River Comprehensive Management Study. If you have any questions please feel free to contact me.

Letter ID: 24 Org/Agency/Company: Mississippi River Commission

There are unintened consequence of channel improvement features.Is this one feasability study or many feasibility studies? It's a very large effort.

-James Reeder

Letter ID: 180 Org/Agency/Company: Mississippi Sound Coalition

I'm Gerald Belssey, the manager and counsel for the Mississippi Sound Coalition, along with my lead environmental counsel, Robert Wiygul, who may have already made a statement. But Mississippi Sound Coalition represents the cities and counties on the Mississippi Gulf Coast and the commercial fisheries and Tourism Hotels and Lodging Association. Their representatives will also appear, many of them may have given statements. And so this may be a little bit redundant, but I'm going to hand you, for the record, a one-page overview of the Mississippi Sound Coalition's Scoping comments to the Lower Mississippi River Comprehensive Management Study Public Scoping Meeting today, February 27th, 2024, in Bay St. Louis, Mississippi. So I'm not going to read all these. I'm going to have it put in the record, if that's okay with the court reporter. (Reading from document handed in to be put on record).

OVERVIEW- MISSISSIPPI SOUND COALITION SCOPING COMMENTS LOWER MISSISSIPPI RIVER COMPREHENSIVE MANAGEMENT STUDY PUBLIC SCOPING MEETING, FEB. 27, 2024, BAY ST. LOUIS, MISSISSIPPI. The Mississippi Sound Coalition believes that the Lower Mississippi River Comprehensive Management Study has the potential to benefit all parties who are affected by U.S. Army Corps of Engineers operations. However, to be effective, the study process must: - Acknowledge the damage from Bonnet Carré Spillway operations to the natural resources of the Mississippi Sound and the citizens of coastal Mississippi. - Acknowledge that the Corps currently has authority and discretion to mitigate impacts from Bonnet Carré Spillway operations by using the Morganza Spillway and other parts of the Mississippi River and Tributaries Project. Identify immediate as well as longer term measures that can be taken to prevent the damage done by Bonnet Carré Spillway operations and other aspects of Mississippi River management. - Acknowledge and address any natural resource damage that will be done by proposed projects including Mississippi River diversions. -Acknowledge and address the impacts of increasing precipitation on flooding and Mississippi River flows. - Acknowledge the effects of and find strategies to prevent nitrogen and phosphate pollution in the Mississippi Sound. - Use nature-based solutions, including reconnecting the Mississippi River to its historic floodplain where possible. - Fully incorporate Mississippi Gulf Coast stakeholders in the study process and hold regular meetings on the Mississippi Gulf Coast to incorporate input from the public.

But in listening to the presentation today from the Corps, and let me say, you know, we really appreciate the Corps sending the team to Bay St. Louis to Mississippi, and they have two more Mississippi meetings, as well as all the other states they've done, we really appreciate their outreach to everyday citizens and to others to have input. And we hope, we the Mississippi Sound Coalition, that we can find win/win ways, we, the Corps, and everybody else, state and local governments, and people, scientists, engineers, find win/win ways to accomplish the two major goals that I think this study is asking them to look at. And that is, of course, maintaining flood protection, safety of life, and property from flooding, which the Corps has been doing for a hundred years; and protection of the environment of those ecosystems that are receiving the river water, not just at flood time, but in diversions or any other aspect of release in Mississippi River water. So one of the things that I was kind of concerned with today, is I didn't hear much about a goal of this study to come up with recommendations about reducing, if possible, back to a

normal level, the nutrients, phosphates and nitrates and other nutrients, but primarily those, coming down the river from runoff from various sources: agriculture, animal farms, and the city streets and, you know. So that's so important, because even if there's never another flood, which of course likely there will be floods, but if there's never another one, all that water is going out into the Gulf and you have a dead zone like everybody knows about, and that would just get worse if we don't control the nutrients. So I assume that should be part of this study. But so, we're disappointed that there was not a question and answer period, there was one in hoc as it turned out. And we really appreciate the courtesy of the Corps people who were here and then allowing that in and answering as best they could. And we understand this is just a scoping meeting, but obviously the public that was here today are very upset about the lack of attention and the acknowledgment that the Mississippi Sound has to be an integral part of this study in terms of the impact because of, not just the Bonnet Carré, but potentially the Mid-Breton Sound Diversion or Mid-Barataria Diversion. And we know that the Bonnet Carré leaks every day, so, I mean, it's more than just at flood time.

But even during flood time, there's better ways to manage it using floodplains and other structures, and perhaps other solutions that we haven't thought about and the Corps hasn't thought about, to at least minimize, if not avoid altogether, the saltless water coming in through this Mississippi Sound estuary. I mean we've got to have some salt so the fresh -- so-called freshwater, because it's low salinity, is very harmful, even without polluting it. It has the nitrate phosphate pollutants, which are like a double barrel shotgun. And that's because of the algae bloom in the summer of 2019. So yes, we think there are ways -- the Corps should study ways to make recommendations on action, not just more studying. I heard more here about some spinoff studies, this study may lead to other studies. We don't have time for them. They've studied it for a hundred years. They've been studying it for 50 years any and only since the 1973 Bonnet Carré Spillway opened. And they've been studying even more since the BP Oil Spill. Well, I agree we need more science and more peer review and engineering and so forth would be helpful, but we've also got to be looking at what we already know, the terrible impact on, for instance, the death of the natural estuaries in the Mississippi Sound, we already know that that's caused by the Bonnet Carré that opened in 2019 and prior. So what we want to do then, is urge the Corps to -on their list of deliverables, to deliver recommendations on how to minimize or avoid, to learn the tipping points. I mean even if the Sound took some water through Pontchartrain and lakes running into the Sound. I mean it was open for five months in 2019. That's devastating. If it's opened for five days, it's a little different. We'd rather it not be, but, you know, you got to do it to save New Orleans from flooding, of course. We don't want to see the Atchafalaya people flooded either. We want to see win-win solutions, so... We're also disappointed that the Mississippi Sound Coalition really wasn't on the notification list for the virtual -- the virtual meeting that was held on January 23rd. Apparently, a lot of people were invited. And we weren't on the list to be notified of even this meeting. We learned of it indirectly. And that's very disappointing, because as Congressman Ezell pointed out to you today, last June, the Assistant Secretary Connor promised that the Mississippi Sound Coalition would be key stakeholders, including their constituents, which would be city governments, county governments, fisheries entities and tourism entities. And apparently, so far as we can tell, that word didn't get out to the people who were sending out the notices. So, hopefully, that will change. But we think it's important we have -- we, the Coalition, have scientific studies underway or we've already presented some of it to the Corps and to the national fisheries even before this study began. And we'll resend those to them if they want to see it again, and just make sure it's on the record. But my point is that -- and

Mississippi spends some money for additional science. The Coalition represents the people on the front lines here whose economy and way of life have suffered from the openings of the Bonnet Carré and will suffer from the Mid-Breton, suffer from the pollution in the water, suffer from the low salinity. So we think we can be helpful stakeholders, not just at meetings like this, but, apparently, there's a list of stakeholders that the Corps is going to spend more time with oneon-one, and we think that would be helpful, face meetings, not adversary. Now, I understand, of course, you know, the Coalition has filed two lawsuits against the Corps of Engineers. One of them now is finished. That was regarding Magnuson-Stevens Fishery Habitat, and there was some discussion about that today. I mean astonishingly, the Corps, just a few months ago, filed a Fishery Habitat Assessment of the opening of the Bonnet Carré in 2019 on the ecosystem of the Mississippi Sound, and on the oysters in particular. And the conclusion was it was a minor -- a minor impact and temporary. Well, what's the Corps' definition of "temporary"? That was five years ago and they're still dead. I'm sorry, but, you know, so far the study they've done is not convincing. What is the science behind that conclusion? We have peer-reviewed science saying that that's not true, and we'll be glad to discuss this with them. We would rather do that in a conference table and a dialogue, rather than being adversaries.

So I'm concerned about the deliverables. Not just what's being studied, but what are the action recommendations going to be. I know today is not the day for them to say what those are, that's what this study's for. So we're looking for those deliverables, look for win-win solutions that will save the Mississippi Sound, save the Louisiana fisheries and ecosystems as well, and all up and down the river, and also protect people from flooding. Surely, the greatest nation in the world and the great Corps of Engineers -- I love the Army. The Corps of Engineers is a distinguished group and it has great scientific and historic understanding of these things. Surely they can come up with a solution that will solve these problems in a win-win situation way. I look forward to other meetings and conversations where it will be more of a dialogue and not a debate, and so we share knowledge and information, ideas to try to accomplish these goals with the Corps being the ultimate agency to implement those that other state agencies and other federal agencies can be and should be on board to help. For instance, if you want to reduce the nutrients in the Mississippi River, that involves a lot more than the Corps of Engineers. And the federal government has a number of agencies that, apparently, are going to be involved in this study in addition to the Corps. So we really urge that that dialogue be occurring and that they listen to us as stakeholders as well. We're on the receiving end of somebody else's pollution. So let's see if we can't solve it so nobody is hurt, nobody is punished, but we all get together and clean it up.

Letter ID: 2 Org/Agency/Company: Mississippi Sound Coalition

These comments are submitted on behalf of the Mississippi Sound Coalition in response to the U.S. Army Corps of Engineers' request for scoping information for the Lower Mississippi River Comprehensive Management Study (the "Comprehensive Management Study"). The Mississippi Sound Coalition is an organization of Mississippi coast counties, municipalities and non-profit organizations that are dedicated to protecting and restoring the historic natural resources of the Mississippi Sound. As set out below, operation of the Bonnet Carre Spillway in flood years like 2011 and 2019 have had extreme adverse effects on the fisheries and natural resources of the Mississippi Sound. The Coalition hopes that this reality will be acknowledged and addressed in this management study. The Corps has posed several specific scoping questions on the Comprehensive Management Study website:

- How can the Mississippi River and Tributaries system be adapted and managed for a changing future?
- What are your greatest concerns regarding the evolving river system?
- What do you believe should be the priority(ies) under evaluation?
- How can we improve our communication approaches during the 5-year study?

The Mississippi Sound Coalition offers the following in response to these questions.

I. Background: The operation of the Mississippi River and Tributaries Project has caused severe damage to the Mississippi Sound and the citizens who rely on it for their livelihoods and recreation.

Managing the Mississippi River for a changing future first requires acknowledging the impacts of present management. The Mississippi Sound is not directly connected to the Mississippi River through any major natural distributary. The impacts of Mississippi River water on the Sound are dictated almost entirely by the Corps of Engineers' management of the Mississippi River and operation of the Mississippi River and Tributaries Project, in particular the Bonnet Carre Spillway. In major flood years, the impacts of the Corps' management decisions can be devastating. This was dramatically illustrated in 2019.

The Bonnet Carré Spillway was opened from February 27, 2019, through April 11, 2019, and again from May 10, 2019, through July 27, 2019, for a total of 123 days. This is the largest number of days of operation of the spillway since it was completed in 1932. Over 10 trillion cubic feet of Mississippi River water was discharged into the area of the Mississippi Sound.

As a consequence of this massive discharge, salinities in Mississippi coastal waters plummeted. Salinities were near zero in many areas, rather than the more saline water usually found in the summer months. The influence of the Mississippi River water released through the spillway extended from the western parts of the Mississippi Sound, to points outside the barrier islands, and to the easternmost monitoring stations in the Mississippi Sound. The entire wild oyster population of the Western Mississippi Sound was wiped out in a single year, and five years later the reefs are still dead.

In addition to disrupting natural salinity regimes, the Mississippi River water from the Bonnet Carré was laden with nutrient pollution from sources in the upstream states. Concentration of nitrates in Mississippi waters was far above normal. The combination of fresh water, high nutrient pollution loads and warm temperatures resulted in blooms of toxic blue green algae, which can cause illness in humans and death in pets and other animals. In 2019, the impacts of spillway operations included algae blooms that closed recreational use of Mississippi Sound for the entire summer, causing huge losses to tourism related businesses. Other fisheries were disrupted by the massive influx of fresh water, and spawning and recruitment of keystone species like the brown shrimp were interrupted. The United States Court of Appeals for the Fifth Circuit recognized that "the Spillway's deployment takes a toll on a host of environmental and economic interests, causing everything from disruptions to oysters, sea turtles, and shrimp, to toxic algae blooms, seafood warnings, and beach closures." In short, the Corps' Mississippi River operations are critically important to the health of the Mississippi Sound and the citizens and economy that depend on it.

II. Adapting management of the Mississippi River for a changing future will require acknowledging present impacts and not simply defending the status quo.

The Mississippi Sound Coalition supports the Corps in this comprehensive study and in the Corps' public safety and navigation missions. Carrying out this comprehensive study can identify ways that these missions can be carried out while preventing collateral damage to citizens and natural resources, and thus this study has great potential to benefit all the stakeholders affected by river management.

Whether this potential can be realized will depend on whether the Corps approaches this study with an open mind and a commitment to respecting the science and data on the ecological, economic, and cultural impacts of Mississippi River management. The Coalition's experience has been that, at least with respect to assessing the impacts of Bonnet Carré Spillway operations on the Mississippi Sound, the Corps has on some occasions ignored sound science and data in favor of defending the status quo in operations. For example, the Corps has asserted the impacts of Bonnet Carré Spillway operations on oyster reefs are temporary and oysters will recolonize reefs. This conclusion, which is not supported by any citation to data or literature, is contrary to the clear evidence shows that five years after the 2019 spillway openings there is little or no wild oyster reproduction in the Western Mississippi Sound.

The Coalition is working with modelers and scientists to further document the impacts of Bonnet Carré Spillway operations and determine operating regimes (tipping points) for the Mississippi River and Tributaries Project that will prevent destructive flooding and protect the resources of the Mississippi Sound. However, this work will have no value if the Corps simply defends the status quo method of operating the Mississippi River and Tributaries Project under the current water control practices.

III. The Corps must immediately use existing authority and discretion to take measures to limit environmental and economic damage from Mississippi River management.

The study process must recognize that environmental and economic collateral damage from Mississippi River management operations is already occurring. Solutions must not be deferred until the end of the study process, or simply call for additional authority from Congress. The Corps has present authority to modify operations of the Mississippi River and Tributaries Project to address ecosystem, recreational, and economic damage from current management.

The Old River Control Structure, the Morganza Floodway, and the Bonnet Carré Spillway elements of the Mississippi River and Tributaries Project are operated together to control flood waters downriver. The Corps' Water Control Manual for the Bonnet Carré Spillway confirms that the "Old River Control Structure, the Morganza Floodway, and the onnet Carré Spillway will be operated to divert sufficient floodwater to minimize flood damages in the lower river reaches and prevent the discharge in the Mississippi River from exceeding 1,250,000 cfs at New Orleans."

The Corps has nonetheless repeatedly asserted that it is required by existing legislation, apparently the 1928 Flood Control Act, to operate only the Bonnet Carré Spillway unless the Mississippi River would reach a flow in excess of 1,500,000 cubic feet per second at the Carollton gage. In essence, the Corps has stated that it has no discretion to use even minor releases through the Old River Control Structure, the Morganza Spillway, or anything else to help minimize the negative impacts of Bonnet Carré Spillway operations on the Mississippi Sound. The 1999 Bonnet Carré Spillway Water Control Manual further states that the present mode of operations "is not deviated from because of environmental impacts to Lake Pontchartrain."

The Corps has never released any legal analysis to back up this asserted lack of discretion, and its actions have not been consistent with the claimed lack of discretion. In 2011, the Corps operated the Bonnet Carré Spillway at 316,000 cubic feet per second, 66,000 cfs over its design capacity. MR&T 2011 Post Flood Report, p. IV-54.7 At the same time the Corps was operating the Morganza Spillway at 186,000 cfs, less than a third of its design capacity of 600,000 cfs. More recently the Corps has operated the spillway at river flows well below 1,250,000 cubic feet per second.

In carrying out this management study, it will be important to determine those actions the Corps has current discretion to implement and those which actually require additional Congressional authority. The best way to accomplish this would be a separate legal working group tasked with evaluating and preparing a report on existing authority and its limits. This working group must include representation from those stakeholders wishing to participate. The Mississippi Sound Coalition remains concerned that claimed lack of discretion is being used to defend existing practices, which again do not take into account environmental and economic damage from impacts to the Mississippi Sound.

IV. Concerns regarding the evolving Mississippi River system.

The Lower Mississippi River Comprehensive Management Study must engage squarely with the

impacts of climate change on Mississippi River flows. The 2023 Fifth National Climate Assessment projects increases in droughts, floods, and runoff events across the Mississippi River basin and the Great Lakes. This variability, and the possibility of frequent major flood events on the Mississippi, must be fully taken into account. Some Corps operational documents, including the over 20-year-old water control manual for the Bonnet Carré Spillway, are based on information that is long out of date and inconsistent with a rapidly changing precipitation regime.

In addition, the continuing severe nutrient pollution in the Mississippi River must be incorporated into this study and planning for reduction in nutrient volume. Nitrate flux from the Mississippi to the Gulf of Mexico has tripled since the 1950's. This causes not just the wellknown dead zone off the mouth of the Mississippi River, but also algae blooms in Lake Pontchartrain and the Mississippi Sound when the Bonnet Carré Spillway is opened.

Despite over 30 years of best management practices and other efforts to control fertilizer runoff from industrial agriculture and other sources, nitrate pollution has remained stubbornly high, and phosphorus pollution has according to some studies actually increased. The increased precipitation and flooding identified in the National Climate Assessment exacerbates nutrient runoff. Since nutrient pollution impacts on ecosystems, recreation, and economies are an inseparable part of Mississippi River management the Lower Mississippi River Comprehensive Management Study must examine the options for limiting nutrient pollution in the Mississippi.

The Mississippi Sound Coalition is also very concerned that some elements of the Mississippi River and Tributaries Project are no longer functional due to changing river conditions. Corps documents indicate that that the Old River Control Structure has deficiencies which could result in more frequent operations of the Bonnet Carre Spillway. A 2019 report on the Old River Control Project specifically notes the deficiencies in the ORCC and states that they "pose a serious threat to the continued safety, reliability, and proper functioning of the project, particularly during an emergency situation." This report further states that loss of capacity at the Old River Control Complex "would result in more frequent, and less planned, operations of the Bonnet Carré and/or Morganza Floodways, in order to prevent overtopping of Mississippi River levees."

As noted previously, the MRT incorporates "backwater areas" which are intended to store floodwaters, reducing flood volumes downstream. However, a Corps presentation states that based on current configurations there is only a "small likelihood that any of the four backwater areas will function as authorized. . ." . The consequence of this is that in the project design flood, peak discharges at the Old River Control Structure could be up to 150,000 cfs greater than what was expected. It also bears noting that the Bonnet Carré Spillway is itself almost 100 years old. A review of possible structural improvements to the Bonnet Carré and Morganza Spillways should be part of the Comprehensive Management Study. Finally, some prospective river management projects will clearly have a significant impact on environmental, recreational, and economic interests. These include the potential Ama and Union diversions, and the Mid-Barataria and Mid-Breton Diversions.

V. Priorities for the Study. Priorities for the Comprehensive Management Study should be the following:

- Fully incorporating the affected communities in Louisiana, Mississippi, and upriver states, including local governments, into the study and planning process.
- Assessing the ecosystem, economic, and recreational impacts of existing management practices based on the best available data and science. This includes determining the impacts of current management practices on fisheries, tourism economies, and recreation.
- Identify practices for avoiding or at least mitigating ecosystem, recreational, and economic impacts of river management that can be implemented immediately, as well as long-term changes that completely avoid harmful ecosystem, recreational, and economic impacts. Outcomes should include short, medium and long term practices, but should not defer actions that can be immediately implemented under existing conditions and with existing authority and funding.
- Assessing future river conditions based on the best available data and science.
- Incorporating resilience to changing conditions into river management planning.
- Assessing the functional state of existing features of the Mississippi River and Tributaries Project.
- Using existing structures, including the Morganza and Old River Control Structures, to minimize damaging flows through the Bonnet Carré Spillway.
- Maximizing nature-based flood control management, including re-connecting the river to its historic floodplain.
- Ensuring equitable distribution of the burdens and cost of providing flood control. This includes addressing communities affected by flood control measures without any direct corresponding benefit.
- Assessing the impacts of proposed projects and diversions, including the mid-Breton diversion and assessing options, like dredge spoils, as alternative ways and means to restore Louisiana land and marsh without river diversions.
- Addressing nutrient and other pollution in the river and its impact on river management and recommending ways and means to reduce nutrients and other pollution in the river.

VI. How can we improve our communication approaches during the 5-year study?

The Mississippi Sound Coalition recommends the following practices to improve communication during the study process.

• Be proactive and establish clear protocols for communicating information to stakeholders. As an example, the Mississippi Sound Coalition was assured that it would be included as a formal stakeholder in the Comprehensive Management Study process but was not placed on the list to receive notices about the virtual orientation held on

January 23, 2024 and did not receive direct notice of initial scoping meetings.

- Establish a web-based clearinghouse for information about the study process and information generated in the study process. The existing website can be the foundation for such a platform. Materials on the site should include technical data, comments and other information received from stakeholders and the public, committee reports, interim reports, and meeting notices.
- Designate specific individuals in the Corps or cooperating bodies as points of contact for stakeholders.
- Hold public hearings in Mississippi and all other affected states on at least a semiannual basis. These public hearings should have a format that allows all stakeholders and the public to engage with Corps representatives in a question and answer period at which all stakeholders and members of the public present or on line can hear the questions and answers.
- A draft of the final report should be made public and available for comment long before the final study and recommendations are published and delivered to Congress.
- The final report of the Comprehensive Management Study should include minority reports and recommendations submitted by stakeholders and members of the public.

The Mississippi Sound Coalition appreciates the opportunity to participate in this process. Please contact us with any questions.

Letter ID: 81 Org/Agency/Company: Mississippi Sound Conservancy

To avoid the indisputable environmental, economic and social catastrophic damages to the Lake Pontchartrain Basin and the Mississippi Sound the Morganza Spillway should be used as the primary relief valve in the system along with deepening the Mississippi River. The Bonnet Carre if not permanently closed should only be used as a last result and only after the Morgaza Spillway has been at full capacity and only used in accordance with the acceptable parameters found by the Mississippi Universities scientific panel now studying this issue.

Letter ID: 217 Org/Agency/Company: Mississippi Valley Flood Control Association

Executive Committee:

Louisiana Reynold Minsky, Chair Tallulah, LA **Dwayne Bourgeois** Raceland, LA REFERENCE: (LMRCMS) and meetings Arkansas Steve Higginbothom Vice Chair West Memphis, AR General Peeples: Harry Stephens Helena, AR Tennessee Jimmy Moody Dyersburg, TN Kentucky Greg Curlin Hickman, KY Missouri A.C. Riley James Cape Girardeau, MO Mississippi Jimmy Scott

Kenny Rodgers Greenville, MS

Clarksdale, MS

Executive Vice President: Stephen Gambrell

State Vice Presidents: Randy Richardson (TN) David Human (IL) Doug Voorhees (KY) Reynold Meyer (AR) Don Rone Jr. (MO) Ronnie Robinson (LA) Robert Sayle (MS)

Regional Engineers: Peter Nimrod (MS) Rob Rash (AR) Dustin Boatwright (MO) David Blackwood (TN) Bill Sheppard (MS)

BG Kimberly A. Peeples, USACE-MVD and Mississippi River Commission

April 1, 2024

Lower Mississippi River Comprehensive Management Study

Thank you for the opportunity to offer comments.

We had members present for the footprint states at meetings in each State.

There are a few things that would help us as we progress through this process. We would like updates every quarter on the Study Costs, the funding account(s) used, the potential funding account(s) in the next stages after study, the sponsors that are engaged and potential sponsors and partners, the 5-, 10- and 20-year timeline and the results and outcomes expected. I understand that you have voiced there is not a sponsor, or partners involved but there have been several meetings in congressional offices by "sponsors" that are promoting this study, approach, and outcomes along the lines of their interests.

A specific frustration we have heard throughout the Valley is ... we were offered to submit written comments in a meeting where we were present and ready to engage, discuss and hear feedback from the interaction. But we were instructed that the Corps team did not allow open discussion, oral testimony, or a chance to express our thoughts, opinions, challenges, or input in a meeting where we were physically present. We believe that because people understood that this was the method ... very limited in-person participation occurred.

Our Seven State Governors have appointed people from their states to the LMRCMS Oversight Group. They attended meetings in their state ... and they did not get a chance to hear anyone speak, voice their ideas, voice their concerns, or have an informed dialogue that could help shape the content and direction of the process and study.

Protect – Produce – Provide

The MVFCA is the strong, consistent voice from eleven states of connected local people who own homes, land and businesses that deliver world envied productivity with unmatched efficiency along a water superhighway with strategically located on-ramps. This economic engine that feeds the world depends on a flood control system that enables reliable business, land, and water commerce.

Mississippi Valley Flood Control Association

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The Process employed for this study does not appear to be public involvement for the local sponsors, people, and landowners.

The following shapes some of the concerns, challenges, and opportunities that we have at this point in the process.

Opening Comments

The Mississippi River & Tributaries (MR&T) Project started in 1928 for Flood Control following the devastating 1927 Flood. It was built for flood control and navigation. Keep Flood Control the # 1 and the complementary Navigation the Mission! The MR&T Project is currently incomplete - it is ~89% complete. We must complete the current MR&T Project to the authorized federal project design that will pass the federally authorized and designed PDF. The cost to deliver the SEISII in March 2022 and its delivery of more than 140 environmental mitigation measures are the authorized manner to fund and build the authorized federal project.

Since the 2011 Mississippi River Flood the Corps has been focusing on completing the Mainline Mississippi River Levee (MRL) enlargement and seepage control projects while a lot of other authorized work planned for interior streams and backwater areas have been put on hold. Many project partners have been waiting patiently, in many cases for decades, for their projects to be started, completed, or maintained. Let's not develop a new list of priority items that will make them wait for several more decades or put them off indefinitely after they have sponsored the projects for as many as 100 years. Now that we are getting close to MRL completion we need to focus resources on completing the remaining MR&T authorized work before we start spending limited resources on new projects created by another analysis that has not truly been vetted and discussed by the local sponsors and partners for more than 100 years.

Yazoo Backwater Pumps

Discover ways and methods to finish the Yazoo Backwater (YBW) Pumps. The new YBW Project allows 135,000 acres to flood below the pump-on elevation of 90' - but it can protect lands above 90' during the growing season. During the non-crop season, the new project will allow up to 253,000 acres to flood below 93'. The new project allows the Mississippi River to back into the Mississippi Delta to a certain elevation - this re-connects the Mississippi River to its old floodplain. The new project also has supplemental low-flow wells in the upper Delta along the levee to keep water in our interior streams during the Fall low-flow season when the interior streams run dry. This project will provide flood protection for people, homes, businesses, and

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crop land above 90', and it will provide environmental benefits and help protect our wildlife, trees, and other natural resources.

Yazoo Backwater Levee

Raise the Yazoo Backwater (YBW) Levee up to its authorized grade. It is designed to overtop when the Mississippi River gets to 2' below a Project Design Flood (PDF). Adjust all 4 Major Backwater Areas in the Lower Mississippi River Valley so they all work together during a PDF as designed.

Floodways

Evaluate the need for additional floodways and account for the costs and determine potential negotiations for tradeoffs with States. The Corps has potential areas for floodways they have known about for decades ... it takes negotiation and tradeoffs with states and landowners.

Flood Control Maintenance

We must continue to provide major maintenance on levees and structures. The aging MR&T Infrastructure must be maintained, and we need to improve, bolster, and/or replace older structures and dams - like Steele Bayou Structure (built in 1969) and Arkabutla Dam (built in 1943), and many others. A rough estimate a decade ago was \$15B+ to recapitalize.

Interior Streams

The Corps enlarged and improved interior streams in the 1950's and 1960's for flood control. These streams have silted in over the past 75 years and the need and demand for dredging to project design grade is necessary to properly function. We have been waiting for decades for the maintenance work and do not want it pushed back by additional projects proposed by yet another study. We should responsibly pursue the authorized maintenance work before we start new projects. The Demonstration projects prove that we can successfully add weirs to our Interior Streams for water supply, groundwater aquifer recharge, and channel maintenance. The groundwater aquifer is critical to our states, and we must employ more known ways to help recharge it and adjacent streams.

Aggradation Below Old River Control Structures

A sediment buildup is occurring below the Old River Control Structure near Natchez, MS. Discover scenarios for adjusting the Old River Control Structure flows from the current 70/30 latitude split and ways to balance the sediment.

Navigation

The Nation must continue to maintain the Mississippi River for navigation and that requires a stable, reliable flood control system and revetment and dike program. Many innovative

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environmental benefits have been realized over the years, such as notching the dikes over the past decades. Systematically improve the annual dredging of small Ports and Harbors from St. Louis to Baton Rouge. Discover and employ additional beneficial use of dredge material.

Public Access

Explore and deliver more strategic opportunities to build boat ramps for Safety access during floods that can serve as Safe public access to the Mississippi River.

Learn from the Missouri River Challenges

Assure that tradeoffs and costs are clear as you lead the delivery of Flood Control and Navigation. The Corps built a workable flood control and navigation project along the Missouri River. The landowners were able to farm and produce for local, regional businesses, and for international trade. Review, consider and learn from the decisions and background from the Ideker Farms vs. USA decisions. This is estimated to cost the Corps hundreds of millions of dollars, but this is only the beginning of what it costs the Nation in productivity. In the past navigation ranged to Sioux City, Iowa helping improve our transportation rate savings and trade values.

As the Corps proceeds down this Study path to discover new ideas and re-envision the lower Mississippi river ... we must count the costs. Consider the tradeoffs. Make sure you fully consider the interactive ideas and voices of partners that live, work, and produce from this valley and have done so for more than 150 years.

We appreciate your leadership and the opportunity to provide input and comments to help shape the federal agencies influence on the lives of the local people, their safety, and their land. For more information, please contact us at (901) 758-1616 or by email at <u>mvfca@att.net</u>.

Respectfully,

T. STEPHEN GAMBRELL Mississippi Valley Flood Control Association

CC: USACE-MVD and Mississippi River Commission Mr. James Bodron, MVD USACE-MVN, MVK, MVM

Letter ID: 210 Org/Agency/Company: Missouri Department of Conservation

Thank you for the opportunity to comment on the initial scoping effort for the Lower Mississippi River Comprehensive Study (Study). The proposed Study will evaluate the operation and management of the Mississippi River and Tributaries (MR&T) system from Cape Girardeau, Missouri to the Gulf of Mexico. Purposes to be evaluated in the Study include hurricane and storm damage reduction, flood risk management, structural and nonstructural flood control, floodplain management strategies, navigation, ecosystem and environmental restoration, water supply, hydropower production, and recreation.

The Missouri Department of Conservation (Department) is constitutionally mandated to protect and manage the fish, forest, and wildlife resources of Missouri. The Department manages over 40,000 acres of public land in the Study area. These areas protect multiple habitat types including bottomland forest, wetlands, and sand prairies, all of which are remnants of the historic widely distributed habitats found in the Mississippi alluvial plain. Access to the Mississippi River itself is facilitated by multiple Department managed boat ramps.

The Department developed the Missouri Comprehensive Conservation Strategy (CCS) in 2020 focusing on key conservation challenges and opportunities. The CCS identified landscapes with significant conservation potential, known as Conservation Opportunity Areas (COAs), categorized by predominant natural community type. Within the Study area in Missouri, eight landscape scale COAs were identified and multiple stream reach COAs. The COAs were refined further to identify nine priority geographies across Missouri to receive increased investment towards implementation of landscape scale conservation. The River Bends Priority Geography encompasses lands adjacent to the river extending inland from Lower Mississippi River (LMR) miles 850-876 and 890-923.

The River Bends Priority Geography overlaps with Conservation Reach #1, Wolf Island to Island #8, identified in the Lower Mississippi River Resource Assessment (LMRRA). As an Executive Committee member of the Lower Mississippi River Conservation Committee (LMRCC), the Department supported the authorization and development of the LMRRA and continues to supp01t the recommendations for meeting the identified needs within three categories: Data Science and Communications; Habitat Restoration and Management; and Recreation.

Following completion of the LMRRA, in 2018 Congress authorized initiation of feasibility studies for ecosystem restoration at the eight identified Conservation Reaches. While a positive development, implementation of the first study and the scope, scale, and cost of the study and alternatives demonstrates the need for a comprehensive ecosystem restoration program across the Study area. Sitting at the intersection of the Upper and Lower Mississippi River, Missouri has experienced the benefits of the Upper Mississippi River Restoration Program. While needs,

authorizations, and habitats differ in the LMR, an analogous program coupling habitat restoration and long-term monitoring would enhance the capability to address the ecosystem declines throughout the LMR.

A comprehensive ecosystem restoration program also creates opportunity to enhance flood risk reduction capability, water quality, and benefit water supplies. Restoring floodplain habitats restores the ability of these environments to absorb floodwaters, reducing flow velocity, minimizing flood heights, and increasing infiltration to groundwater. Further, restored habitats provide important ecosystem services such as denitrification, phosphorous retention, and carbon sequestration. In 2019, in partnership with the University of Missouri and the Missouri Resource Assessment Partnership, the Department completed a Bottomland Functional Assessment (Assessment), evaluating the historic and potential of bottomlands across the state to provide ecological functions. The Assessment, which included the Mississippi lowlands adjacent to the LMR, found reduced ecological function and limited current potential for bottomlands to provide the ecological functions of flood damage reduction, stream flow maintenance, phosphorous retention, denitrification, and carbon sequestration.

The need for habitat restoration extends beyond the habitats and ecosystem services provided, to the species that rely on those habitats. The Department monitors over 250 species of conservation concern occurring within the Study area, including eight federally threatened or endangered species and 22 state endangered species. This encompasses a wide variety of species across both terrestrial and aquatic environments.

The Study presents an opportunity to understand where activities can yield co-benefits to multiple purposes along the LMR. The purposes the Study is addressing can be networked and leveraged together to create a resilient and sustainable LMR for ecological and economic benefit.

Letter ID: 218 Org/Agency/Company: Missouri Department of Natural Resources

The Missouri Department of Natural Resources (department) represents and protects the interests of the State of Missouri in matters pertaining to water quantity, water quality, and interstate water issues, including matters related to the Mississippi River. The department is excited to be a partner on the Lower Mississippi River Comprehensive Management Study (Study) and appreciates the opportunity to provide comments and feedback. Throughout the study, the department hopes to see more public engagement with non-governmental stakeholders to determine how to best serve local interests.

One of the department's priorities regarding the Mississippi River is navigation. River navigation is a crucial part of the state and national economies, and it is made possible through the navigation maintenance performed by the U.S. Army Corps of Engineers (USACE). Maintenance activities such as dredging the navigation channel and repairing navigation structures are essential to this river function. The department would like to ensure that navigation is considered at all stages of this planning process and is interested in having the USACE evaluate the potential for increased maintenance to improve navigational capacity and efficiency as part of this Study.

Another priority is flood control and flood risk management. In a heavily managed, interstate system like the Mississippi River, we must strive to ensure that no state is disproportionally impacted by natural disasters like flooding. Many of the Missouri citizens that face the highest potential for flood damages belong to low income or minority communities, and the department wants to ensure that these stakeholders are given consideration when evaluating flood control activities on the Mississippi River.

Additionally, the department recognizes the value of the agricultural lands in the Missouri Bootheel. This area is one of Missouri's most unique and productive agricultural landscapes, and the food and fiber crops grown here are important to the state and national economies. This land is farmable due to drainage systems and levees that have been in place for decades. The department supports examining these features as part of this Study to ensure that they are performing as efficiently as possible to preserve the productivity of the agricultural communities in the Bootheel.

Chris Wieberg

Letter ID: 120 Name: Mitchell, George Org/Agency/Company: -

You have numerous events where you've released freshwater, too much freshwater into the Mississippi sound, and seeing what the results are. You need to take action now if you want to do a study I'm sure you have the talent resources to reconstruct what's happened the last several times you flooded the Mississippi sound with freshwater. You're wasting time and kicking the can down the road. Stop procrastinating. You have the infrastructure money now to fix this issue.

Letter ID: 69 Name: Mitchell Jr., David Org/Agency/Company: -

The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944 and recommended by the Mississippi River Commission. Maintaining the 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commerical barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitve by making significant investments in their respective infrastructure.

Letter ID: 22 Name: Moody, Jimmy Org/Agency/Company: -

(1) First and foremost, do no harm. We have the most successful civil works project the world has ever seen in the MR&T. Navigation in the last two years of low water has proven the value of what we have been doing. We have a 100-year old system that in 2011 passed the flood of record without one acre flooded that was not designated to be flooded. (2) People in the valley should not be relocated, they should be protected. (3) The idea of reconnecting the river to the floodplain is very concerning to the people who live and work here. (4) If I were looking at our valley as a business, I would be very, very careful of making changes to a system that has worked so well for 100 years. It has definitely proven itself.

Letter ID: 159 Name: Morat, Richard Org/Agency/Company: -

The staffing for study of needs for all purposes (beneficial uses) must be commensurate in expertise and effort.

I have suffered shame over 50 years for a brief period of work I performed for the Fish and Wildlife Service when serving in Vicksburg Mississippi on a study (Vicksburg District?) called the Lower Mississippi River Comprehensive Study. Sound familiar? When assigned that involvement as the only FWS employee so assigned, I was one year out of college, had no work experience, held a western-states experience of ecosystems, entry-grade-level compensation, and worked essentially unsupervised. I wondered why the State Biologists I met with were all skeptical of the "Feds" and my involvement. They told me that I would help the Corps justify more "projects" that would dstroy the riverine environment. Those were back in the days of channelization of bottomland hardwoods in order to drain them, get a soybean crop for 2 years out of 5, and justify further SCS channelization work. In 2 ½ years I could not overcome the political environment that controlled the science produced.

Your challenges are great. The ecosystem you must address extends into and includes the Gulf, and coastal marshes far east and west of the river mouth. \$25 million won't get you the "practical and sustainable recommendations for management" you seek. The product will be a decent study plan for a multi-year multi-million-dollar investigation that might result in a feasibility level report. Further, you can't cobble together umpteen positions on meeting the needs of the "purposes". Some agency with authority needs to balance the protection of beneficial uses. Your study area involves six states. You have a wicked problem.

To be better informed, review and report on the 1970's study, report, and accomplishments.

Letter ID: 71 Org/Agency/Company: National Wildlife Federation

See attached letter.



National Wildlife Federation National Advocacy Center 1200 G Street NW, Suite 900 • Washington, DC 20005 • 202-797-6800

March 14, 2024

Via email: LMRComp@usace.army.mil USACE-MVN LMRComp c/o Project Management 7400 Leake Ave New Orleans, LA 70118

Re: Scoping Comments on the Lower Mississippi River Comprehensive Management Study

Dear Lower Mississippi River Comprehensive Management Study Team:

The National Wildlife Federation appreciates the opportunity to provide these scoping comments on the Army Corps of Engineers' Lower Mississippi River Comprehensive Management Study (LMRCS).

The National Wildlife Federation (NWF) is the nation's largest member-based conservation organization. NWF has more than 7.1 million members and supporters, and conservation affiliate organizations in 52 states and territories. NWF has a long history of advocating for the protection, restoration, and ecologically sound management of the Mississippi River.

Section A of these comments provides recommendations for important modifications and additions to the LMRCS Study Objectives to more meaningfully account for the directives in the LMRCS authorizing language and the fundamental need to improve the resilience of the Lower Mississippi River. Section B provides recommendations on an overall study approach and highlights the benefits of focusing the study around key Opportunity Areas. Section C highlights measures that would work across multiple Corps authorities, programs, projects, and operational activities to improve the resilience of the Lower Mississippi River and the communities, economies, and wildlife that depend on a healthy system.

A. LMRCS Study Objectives

The National Wildlife Federation appreciates the work that has already gone into developing the Study Objectives and the appropriate overlaps in the Corps' preliminary systemwide and district level objectives.¹ The National Wildlife Federation recommends the following important modifications and additions to the Study Objectives to more meaningfully account for the directives in the LMRCS authorizing language and the fundamental need to improve the resilience of the Lower Mississippi River and the communities, economies, and fish and wildlife species that rely on the River:

¹ USACE, Lower Mississippi River Comprehensive Management Study, NGO Forum, February 6, 2024 powerpoint

- Modify all Study Objectives focused on "maximizing channel stabilization" to: "Maximize a channel equilibrium that allows maintenance of a reliable navigation channel while facilitating river processes that can effectively restore riverine, floodplain, and coastal wetland habitats." This important change is needed to fully align the Study Objectives and to ensure that the LMRCS is not prioritizing activities that can significantly undermine flood damage reduction and ecosystem restoration benefits.
- Add a new Systemwide Objective to: "Maximize river/floodplain and hydrologic connectivity and restoration where practicable to support ecosystem function, including through ecosystem restoration, flood risk reduction, and navigation actions." This important addition is needed to fully align the Study Objectives with the LMRCS authorizing language and identified Regional Objectives.
- 3. Add a new Systemwide Objective to: "Maximize flood resilience and ecosystem health through structural and operational modifications to navigation infrastructure while continuing to maintain navigation." This important addition is needed to fully align the Study Objectives with the LMRCS authorizing language and to ensure full consideration of critical opportunities for protecting communities and improving fish and wildlife habitat.

Overall, we encourage the Agency to prioritize the identification and advancement of actions and projects that produce multiple benefits for people and ecosystems. For example, changes in operations and maintenance of floodways and navigation infrastructure can have the dual benefits of reducing flood risks and improving in-river and side channel habitat, without adversely impacting navigation. Similarly, floodplain reconnection projects could enhance flood protection for nearby communities while also restoring habitat for fish and wildlife. Identifying these types of solutions should be a guiding and fundamental objective of the LMRCS.

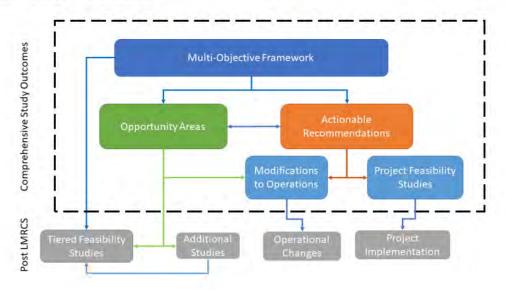
B. LMRCS Study Approach

The LMRCS represents a remarkable opportunity to refocus management and operation of the Lower Mississippi River to embrace 21st century knowledge and approaches to water resources management. To achieve these objectives, the LMRCS authorizing language recognizes the need to look comprehensively and holistically at the Lower Mississippi River to identify opportunities for restoring and managing this system across all Corps mission areas.²

The National Wildlife Federation previously shared a memorandum developed by Dr. Denise Reed and David Muth that recommends an overall approach to maximizing the opportunities provided by the LMRCS, while being sensitive to time and resource constraints. That memorandum recommends the development and use of a multi-objective framework to guide the identification of opportunity areas and actionable recommendations for the LMRCS (see graphic below). A copy of this memorandum is provided at Attachment A to these comments.

² Section 213 of the Water Resources Development Act of 2020 (Consolidated Appropriations Act of 2021, Pub. Law 116-260 Div. AA).

The figure below outlines the relationships among the LMRCS outcomes and their relation to projects, operations, and additional studies.



The National Wildlife Federation asks that you carefully consider the recommendations in that memorandum during this scoping process. We particularly want to highlight the recommendation to identify Opportunity Areas as informed by the LMRCS authorizing language. By focusing work around key Opportunity Areas, the Corps would create a manageable, strategically-focused process for exploring measures across all Corps projects and business lines that could work synergistically to protect communities, improve the resilience and ecological health of the River, and support navigation.

Opportunity Areas should include, among other things:

- Reaches where floodplain restoration and/or levee setbacks could provide effective flood risk
 management while also advancing ecosystem restoration and/or reductions in nutrients
 entering the River. These might include areas already targeted for conservation, areas where
 repeated flooding is proving challenging, or areas where levees are preventing inundation of
 wetlands or open waters.
- Reaches where navigation infrastructure (such as river training structures and revetment) could be removed or modified to support ecosystem restoration, facilitate side-channel reconnection, and/or reduce flood risks while still supporting navigation.
- Floodway and backwater locations where operational and/or structural modifications could reduce flood risks while also advancing ecosystem restoration and reducing the amount of nutrients entering the River.

Working groups could be established for each Opportunity Area to explore and evaluate approaches, measures, and recommended actions that could be implemented across the multiple Corps projects and missions that affect the Opportunity Area. This would help Corps planners take a systemic approach to

managing the LMRCS, rather than considering only those actions that fall under a particular mission area or authorized project silo. Each working group could then:

- (a) Develop any Actionable Recommendations for specific measures or feasibility studies;
- (b) Identify locations and reaches where future planning holds the most promise for achieving the Opportunity Area objectives—identifying these locations should be a fundamental outcome for the LMRCS;
- (c) Develop criteria for prioritizing the location(s) of future planning to achieve the Opportunity Area objectives; and
- (d) Identify the types of data, modeling, and partner engagement needed to effectively carry out future planning to achieve the Opportunity Area objectives.

For example, the Corps could establish a working group focused on identifying locations in the system that are most suitable for levee setbacks or other large-scale nature-based measures. To help identify those locations, the working group could leverage existing data and models, including such things as: (i) Corps data on repeatedly flooded areas; (ii) Corps data on repeated levee failures or particularly vulnerable levee reaches; (iii) Corps data on the condition of the Mainline Levee System (including from the Corps' most recent work plans and environmental review for this system³); (iv) areas identified as priorities for conservation and restoration identified by others, including the Lower Mississippi River Conservation Committee; (v) existing land cover data, including locations of existing wetlands within leveed areas^{4,5}; and (vi) land ownership data, which is readily available for purchase as GIS-located plat maps showing both property lines and ownership data.

It is essential that the LMRCS—and, if they are established, each Opportunity Area Working Group carefully assess and account for climate change (and related uncertainty), including the predicted effects of a range of climate change scenarios on river flows, storms, floods, and droughts. The LMRCS should also account for impacts from the Upper Mississippi River, the Ohio River, and the Missouri River on the conditions in the Lower Mississippi River. Actionable Recommendations should strive to redress these impacts, including through such things as reducing flood impacts and nutrient loading (and resulting hypoxia) through nature-based solutions and improved connectivity between the Lower Mississippi River and its floodplain.

As the Corps assesses potential and proposed actions, it should prioritize: equitable delivery of projects and project benefits; evaluation of opportunities to redress environmental injustices that are deeply embedded in our systems and policies; and comprehensive evaluation of the impacts of proposed actions and recommendations on underserved communities. It is critical that these assessments and

³ U.S. Army corps of Engineers, Mississippi River and Tributaries Project Mississippi River Mainline Levees Final Supplement II to the Final Environmental Impact Statement, November 2020.

⁴ The National Levee Database describes the "leveed area" as "a conservative estimate of the lands from which flood water would be excluded by the levee system." This area, which is shown as a shaded area for each levee in the National Levee Database "can be called the **leveed area, consequence area, or inundation area.**" National Levee Database FAQs (emphasis in original) (available at <u>https://levees.sec.usace.army.mil/about/faq/</u>, accessed March 3, 2024).

⁵ Section C.5 of these comments provides more information on the extent of wetlands and other land cover within the "leveed area" of the Mainline Levee System.

proposed actions recognize and account for the fact that underserved communities typically suffer from multiple threats created by past federal actions that are greatly compounded by flooding.

The Corps should also prioritize the evaluation of opportunities for improving fish and wildlife habitat, and the careful assessment of the impacts of proposed actions and recommendations on the many hundreds of species of fish and wildlife that rely on the Mississippi River and its floodplain and coastal wetlands. It is critical that these evaluations recognize and account for the full array of direct, indirect, and cumulative impacts affecting these species.

For example, approximately 60 percent of all North American bird species rely on Mississippi River basin habitats, including the 40 percent of all waterfowl and shorebirds that migrate along the Mississippi River Flyway. These migrating bird species require a series of links of key regions and habitats, connecting the arctic in northern Canada to the southern tip of Argentina. Should any of these links be broken for the species that depend on them, the entire migration balance falls apart. Human modifications to these vital links have resulted in the loss of 2.5 billion migratory birds from the U.S. and Canada in just the last 50 years.⁶ These already highly significant harms are being greatly amplified by climate change, which is particularly problematic for migratory birds and other species.⁷ Among other things, migratory birds are significantly impacted by climate-changed induced: changes in water regimes, mismatches with food supply, sea level rise, habitat shifts, changes in prey range, and increased storm frequency.⁸

C. LMRCS Specific Measures

Congress has directed the Corps to investigate a number of key actions that could be carried out "under existing authorities or after congressional authorization, for the comprehensive management of the basin."⁹ Among other things, the Corps is to assess and develop Actionable Recommendations for: new water resources projects; structural or operational changes to already completed projects; projects proposed in the *Louisiana's Comprehensive Master Plan for a Sustainable Coast;* natural features and nature-based features, including levee setbacks and instream and floodplain restoration; mitigation of adverse impacts; and adaptive management and monitoring. Congress further directed the Corps to develop actionable recommendations related to any needed changes to the MR&T project, follow-up studies, and future data collection.

The measures highlighted in this section would work across multiple Corps authorities, programs, projects, and operational activities to improve the resilience of the Lower Mississippi River and the communities, economies, and wildlife that depend on a healthy system. **Each** of the recommended measures fall within the explicit mandates of the LMRCS authorizing legislation and would advance multiple Study Objectives, including:

http://www.cms.int/publications/pdf/CMS CimateChange.pdf).

⁶ Rosenberg, K.V., Dokter, A.M., Blancher, P.J., Sauer, J.R., Smith, A.C., Smith, P.A., Stanton, J.C., Panjabi, A., Helft, L., Parr, M. and Marra, P.P., 2019. Decline of the North American avifauna. *Science*, *366*(6461), pp.120-124.

⁷ UNEP/CMS Secretariat, Bonn, Germany, *Migratory Species and Climate Change: Impacts of a Changing Environment on Wild Animals* (2006) at 40-42 (available at

⁸ *Id*. at 42-43.

⁹ Section 213 of the Water Resources Development Act of 2020.

- Corps Systemwide Objective: "Optimize individual and coupled/combined use and operation of designated levees, floodways and backwater areas . . . to pass flow for purposes of flood risk management, while supporting navigation and ecosystem function."
- Corps Systemwide Objective: "Optimize distribution of sediment throughout the MR&T system."
- Corps Systemwide Objective: "Reduce flood risk to economically and socially disadvantaged communities."
- *Corps MVS/MVN Objective:* "Maximize river-floodplain connectivity where possible to support ecosystem function."
- *Corps MVK Objective:* "Maximize river-floodplain connectivity where practicable to support ecosystem functions."
- *Corps MVN Objective:* "Maximize hydraulic connectivity where practicable to support ecosystem functions."
- National Wildlife Federation Recommended Modified Objective: "Maximize a channel equilibrium that allows maintenance of a reliable navigation channel while facilitating river processes that can effectively restore riverine, floodplain, and coastal wetland habitats."
- National Wildlife Federation Recommended Systemwide Objective: "Maximize river/floodplain and hydrologic connectivity and restoration where practicable to support ecosystem function, including through ecosystem restoration, flood risk reduction, and navigation actions."
- National Wildlife Federation Recommended Systemwide Objective: "Maximize flood resilience and ecosystem health through structural and operational modifications to navigation infrastructure while continuing to maintain navigation."

1. Early Identification of Required Authorization Changes

The National Wildlife Federation urges the Corps to identify authorizing language changes that the Corps believes would be needed to modify ongoing and pending projects to advance the goals of the LMRCS as early as possible in the study process. The Corps should notify Congress and the public about any such needed changes as soon as they are identified, and in the required LMRCS annual reports to Congress, to facilitate consideration of those changes in future Water Resources Development Acts.

The National Wildlife Federation believes that many actions to improve the health and resilience of the Lower Mississippi River can be carried out under the existing authorizing language for many ongoing and pending projects as properly interpreted in light of the full suite of laws and policies applicable to Corps projects.¹⁰ For example, many laws and policies require the Corps to protect the environment and fish

¹⁰ See, e.g., *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991) (to comply with NEPA, an agency must adopt a "Purpose and Need" statement that considers "the views of Congress, expressed, to the extent that an agency can determine them, in the agency's statutory authorization to act, **as well as in other Congressional directives**." (emphasis added)).

and wildlife, including the National Water Resources Planning Policy¹¹, the National Environmental Policy Act, the Clean Water Act, the Endangered Species Act, the Clean Air Act, and the Corps' civil works mitigation requirements.¹²

We recognize, however, that the Corps may decide that certain actions would require a modification to existing authorities and/or require new authorization. For example, the Corps has interpreted its authorization for the Middle Mississippi Regulating Works Project as imposing strict limits on the actions it can carry out to maintain navigation on this stretch of the River. According to the Corps, these actions are limited to methods and objectives enshrined in the project's December 17, 1926 Chief's Report (which was based on an 1881 Chief's Report).¹³ Thus, according to the Corps, the authorizing language would have to be modified before the Corps could modify the measures it uses to maintain navigation on this river reach to advance the LMRCS objectives.

2. Use State-Of-The-Art Models and Best Available Data

The National Wildlife Federation urges the Corps to use state-of-the art and carefully calibrated climate, hydrologic, sediment transport, and morphodynamic¹⁴ models in developing the LMRCS and when assessing new projects and project operations.¹⁵ It is equally important to use the most up-to-date data to populate those models. To this end, we urge the Corps to take advantage of the many robust climate and hydrologic models and data sets developed by other federal agencies, States, and academic institutions as explicitly authorized by the LMRCS authorizing language.¹⁶

State-of-the-art models populated with the best available data are essential for: developing effective measures that will advance the goals of the LMRCS; evaluating whether a proposed measure or project is likely to achieve it intended goals; and ensuring that a proposed measure or project will not result in unintended adverse impacts, such as increased flood levels.

¹¹ Enacted by Congress in 2007, the National Water Resources Planning Policy requires "all water resources projects" to protect and restore the functions of natural systems and to mitigate any unavoidable damage to natural systems. 42 U.S.C. § 1962-3.

¹² 33 U.S.C. § 2283(d).

¹³ See, e.g., USACE, Final Supplement I To The Final Environmental Statement Mississippi River Between The Ohio And Missouri Rivers (Regulating Works), May 2017 at 3. The National Wildlife Federation would be happy to provide additional information on this issue upon request.

¹⁴ Morphodynamic models are used to help assess river channel changes in response to flow and sediment transport.

¹⁵ The Corps should use 2-D and 3-D models where available, as such models provide important information that cannot be obtained through a 1-D model, as recognized by the Corps. *See, e.g.*, USACE, HEC-RAS 2D User's Manual, 1D vs. 2D Hydraulic Modeling (available at

https://www.hec.usace.army.mil/confluence/rasdocs/r2dum/latest/steady-vs-unsteady-flow-and-1d-vs-2d-modeling/1d-vs-2d-hydraulic-modeling).

¹⁶ The LMRCS authorizing language directs the Corps to "make use of existing data" provided by applicable Federal, State, and local agencies, Indian Tribes, non-Federal interests, relevant multistate monitoring programs, and other stakeholders, "to the maximum extent practicable and where appropriate." Section 213 of the Water Resources Development Act of 2020.

To help ensure the use of state-of-the-art models and the best available data, the Corps should:

- (a) Utilize the new climate change scenario outputs from the <u>Coupled Model Intercomparison</u> <u>Project Phase 6</u> (CMIP6) to model future climate change conditions. CMIP6 modeling groups include: the National Oceanic and Atmospheric Administration <u>Geophysical Fluid</u> <u>Dynamics Laboratory</u>; the <u>Argonne National Laboratory</u>; and the Lawrence Livermore National Laboratory <u>Program for Climate Model Diagnosis and Intercomparison</u>.
- (b) Systematically assess the Corps' internal modeling capabilities, relevant data and reports¹⁷ to assist in ensuring use of state-of-the-art models and the best available data, including assessing models and materials developed by the <u>Mississippi River Geomorphology and</u> <u>Potamology</u> program, the Institute for Water Resources Hydrologic Engineering Center, and the Engineer Research and Development Center (ERDC).
- (c) Utilize data from <u>NOAA's Digital Coast website</u>, which provides free, high quality Lidar and other data for a number of areas covered by the LMRCS (including for some inland areas like the Yazoo Backwater).
- (d) Take advantage of independent academic experts to assist the Corps in evaluating and calibrating the best available models and populating those models with the most up-to-date inputs.¹⁸
- (e) Utilize ERDC's high-performance computing (HPC) capabilities to assist in analyzing and modeling impacts. ERDC's *Carpenter* supercomputer has the "ability to perform 9 quadrillion calculations per second."¹⁹
- (f) Develop Actionable Recommendations related to additional modeling and data collection needs. The Corps should carefully consider Actionable Recommendations to:
 - i. **Develop a Sediment Budget**: Developing a detailed sediment budget and a multidimensional numerical model of sediment transport under future scenarios would allow a comprehensive assessment of changes in flood risk and costal restoration potential. Establishing long-term coupled suspended and bed load sediment measurement stations at hydrologic monitoring stations along the main stem of the

¹⁷ See, e.g., <u>https://www.mvd.usace.army.mil/Missions/Mississippi-River-Science-Technology/MS-River-Geomorphology-Potamology/Technical-Reports/</u>. For example, MRG&P Technical Report No. 43 concludes that cumulative sediment supply from bank erosion from Cairo, IL to Baton Rouge LA has declined by approximately 96% states due to the Corps' revetment program, significantly reducing the amount of sediment being supplied to the channel system and ultimately available for coastal wetland land building. Careful consideration of the implications of this study could lead to recommendations related to the potential removal of some revetment and/or minimization of future revetment installation. <u>MRG&P Technical Report No. 43</u>. Sediment supply from bank caving on the Lower Mississippi River, 1765 to present. 2022. Murray, A. and Biedenharn D. 50 p. ¹⁸ Robust hydrologic and climate models populated with accurate and up-to-date data are essential for planning effective water resources projects that avoid dangerous, unintended consequences for communities, fish and wildlife habitat, resource-based businesses, and water-dependent industries. Models that are not properly calibrated and/or lack accurate data inputs are not able to model the positive or negative effects of a proposed project at a specific location.

¹⁹ See, e.g., <u>https://www.dvidshub.net/publication/issues/69512</u>.

Mississippi River and its major tributaries would allow development of a realistic sediment budget to better understand sediment flux through the River corridor. This data should be made publicly accessible.

- ii. Collect and Analyze Critical Hydrologic Data: Regular collection of a hydrologic data (discharge and stage/water surface elevations) at both historic and additional locations along the Mississippi River, its major tributaries and the Atchafalaya River is critical for future planning for the Lower Mississippi River. Discharge and sediment gaging of the Red, Black, and Ouachita Rivers are also needed to improve management of the flow of water and sediment from the Mississippi River into the Atchafalaya River via the Old River Control Complex. Comparing historical and future hydrologic data is also critical for assessing the implications of river management actions. Hydrologic data should be QA/QC validated and made publicly accessible.
- iii. Collect and Analyze Critical LIDAR and Bathymetry Data: Regular collection of high quality LIDAR and bathymetry data for the Lower Mississippi River and its major tributaries are critical for assessing geomorphic changes in the channel and batture over time.²⁰ Comparing historic and new data will allow for the assessment of geomorphic change in the channel and batture to better understand the implications of river management actions on channel instability, habitat change, and sediment storage. This data should be made publicly accessible.
- iv. Conduct a Detailed Survey of Wetlands and Other Habitats: A detailed survey of wetlands and other key habitat types in the batture and river-connected floodplain habitats along the Mississippi River and its major tributaries would provide an important inventory of the current mosaic of key habitat types, and help identify key habitat type(s) that are limited or missing to inform future rehabilitation projects. This data should be made publicly accessible. The soon-to-be-released National Wetlands Inventory update may provide valuable data in this space, and we encourage the Corps to engage with the Fish and Wildlife Service on the LMRCS, including around relevant data.

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²⁰ Batture is the land between the channel's low-water elevation and the flood mitigation levee or bluff.

3. Optimize Operation of Designated Floodways and Backwaters

The National Wildlife Federation urges the Corps to fully assess and make Actionable Recommendations for optimizing operation of designated floodways and backwaters to reduce flood damages, improve public safety, restore fish and wildlife habitat, and advance River resilience. In assessing opportunities to optimize operations, the Corps should fully assess:

- (a) Lowering flood level elevation triggers for the use of floodways and backwaters;
- (b) Implementing changes that allow for passive activation of floodways and backwaters (e.g., by facilitating natural overtopping of floodway fuse plug levees or other passive activation approaches);
- (c) Restoring wetlands within the floodways and backwater areas;
- (d) Maximizing connectivity between the River and floodways and backwater areas; and
- (e) Expanding the areal extent of floodways to increase ecological productivity and reduce flood damages.

These measures would increase the net productivity of the entire floodplain, decrease the cost of providing flood protection to more developed areas, and reduce the likelihood of catastrophic damage to life and property in the event of levee failure.

Additional measures that could help advance the optimization of designated floodways and backwaters include such things as: (i) purchase of flowage easements and/or modification of the terms of existing flowage easements to provide a more meaningful degree of compensation; (ii) purchase of perpetual conservation easements on cleared and forested floodway and backwater lands (which could be advanced though accelerated use of the USDA Conservation Reserve Easement Program); (iii) restoration of floodway and backwater wetlands; and (iv) economic stimulus focused on promoting conversion of floodway agriculture to flood tolerant silviculture.

Birds Point-New Madrid Floodway

The Birds Point-New Madrid Floodway (New Madrid Floodway) provides a key opportunity for optimizing floodway use. Increased use of the New Madrid Floodway could significantly reduce water levels along key segments of the Mississippi River during large flood events, and fundamentally improve habitat for hundreds of species of fish and wildlife.

The flood damage reduction potential of the New Madrid Floodway was demonstrated during the Mississippi River flood of 2011. Once the Floodway was activated during that flood event, water levels at Cairo Illinois dropped by more than 0.4 feet in the first hour, nearly 1 foot in the first 6 hours, 1 foot in the first 8 hours, and 2.7 feet in the first 48 hours.²¹ These reductions were achieved despite that fact

²¹ Koenig, T.A., and Holmes, R.R., Jr., 2013, Documenting the stages and streamflows associated with the 2011 activation of the New Madrid Floodway, Missouri: U.S. Geological Survey Professional Paper 1798–E, 31 p.,http://pubs.usgs.gov/pp/1798e/.; Morton, L.W. and K.R. Olson. 2013. Birds Point-New Madrid Floodway: Redesign, reconstruction, and restoration. Journal of Soil and Water Conservation. 68 (2), 35A-40A. DOI: https://doi.org/10.2489/jswc.68.2.35A.

that the Floodway was only partially opened due to problems with the explosives used to activate the Floodway. These problems led to the Floodway diverting just 72% of its design flow (a maximum of 400,000 cubic feet per second was diverted through the Floodway), as documented by the U.S. Geological Survey.²²

Optimizing use of the New Madrid Floodway, including through strategies for more frequent use and passive activation, could provide even greater protections including by minimizing dangerous delays in activation. Delays in activating the New Madrid Floodway in 2011^{23,24} were implicated in the flooding of more than 200 structures in Olive Branch, Illinois and almost 240 homes in Metropolis Illinois. Dozens of businesses in Metropolis were either closed or greatly affected by high water, and lost revenue, flood fighting and clean-up costs from the 2011 flood cost Metropolis almost \$1.4 million.²⁵ The entire city of Cairo Illinois was put under a mandatory evacuation order, forcing residents to leave their homes and find alternative places to stay, often at significant personal expense.

Optimizing use of the New Madrid Floodway would provide important flood damage reduction benefits to many river communities, including many economically disadvantaged communities of color. As long acknowledged by the Corps, activating the New Madrid Floodway during severe floods prevents the overtopping of levees and floodwalls in dozens of river communities, in Illinois, Missouri, and Kentucky.²⁶ Many of these communities have large minority and/or economically disadvantaged populations, including: Cairo and East Cape Girardeau, IL; Charleston, Sikeston, and East Prairie, MO; and Hickman and Paducah, KY.

Optimizing use of the New Madrid Floodway, which provides the last connection between the Mississippi River and its natural backwater floodplain in Missouri, would also provide extremely important ecological benefits. The New Madrid Floodway and its more than 53,000 acres of wetlands provide "unique and irreplaceable" habitat that supports "an extremely diverse fishery (114 species

²² Id. Activating the flood way in this manner also resulted in significant damage to floodway lands.

²³ The Corps is authorized – but not required – to activate the New Madrid Floodway to protect river communities whenever water levels at the Cairo gage reach 58 feet and river stages are forecast to exceed 60 feet. The activation level was "officially" increased through a 1986 Operating Plan that directs activation of the Floodway "prior to river stages reaching 61 feet on the Cairo gage with additional stage increases forecast," though the Corps reserved the right to activate the floodway when stages reached or exceeded 58 feet at the Cairo gage in certain situations. Camillo, Charles A., "Divine Providence: The 2011 Flood in the Mississippi River and Tributaries Project" (2012). *US Army Corps of Engineers, Omaha District.* Paper 142 at 52 ("Divine Providence"), available at http://digitalcommons.unl.edu/usarmyceomaha/142) (visited on December 18, 2016).

²⁴ In 2011, the New Madrid Floodway was not activated until the river reached 61.72 feet at Cairo. The delay was due in large part to a lawsuit that was filed by the state of Missouri to stop the floodway's use. "Missouri officials had fought hard to stop the plan, filing court actions all the way to the U.S. Supreme Court." CBS St. Louis, http://stlouis.cbslocal.com/2011/05/03/watch-blowing-up-birds-point-levee/ (visited on November 24, 2013). While Missouri eventually lost its legal challenge, critical time was lost as the legal battle played out in court. ²⁵ July 26, 2016 Letter to President Obama from Billy McDaniel, Mayor of the City of Metropolis Illinois. The National Wildlife Federation would be happy to provide a copy of this letter upon request.

²⁶ St. Johns Bayou and New Madrid Floodway, Consolidated NEPA Document (consolidating the 2002 RSEIS and the 2006 RSEIS 2 for the St. Johns Bayou and New Madrid Floodway, MO Project), Appendix K. p. 13-14 (previously available at http://www.mvm.usace.army.mil/stjohns/PeerReview/default.asp; this document appears to have been removed from the Corps' website).

representing 22 families)"²⁷ and "provide[s] essential breeding and migration areas for 193 species of migratory birds, including tens of thousands of migrating shorebirds and waterfowl."²⁸ These essential habitats would benefit from an optimization regime that mimics a more natural flood regime.

Atchafalaya Floodway

The Corps should explore opportunities for optimizing use of the Atchafalaya floodway system. The current rigid flow distribution at the Old River Control Structure (ORCS), where the Corps attempts to maintain a 70/30 distribution between the flow of water in the Mississippi and Atchafalaya Rivers, tends to flatten the highs and lows of the flood cycle within the basin. The result sometimes diminishes the highs, but much more often raises the lows. The flood cycle is critical to many natural processes, including providing the conditions needed for tree seeds to sprout and floods to replenish backwaters. Among many negative consequences of the current management are stagnation of backwater swamps and the inability of forests to recruit new growth as older trees age and die.

The LMRCS should examine the operational assumptions governing the choice of a 70/30 split at the ORCS and of the design of the Atchafalaya system. Flow regulation at the ORCC should be revaluated to meet the needs of both the Mississippi and Atchafalaya Rivers. The type of structure(s) needed to dynamically and reliably regulate the flow of water and sediment between the Mississippi and the Atchafalaya Rivers also needs to be determined, designed, and built in order to address the issues of channel aggradation within the Mississippi River, channel degradation in the Atchafalaya River, and water supply issues during droughts.

Bonnet Carré Spillway

Despite the ecological disruption that typically results from by the massive influx of freshwater into the estuary²⁹ when the Bonnet Carré Spillway (BCS) is opened, the frequency of those openings has been increasing and this trend is likely to continue. BCS infrastructure has also outlived design life and will likely need to be replaced over the coming decades.

To help address these problems, the Corps should examine converting the BCS into a passive floodway that could serve the emergency function of the spillway, while providing maximum ecosystem services. This could be achieved at minimal cost—and possibly could be implemented simply by removing the BCS' wooden pins. Once removed, floodwaters could flow through the structure whenever the river rises above the base structure height. This conversion would minimize the ecological disruption, providing long term ecological benefits to the Pontchartrain—Mississippi Sound Estuary. This option would also cause less strain on downstream levees in years without emergency floods.

In assessing options for such a transformation, the Corps should give serious consideration to recent modeling, which shows that building and operating diversions along the Lower Mississippi River could substantially reduce the need for BCS use, both in terms of volume and duration. Instead of being

 ²⁷ November 18, 2013 Letter from the Office of Environmental Policy and Compliance, U.S. Department of the Interior to Col. Jeffery A. Anderson, Commander, Memphis District, U.S. Army Corps of Engineers. The National Wildlife Federation would be happy to provide a copy of this letter upon request.
 ²⁸ Id.

²⁰ Id.

²⁹ This disruption occurs because the receiving estuary is now much salter on average than it was before the Mississippi River was confined by artificial levees. As a result, the massive influx of freshwater that occurs when the BCS is opened can cause temporary disruptions and problems, including algal blooms, and adverse impacts on sedentary organisms like oysters and recruitment of larval estuarine organisms like brown shrimp.

dumped directly into open water, diversions allow floodwaters to be diffused through swamps and marshes that desperately need the flow, the freshwater, the sediment, and the nutrients they provide.

4. Modernize Operation and Maintenance of the Navigation System

The National Wildlife Federation urges the Corps to fully assess and adopt Actionable Recommendations focused on modernizing operation and maintenance of the navigation system to reduce flood damages, improve fish and wildlife habitat, and advance River resilience. Measures that would help achieve these objectives while still allowing for robust navigation, include:

- (a) Removing and modifying targeted river training structures (e.g., wing dikes, bendway weirs, and chevrons) to reduce flood heights, help restore important fish and wildlife habitat, and assist in reconnecting side channels. The Corps should also consider a moratorium on constructing new river training structures unless the Corps can demonstrate that such construction will not increase flood levels or cause other harms.
- (b) Removing rip rap in targeted reaches to facilitate natural channel movement and allow the contribution of additional sediment into the River to facilitate restoration of coastal wetlands, and riverine wetlands and islands.
- (c) Advancing ecologically appropriate beneficial reuse of fully compatible sediments dredged to maintain navigation, and otherwise minimizing adverse impacts associated with the disposal of sediments dredged to maintain navigation.
- (d) Advancing alternative management regimes for navigation along the lowermost reach of the Mississippi River.
- (e) Planning and implementing mitigation for the adverse impacts of activities carried out to operate and maintain navigation on the Lower Mississippi River.

Modifying and removing targeted river training structures would be particularly beneficial in the 195mile reach between the Ohio and Missouri Rivers (known as the Middle Mississippi River), which is operated and maintained through the Corps' Regulating Works Project. River training structures are particularly prevalent in this reach of the River and extensive peer-reviewed science demonstrates that these river training structures have increased flood levels by up to 15 feet in some locations and 6 to 10 feet in broad stretches of the Middle Mississippi River.^{30,31} The impacts of river training structures are

³⁰ See, e.g., Pinter, N., A.A. Jemberie, J.W.F. Remo, R.A. Heine, and B.A. Ickes, 2010. Empirical modeling of hydrologic response to river engineering, Mississippi and Lower Missouri Rivers. River Research and Applications, 26: 546-571; Remo, J.W.F., N. Pinter, and R.A. Heine, 2009. The use of retro- and scenario- modeling to assess effects of 100+ years river engineering and land cover change on Middle and Lower Mississippi River flood stages. Journal of Hydrology, 376: 403-416.

³¹ The National Wildlife Federation recognizes that the Corps has disagreed with these findings in the past. However, these conclusions are based on a robust body of peer-reviewed science and are also supported by Corps studies. For example, a 2017 Environmental Assessment prepared by the Corps' St. Paul District rejected a proposed river training structure alternative because modeling of that alternative "showed a significant floodstage increase for the 1-percent flood elevation" and concluded that this "alternative is not considered implementable due to the unacceptable flood stage increases produced by the structures necessary to make this alternative effective." U.S. Army Corps of Engineers St. Paul District, DRAFT Letter Report and Integrated

cumulative; the more structures placed in the river, the higher the flood stages. Flood stages increase more than 4 inches for each 3,281 feet of wing dike built within 20 river miles downstream.³²

Additional science shows that the Middle Mississippi River has been so constricted by river training structures and levees that it is now exhibiting "the flashy response" to flooding "typical of a much smaller river:

Ehlmann and Criss (2006) proved that the lower Missouri and middle Mississippi Rivers are becoming more chaotic and unpredictable in their time of flooding, height of flooding, and magnitude of their daily changes in stage. This chaotic behavior is primarily the result of extreme channelization of the river, and its isolation from its floodplain by levees (e.g., Criss and Shock, 2001; GAO, 1995; Belt, 1975). The channels of the lower Missouri and middle Mississippi Rivers are only half as wide as they were historically, along a combined reach exceeding 1 500 km, as clearly shown by comparison of modern and historical maps (e.g., Funk and Robinson, 1974).³³

The Long Term Resource Monitoring Program (LTRMP) has documented the significant adverse environmental impacts of river training structures on the River's health.³⁴ The Corps has also confirmed that its Regulating Works Project has caused significant environmental harm, and has determined that its plan for continued construction of new river training structures in the middle Mississippi River, will destroy a substantial amount of aquatic habitat and have "a significant adverse effect on the fish community."³⁵

As an initial starting point, the National Wildlife Federation recommends that the Corps carefully investigate the removal and modification of river training structures between River Mile 55 and 68. The Corps has acknowledged that this reach has been unnecessarily constricted by river training structures:

https://files.dnr.state.mn.us/input/environmentalreview/boulanger/boulanger-ea.pdf, visited March 14, 2024).

Environmental Assessment, Lower Pool 2 Channel Management Study: Boulanger Bend to Lock and Dam No. 2 (DRAFT June 2017) at 42-43 and Appendix D (available at

 ³² Reply Declaration of Nicholas Pinter, Ph.D. in Support of Plaintiffs' Motion for Preliminary Injunction, NWF et al v. Corps of Engineers, Case No. 14-00590-DRH-DGW, (S.D. ILL), 2014; Declaration of Nicholas Pinter, Ph.D. in Support of Plaintiffs' Motion for Preliminary Injunction, Case No. 14-00590-DRH-DGW, (S.D. ILL), 2014. The National Wildlife Federation would be happy to provide copies of these materials upon request.
 ³³ Robert E. Criss, Mingming Luo, River Management and Flooding: The Lesson of December 2015–January 2016,

Central USA, Journal of Earth Science, Vol. 27, No. 1, p. 117–122, February 2016 ISSN 1674-487X (DOI: 10.1007/s12583-016-0639-y). A copy of this study is provided at Attachment B to these comments.

³⁴ The LTRMP monitors the health of the Mississippi River from Minneapolis, MN to Cairo, IL so provides extensive information on the portion of the LMRCS study area from Cape Girardeau, MO to Cairo. Information for the reach covered by the LMRCS is provided in the discussions related to the Unimpounded Reach (below Pool 26). See, e.g., U.S. Geological Survey. 1999. Ecological status and trends of the Upper Mississippi River System 1998: A report of the Long Term Resource Monitoring Program. U.S. Geological Survey, Upper Midwest Environmental Sciences Center, La Crosse, Wisconsin. April 1999. LTRMP 99-T001. 236 pp. (impacts for the unimpounded reach at 16-4 to 16-5); Houser, J.N., ed., 2022, Ecological status and trends of the Upper Mississippi and Illinois Rivers: U.S. Geological Survey Open-File Report 2022–1039, 199 p., https://doi.org/10.3133/ofr20221039.

³⁵ Final Supplement I to the Final Environmental Impact Statement for the Mississippi River Between The Ohio And Missouri Rivers (Regulating Works) (May 2017) at 35, 190 (the project will result in the loss of at least "1,100 acres (8%) of the remaining unstructured main channel border habitat" on top of the loss of 35% of this habitat already caused by the project) and Appendix H, at H-581 (stating mitigation is not mandatory because the SEIS "is not a report being prepared for authorization by Congress").

Engineers studied a prototype reach of the river between River Mile 55 and 68, the Devil's Island reach, which was one of the most difficult stretches of river to maintain. The study used stone dikes to contract the river to 1,200 feet between 1967 and 1969. The study revealed that contraction to 1,200 feet produced a deeper channel than was required at low-water. The study concluded that a contraction to 1,500 feet would be sufficient to maintain the navigation channel. Further experiments were conducted at the Waterways Experiment Station, which confirmed the district's conclusions. St. Louis District river engineers adopted the 1,500 foot contraction plan in 1974, and all future work on the Project followed this plan.³⁶

The Corps should also carefully assess alternative management regimes for the lowermost reach of the Mississippi River. The present system led to the collapse of much of the Birdsfoot Delta's marsh, which has only been partially restored by crevasse gapping and expensive beneficial use of sediments. The present system exacerbates the problem of Gulf hypoxia (the Dead Zone) by jetting nutrient and sediment-laden water into the deep Gulf where this River plume is quickly picked up by circulating currents and moved northeast or west along the shallow shelf. Diffusing that water through wetlands instead could trap sediment and allow biological and chemical uptake and capture of nitrogen and phosphorus before it reaches the open Gulf.

5. Improve the Resilience of the Mainline Levee System

The National Wildlife Federation urges the Corps to fully assess and adopt Actionable Recommendations focused on improving the resilience of the Mainline Levee System that will also restore vital fish and wildlife habitat and facilitate reductions in nutrient loading to the Mississippi River. Specifically, we urge the Corps to develop Actionable Recommendations that require the Corps to:

(a) Obtain <u>all</u> levee and berm construction material for maintenance or enlargement of the Mainline Levee System from non-wetland locations. Wetlands are a vital national resource that provide multiple benefits to people and wildlife, including reducing flood damages. Wetlands should not be destroyed for use as construction material, and obtaining construction material from non-wetland sources should be mandatory for the Corps' work on the Mainline Levee system.

Notably, in 2020, the Corps established criteria that prioritized locating borrow areas for its planned levee enlargement projects in ecologically valuable riverside wetlands over less ecologically valuable, non-wetland locations.³⁷ These non-mandatory ranking criteria are less protective of wetlands than the ranking criteria adopted by the Corps in its 1988 Supplemental Environmental Impact Statement I for the Mainline Levee System.

(b) Restore wetland buffers on the riverside of the Mainline Levee System. Expanding and restoring wetland buffers on the riverside of the levees would improve the integrity and effectiveness of the Mainline Levee system while providing vital fish and wildlife habitat.

³⁶ Id. at F-16.

³⁷ Four out of the top 5 priority borrow pit location criteria target riverside wetlands and 5 of the total 8 priority locations also target riverside wetlands. The National Wildlife Federation is happy to provide additional details, including citations, upon request.

- (c) Identify locations where levee segments could be realigned farther away from the River to give the River more room to spread out during flood events. Such setbacks could be targeted towards locations where wetlands and other undeveloped lands are found on the land-side of a levee reach. Levee setbacks have been used along the Mississippi River to reconnect at least 50,000 acres of land to the River.³⁸ Wetlands are found on the landside of a significant portion of the Mainline Levee System providing significant opportunities for levee setbacks, as discussed below.
- (d) Ensure prompt implementation and required monitoring of mitigation for adverse impacts resulting from enlarging the Mainline Levee System, as required by 33 USC § 2283.

As an initial starting point for evaluating levee setback opportunities, the National Wildlife Federation recommends that the Corps first look at areas where the MR&T levees are "protecting" wetlands and open waters from inundation by the Mississippi River.³⁹ The Corps could then consider whether other undeveloped lands could be appropriate for levee setbacks.

The MR&T levees currently prevent **more than 3.5 million acres of wetlands**⁴⁰ and **more than 349,000 acres**⁴¹ **of open waters** from inundation by the Mississippi River, as documented by <u>Jonathan Remo</u>, Ph.D., Assistant Professor for Geography and Environmental Resources at Southern Illinois University. Dr. Remo evaluated the land cover within the levee protected areas along the Mississippi River between the confluence with the Missouri River to Head of Passes, including the Atchafalaya Basin, using the U.S. Geologic Survey's 2021 National Land Cover Dataset. This data shows that within the approximately 425 levee systems along this segment of the Mississippi River, the land use is primarily agriculture (67%), followed by wetlands and open water (23%), and developed land (7%).⁴²

³⁸ "Numerous levee setbacks have been required through the years because of the evermoving Mississippi River. Since 1915, levee setbacks have continually increased acreages to lands between the Mississippi River mainline levees. To date, the approximate cumulative total is 50,000 acres of land added between the levees. A 1996 study of levees in the Vicksburg District indicated that 17 major levee setbacks since 1915 have resulted in 43,000 acres being added to the riverside flood plain." Mississippi River Mainline Levees Enlargement and Seepage Control Supplement No. 1 to the Final Environmental Impact Statement Mississippi River and Tributaries Project Mississippi River Levees And Channel Improvement, Final July 1998, Project Report at 10 (available at <u>https://www.mvk.usace.army.mil/Portals/58/docs/PP/MRL_SEIS/1998_MRL_SEIS_Volume1.pdf</u>).

³⁹ Dr. Remo examined the U.S. Geological Survey 2021 National Land Cover Dataset to assess land cover within the MR&T "leveed area" as identified in the National Levee Database. According to the database, the leveed area is the "shaded area shown for each levee in the National Levee Database [which] is a conservative estimate of the lands from which flood water would be excluded by the levee system. This shaded area can be called the **leveed area, consequence area, or inundation area.**" National Levee Database, Frequently Asked Questions (emphasis in original) (available at https://levees.sec.usace.army.mil/about/faq/).

⁴⁰ There are 14,304.2 km² (3,534,644.798 acres) of woody and emergent herbaceous wetlands in the MR&T levee protected area.

⁴¹ There are 1413.8 km² (349,357.59 acres) of open water in the MR&T levee protected area.

⁴² The total levee mitigated area according to USACE National Levee Database is 42,106 mi² or an area the size of Tennessee.

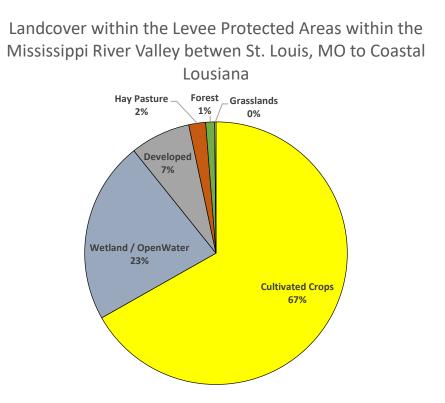


Chart courtesy of Jonathan Remo, Ph.D, Southern Illinois University

Dr. Remo has also determined that the percentage of wetland areas "protected" by the USACE Federally Authorized, USACE Operated & Maintained Levees (chiefly the MR&T levees) ranges from up to 80% for the Green Harbor Levee System in Mississippi to 1% for the Greenwood Mississippi West Levee System.⁴³ The Locally Constructed, Locally Operated and Maintained (i.e., not federal levees) "protect", on average, 40% wetlands and open water.

Wetlands that are cut off from natural inundation by the Mississippi River are invariably in ecological decline due to the lack of riverine input. For example, the wetlands flanking the Atchafalaya and Bonnet Carré levees are moribund, having subsided to the point that recruitment of new trees is impossible because of permanent standing water. As sea level rises, these wetlands are dying as saltwater intrudes. Without new sedimentary inputs to gradually raise ground levels, they are doomed to disappear in the face of climate change. At the same time, wetlands inside the Atchafalaya Floodway and Bonnet Carré Spillway system are filling so quickly with sediment that they are being replaced with less-flood-tolerant bottomland hardwoods.

When assessing levee setbacks, the Corps should also carefully consider the unsustainable nature of relying solely on levee enlargement and seepage control measures to address deficiencies in the MR&T mainline levee system. For example, in 1998, the Corps identified **263 miles of levee enlargements** and

⁴³ The average percentage of levee protected area that are wetlands or open water within the MR&T levee system is 26% or 8,600 mi² (total levee mitigated area is 39,683 mi²). Dr. Remo also highlights that between the mainline MR&T Levees there are 12 Locally Constructed, Locally Operated and Maintained (i.e., not federal levees) that likely impede floodwater conveyance.

132 miles of seepage control features that were needed to ensure the safety and viability of the mainline levee system.⁴⁴ By September 2019, **237 miles of levee enlargements**, **251 miles of seepage remediation**, **16 miles of floodwall construction upgrades**, and **30 miles of levee bank stabilization** were needed, primarily in areas not identified as requiring upgrades in 1998.^{45,46}

Conclusion

The National Wildlife Federation appreciates the opportunity to provide these comments on the scoping phase of the LMRCS. We urge the Corps to seize the vital opportunity provided by the LMRCS to refocus management and operation of the Lower Mississippi River to embrace 21st century knowledge and approaches to water resources management. The National Wildlife Federation stands ready to support the Corps throughout study development, and to work closely with the project management team to achieve the legislative vision.

Sincerely,

Melina Comet

Melissa Samet Legal Director, Water Resources and Coasts

Jemil Ritter

Jessie Ritter Associate Vice President, Water and Coasts

Attachments

⁴⁵ Mississippi River Commission, Fact Sheet, Mississippi River & Tributaries Project Authorized Work Remaining Necessary to Convey the Project Design Flood September 2019, available at

⁴⁴ USACE, Supplement No. 1 to the Final Environmental Impact Statement for the Mississippi River Levees and Channel Improvement Project, Project Report at summary page, 1, 41.

<u>https://www.mvd.usace.army.mil/Portals/52/docs/MRC/MRC%20Web%20Docs/2020%20Authorized%20work%20</u> <u>remaining%20(March%202020).pdf</u>. This is the latest fact sheet available on the Mississippi Valley Division website.

⁴⁶ For example, in 2018 the Corps reported that that approximately 150 miles of Mainline Mississippi River Levee in the New Orleans District were deficient, with deficiencies ranging from a few inches to 6.5 feet. However, in 1998, the Corps had determined that just over 14 miles of mainline levees in the New Orleans District required upgrades.

Attachment A

National Wildlife Federation Scoping Comments on the Lower Mississippi River Comprehensive Management Study

Lower Mississippi River Comprehensive Study: Opportunities to Make a Difference

Overview and Summary

The Lower Mississippi River Comprehensive Study (LMRCS) provides a multi-generational opportunity to re-envision the management and operation of one of the Nation's most important assets within the context of 21st century thinking about water resources management. That means considering the importance of the environment, the role of natural and nature-based features, using a systems approach, and considering a wide array of benefits in decisions. This memo outlines ideas and approaches that we think are useful to the early planning phases of the study, its conduct, and its role in a new future for the Lower Mississippi River.

The authorization and implementation guidance call for actionable recommendations, and state that tiered studies may be initiated either during the study or following completion of the study. However, to take full advantage of the opportunity LMRCS provides, the outcomes need to include:

- A Multi-Objective Framework for Future River Management; and
- Identification of **Priority Opportunity Areas** where actions could be taken by USACE or others to achieve the multiple objectives outlined in the LMRCS authorizing legislation.
- Actionable Recommendations; and
- Identification of priorities for Tiered USACE studies.

Each of the outcomes needs to be supported by science and this will mean different things at different scales, depending on the issue at hand and the availability of existing data and tools. For example:

- The Multi-Objective Framework should be supported by a **System Level Assessment** that relies on information from existing models, trend analyses, and literature reviews.
- Opportunity Areas and Actionable Recommendations should be supported by Local Exploration of Issues using existing and enhanced available tools.
- The required **Assessment of Changes to Future Operations** must address the types of changes and actions needed to improve fish and wildlife habitat while managing flood risk and supporting navigation.

The scientific integrity of the study must be unquestioned. To help achieve this, we recommend engaging scientists and experts from outside USACE to provide input into the study and engage in an "over the shoulder" **Technical Review** of study products as they are developed. This could involve the establishment of **Working Groups** to provide a mechanism for USACE to learn about ongoing work that may mature during the course of the study, discuss their approach, share ideas and receive feedback.

Given the extent of the system and the array of issues to be encompassed it will be critical for USACE to take a collaborative approach to LMRCS, notwithstanding that no cost-share agreements are needed. This should include:

- **Early Wide Engagement.** Understanding the array of potential issues that LMRCS could address early in the study is essential.
- **Fostering Ongoing Dialog and Feedback.** Gathering ideas at the start of the study needs to be followed up throughout the study by sharing information on progress and receiving feedback and ideas at key junctures.

Introduction

The LMRCS provides a multi-generational opportunity to re-envision the management and operation of one of the Nation's most important assets. The Mississippi River is an incredible resource. It provides drinking water for more than 18 million people, a place to live for more than 12 million people, and billions of dollars in flood and storm protection. The Mississippi supports 780 species of wildlife and serves as a flyway for 325 species of migratory birds. It is also an economic engine, serving as a transportation corridor that moves 47 percent of the nation's inland waterway commerce and supporting a \$400 billion-a-year natural resource and recreation-based economy, among many other things.

For almost a century, the Jadwin Plan has formed the backbone of flood risk management in the lower Mississippi Valley states, which, as the Flood Control Act of 1928 notes are subject to 'flood waters of a volume and flowing from a drainage area largely outside the States most affected'. However, the nation has changed since the 1920's.

While the transportation of goods, and the need to limit damaging floods remain priorities, society's wider interests and concern for the environment have grown substantially since implementation of the Jadwin plan. The importance of protecting and restoring riverine, wetland, and floodplain habitats are now apparent in the Congressional Acts that provide for clean water, protection for endangered species, and water resources planning, for example. USACE has also changed. For example, it has positioned itself at the forefront of the use of natural and nature-based features (NNBF) for flood risk management¹, including through its successful Engineering with Nature program, and demonstrated how adjustments in thinking related to the placement of dredged material can lead to environmental benefits. The Regional Sediment Management program has allowed USACE to think beyond individual projects, and the use of systems approach is now central to watershed studies² and thinking within recent comprehensive studies³. In addition, USACE planners have recently been directed to comprehensively document benefits to ensure the USACE decision framework considers the total benefits of project alternatives, including equal consideration of economic, environmental, and social categories. The authorization for LMRCS goes even further by specifically calling for a single study to address multiple USACE mission areas.

The LMRCS represents a remarkable opportunity to consider the future management and operation of the Lower Mississippi within 21st century thinking about water resources management. Crucially, the LMRCS authorizing language recognizes the need to look holistically at the Lower Mississippi River to identify opportunities for restoring and managing this system to benefit 21st century values. As directed in the LMRCS authorizing language (Section 213 of the Water Resources Development Act of 2020) and its implementation guidance⁴, the LMRCS study is to include consideration of, and where appropriate provide actionable recommendations for:

¹ Bridges, T., King, J., Simm, J. D., Beck, M., Collins, G., Lodder, Q., & Mohan, R. (2021). *International guidelines on natural and nature-based features for flood risk management*. USACE.

² ER 1105-2-102.

³ For example, the South Atlantic Coastal Study https://www.sad.usace.army.mil/SACS/

⁴ Implementation Guidance for Section 213 of the Water Resources Development Act of 2020, Lower Mississippi River Comprehensive Management Study

- Modifying existing water resources projects to take full advantage of 21st century approaches and techniques to improve the environment while carrying out authorized purposes, including changes to the MR&T project within the study area;
- Modernizing operations and maintenance of existing flood risk management and navigation projects to better protect and restore the environment while carrying out authorized purposes;
- New water resources restoration projects; and
- Utilizing NNBF, including levee setbacks and floodplain restoration.

The LMRCS gives USACE the opportunity to develop a framework for future river management that advances multiple objectives upstream and downstream and is adaptable to accommodate the challenges of both high flows and low flows. This framework can, and should, also leverage the work of others to contribute to both the study and future river management.

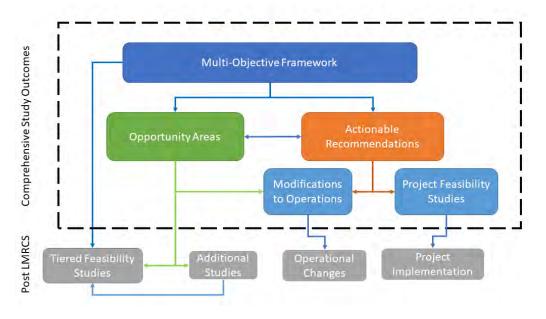
This memo outlines ideas, approaches and potential outcomes that we think are useful to both the early planning phases of the study, its conduct and its role in a new future for the Lower Mississippi River.

Study Outcomes

The authorization and implementation guidance call for actionable recommendations, and states that tiered studies may be initiated either during the study or following completion of the study. However, to take full advantage of the opportunity LMRCS provides, the outcomes should include:

- A Multi-Objective Framework for Future River Management; and
- Identification of **Priority Opportunity Areas** where actions could be taken by USACE or others to achieve the multiple objectives outlined in the LMRCS authorizing legislation.
- Actionable Recommendations; and
- Priorities for **Tiered USACE studies.**

The figure below outlines the relationships among the LMRCS outcomes and their relation to projects, operations, and additional studies.



These outcomes are fully consistent with the USACE systems approach to watershed planning which "shifts the emphasis of making decisions from identifying individual projects to long-term solutions that consider a broader range of impacts and the entire lifecycle of any actions."⁵

Multi-Objective Framework

Multi-use operation and management of the Lower Mississippi River requires understanding the interactions among those uses, identifying potential points of conflict and of synergy, evaluating options and their multiple consequences, and assessing the implications of tradeoffs. It is also essential to focus on ways that the system can be managed to better address future climate risks, and improve the resilience of the river and the people, wildlife, and economies that rely on it.

Development of a Multi-Objective Framework early in the study would provide important context and direction for each of the other study outcomes. It would entail:

- Identifying interactions and interdependencies among key river processes and landscape components at a conceptual level;
- Considering expected future conditions in terms of hydrologic, climatic, commercial and landscape changes, to identify their potential influence on the conceptualized system (e.g., plausible future floods/droughts, sea level change/subsidence, changes in navigation, etc.);
- Evaluating the implications of tradeoffs among uses under various current and future conditions, including the environmental consequences of current operations;
- Identifying opportunities for modifying existing MR&T structures and operations under current conditions and various future condition scenarios at a conceptual level (e.g., what are the consequences for the ecosystem and navigation from managing flood risk in a different manner, what are the consequences for the ecosystem or flood risk management from managing navigation in a different manner); and
- Identifying key constraints on system operation and management in relation to high consequence risks, and the implications of those constraints for other uses (e.g., maintenance of navigation during low flows, accommodation of future floods, unacceptable adverse ecosystem impacts).

This information could then be used to:

- Identify the key interactions among components of particular importance to each mission area;
- Outline how those interactions are influenced by operations/management and the key implications of operations/operational changes that should be considered in the context of addressing multiple uses; and
- Catalog circumstances/locations to prioritize for future study focused on limiting risk.

This overall system conceptualization and operational strategies Framework could be developed for different sections of the river as long as upstream and downstream interactions are captured. It should be sufficiently detailed to enable a high-level assessment of how modification of any aspect of the system (e.g., biogeophysical or operational) being considered by LMRCS, a Tiered study or other action,

⁵ ER 1105-2-102.

is influenced by or cascades through the system. It could be thought of as a system level conceptual model, consistent with but less detailed than local or system level quantitative tools.

The Multi-Objective Framework reflects the use of a systems approach described in USACE Guidance on Watershed Studies (ER 1105-2-102). The Regulation notes that a 'systems approach can be scaled to the complexity and level of detail necessary for a specific watershed or watershed planning task. Planners and decision makers can deal with the complexities of a system and evaluate holistic inputs and outputs using this approach.' By including 'the interrelationships among land resources and water bodies and the upstream-to-downstream linkages that characterize a watershed' it would support the development of 'interdependent, long-term holistic solutions rather than piecemeal approaches and provide a blueprint for continued involvement in the watershed', as discussed in ER 1105-2-102.

Opportunity Areas

An important aspect of LMRCS can be the identification of Opportunity Areas for actionable recommendations under the LMRCS and for future planning and action. These would include areas within the system where opportunities exist to modify existing projects, modify operating plans, and/or advance new projects to improve the ecosystem while also supporting flood risk management and/or navigation. The identification of Opportunity Areas where further exploration (e.g., additional data collection or modeling, engagement with specific partners, detailed analyses, etc.) is needed to determine a specific path forward provides a strategic path forward for further work, including Tiered USACE studies, following the completion of LMRCS.

Opportunity Areas, set within the overarching Framework for future management of the system, would

allow USACE and USACE partners to conduct future work, that may or may not lead to a USACE project, in a way which is supportive of the overall approach. The importance of this type of collaborative approach is explicitly recognized in the LMRCS authorizing

ER 1105-2-102 notes that 'Watershed planning should include strategies for implementation, both federal and non-federal, to allow programs to work together over time.'

language and is central to the ability of the LMRCS to successfully chart a new path forward for the system.

Opportunity Areas could include, among other things:

- Reaches where floodplain restoration and/or levee setbacks could provide effective flood risk management while also advancing ecosystem restoration. These might include areas already targeted for conservation, or where repeated flooding is proving challenging;
- Locations where dredging practices could be reduced or modified to minimize adverse impacts, or where additional dredging is needed to reduce flood risks;
- Reaches where navigation infrastructure (such as river training structures and/or revetment) can be removed or modified to support ecosystem restoration and/or reduce flood risks while still allowing navigation;
- Areas where local land use planning could reduce future flood risks, or support use of the floodways to manage flood risk.

Opportunity Areas should not be limited to those areas where only USACE can act, although some may be the basis for actionable recommendations or Tiered studies. Instead, in identifying such areas,

USACE could consider actions that may be carried out by other federal agencies, states, and others, including actions that advance ecosystem restoration, increase enrollment of lands into conservation easements, implement wildlife friendly agriculture, or advance other types of improvements to land management. Including these types of assessments in the identification of Opportunity Areas would allow interested parties to work in parallel with, or subsequent to, LMRCS to further these activities with an understanding of the constraints imposed, or opportunities provided, by USACE flood risk management, navigation, and ecosystem restoration responsibilities.

Actionable Recommendations

The LMRCS must include actionable recommendations to Congress. These actionable recommendations should include project feasibility studies and operational modifications that are illustrative of a new approach to river management by individually or cumulatively advancing multiple objectives. The extent of the study areas and the diversity of the issues that need attention will likely lead to many requests for feasibility studies to be conducted under LMRCS. Any project that moves through the feasibility phase as part of the LMRCS should address critical issues, and ideally already would have some foundational studies (although additional strategic data collection or modeling may be required) and synergy with the Multi-Objective Framework.

WRDA 2020 identifies several projects which were part of the 2017 Louisiana Coastal Master Plan, several of which have undergone additional analysis since 2017. The Ama and Union diversion are not specifically identified as projects in the draft 2023 Louisiana Coastal Master Plan as the interaction of diversions at these locations needs to be explored in detail in relation to the proposed Mid-Barataria and Mid-Breton diversions and the River Reintroduction to Maurepas Swamp project. Rather CPRA proposes an Upper Basin Diversion Program to 'to evaluate how diversions into the upper basins could be operated in conjunction with currently planned diversions to maintain swamps and coastal marshes, sustain estuarine gradients, and aid in Mississippi River flood control'. This is a clear opportunity to pursue a project recommendation consistent with the intent of WRDA 2020 and leverage ongoing work by CPRA.

In order to demonstrate the potential for new approaches upstream to influence flood management in lower reaches, the pursuit of levee setbacks or floodplain restoration projects with flood storage effects should also be included. Identifying such projects within one or more of the Opportunity Areas would demonstrate the multi-use approach to river management the authorizing language calls for.

Tiered Studies

The development of the Multi-Objective Framework and the Opportunity Areas, and engagement across the entire region, will likely lead to a number of ideas for new USACE studies. Prior to recommending priorities for Tiered studies, the LMRCS should demonstrate that there is a federal interest in such studies and that the studies advance key aspects of the LMRCS Multi-Objective Framework. As such, and to reemphasize the new approach to river management encapsulated the LMRCS authorization, it is important that at least several of the Tiered studies represent new approaches to support several of the priority mission areas set forth in the implementation guidance. Tiered studies identified within LMRCS should be seen as an additional opportunity to take a new approach and fulfill the promise of a new approach to river management.

Analysis to Support a Comprehensive Approach

The study outcomes described above directly support and operationalize a comprehensive approach to the system. They are consistent with the USACE approach to watershed studies and provide current and future points of entry for a variety of USACE partners to contribute constructively to future system management.

Of course, each of the outcomes must be supported by science. The LMRCS authorizing language directs USACE to "make use of existing data" provided by applicable Federal, State, and local agencies, Indian Tribes, non-Federal interests, relevant multistate monitoring programs, and other stakeholders, "to the maximum extent practicable and where appropriate." The LMRCS implementation guidance further calls for existing data to be used to the extent possible. ER 1105-2-102 also asserts that the "use of existing models and data in watershed planning, whether it is from USACE, other federal agencies, or local entities is encouraged through collaborative processes."

While leveraging existing data and tools is essential for LMRCS, it will be important to ensure that all tools used are tailored to the need at hand, and to recognize that the data and modeling needed to properly develop and support recommendations may mean different things at different scales. For example, project evaluations will need to be informed by detailed models, while an understanding of broad relationships may be sufficient to indicate directionality and magnitude of response for the system wide framework. Some examples are described below.

System Level Assessment

Existing numerical modelling studies, as well as trend analysis and understanding obtained from literature reviews, will be needed to generate the framework conceptualization. Where existing detailed analyses are available, they can be used to inform the system level assessment. This approach will allow the use of existing local information, based on detailed models, without the need to ensure direct compatibility between, for example, specific information on channel shoaling and ecosystem and navigation responses.

Relying on the full array of information available is fully consistent with ER 1105-2-102, which recognizes that "benefit evaluation for watershed plans may be qualitative in nature, with a range of benefits for comparison, or assessments based on qualitative rankings (such as high, medium, or low)." USACE is becoming increasingly familiar with system level assessment, and it will be important to utilize this approach in the Multi-Objective Framework.

Local Exploration of Issues

As discussed above, recommendations for action developed under LMRCS will require more detailed analysis through models that have been approved for planning studies. Where useful models are available for these studies which have not specifically been approved for USACE use, there may be time and opportunity with the 5 year scope of LMRCS to obtain such approval, increasing the breadth of tools available to USACE and allowing for ready acceptance of analysis by a wider audience, more direct comparison with existing work, etc. Complementary analyses and use of comparative model applications should be encouraged.

Future Operations

The LMRCS authorizing language directs USACE to investigate "structural and operational modifications to completed water resources development projects within the study area." USACE clearly has

extensive data, modeling, and experience with its navigation and flood risk management operations, and many others have also carried out extensive and highly relevant modeling and data collection.

It will be important for USACE to look holistically at the full array of options for modifying operations. This includes exploring opportunities, and making actionable recommendations, for modifying operations and maintenance activities to help restore river and floodplain processes and improving fish and wildlife habitats while managing flood risks and supporting navigation.

Coordination

Given the extent of the system and the array of issues to be encompassed, there is no doubt that USACE must take a collaborative approach to LMRCS, notwithstanding that no cost-share agreement are needed. ER 1105-2-102 notes that federal, state, tribal, and local government missions, goals, objectives, funding requirements, and timeframes should be fully understood in watershed studies so that efforts can be accomplished by various entities in an integrated way consistent with a collaboratively developed plan.

Collaboration takes time and needs to be deliberately planned. The following three aspects are particularly important for the overall LMRCS effort. The development of decision documents under LMRCS will have its own processes and procedures (e.g., NEPA scoping, Agency Technical Review, etc.).

Early Wide Engagement

Understanding the array of potential issues that LMRCS could address early in the study is essential. This allows the PDT to acknowledge issues which the study will not address, and set an appropriate context for the development and application of the Multi-Objective Framework.

USACE could consider a series of open meetings with a wide array of stakeholders to inform them of the study, gather thoughts on issues which could be considered, problems that need to be addressed, and sources of information, etc. Given the geographic scale these could be conducted virtually to ensure wide participation. Stakeholders should also be provided with multiple opportunities to provide written input into the study process, including through a website that provides the public with regularly updated information on the LMRCS study and its progress. Additional input, as required under NEPA and any other USACE authorities when triggered, will also provide important input into the LMRCS process.

USACE may consider using a visioning process to help guide the LMRCS study (as was conducted for the South Atlantic Coastal Study), or a similar-type process. USACE should also take advantage of information sharing venues organized for other purposes (e.g., America's Watershed Initiative meetings, State of the Coast conference, etc.), to share information and obtain input.

Fostering Ongoing Dialog and Feedback

Gathering ideas at the start of the study needs to be followed up throughout the study by sharing information on progress and receiving feedback and ideas at key junctures. Planning for this at the start of the study will be essential so that all involved go into LMRCS with an understanding of how and when information will be shared. The South Atlantic Coastal Study, for example, used a website, issued newsletters, held quarterly update webinars, etc. as well as meetings with different groups of stakeholders. A structure and approach will need to be developed to ensure regular and open

communication, let people know where to go to get up to date information, and provide information and opportunities on how to provide feedback.

A more structured approach to sharing information could be used with some of the larger scale technical and planning studies being undertaken within the system. These include the Lowermost Mississippi River Program being undertaken by CPRA, and the forthcoming Gulf Research Program funded study of the Birdsfoot Delta area, led by LSU and Tulane. A suitable approach could include:

- An early workshop to understand the scope and issues for each study, identify potential synergies, points of alignment etc.
- Annual symposia open to a wider audience to discuss progress. This could, for example, be an expansion of the annual Tulane River Symposium.

There may be other examples of parallel efforts in other parts of the system that similarly merit structured engagement in this way.

Technical Approach

USACE has many subject matter experts (SMEs) who have extensive knowledge about aspects of this system, and they should be engaged as appropriate to support the study. However, the scope and extent of the study mean that internal expertise may not be available on all issues, and the scientific integrity of the work will benefit from the engagement of scientists and experts from outside USACE. Further, research on this system is actively being undertaken at universities, state and federal laboratories, by NGOs and the private sector. Data and new insights are being generated and LMRCS needs to leverage as much of this as possible.

Working Groups

Establishing 'working groups' of SMEs from both within and outside of the Corps on particular geographies or issues that are particularly promising or challenging or where there is a lot of ongoing work by other (e.g., floodplains, Atchafalaya Basin, use of NNBF, etc.) would provide a mechanism for USACE to learn about ongoing work that may mature during the course of the study, discuss their approach, share ideas and receive feedback. These could meet on a regular basis, enabling the LMRCS team to stay up to date on the progress of other efforts, newly developing science, etc. Members would not be offering formal or collective advice, but offering suggestions to help shape the study. It is expected that agencies and other organizations would contribute staff time to support the effort but USACE may contract with some to ensure their participation.

Technical Review

USACE Peer Review Guidance (EC 1165-2-217) sets out processes for Agency Technical Review and Independent External Peer Review for decision documents. This process should be followed for the LMRCS and any feasibility studies conducted under LMRCS, as required.

However, the larger study—including the development of the Multi-Objective Framework, tools and approaches used to test ideas, and assumptions about key drivers of system change—would also greatly benefit from ongoing review by a set of SMEs. For the non-decision components of LMRCS, USACE should work to establish a technical body of external knowledgeable experts to review progress and provide feedback to the study team during the conduct of the study. One model to consider is the

National Technical Review Committee (NTRC) which was established to support the Louisiana Coastal Area (LCA) Study. The NTRC included experts from a variety of disciplines and was deemed beneficial for providing input and feedback throughout the development of the LCA. The NTRC process could also be improved by adopting the recommendations that were made for improving the NTRC process.

If some aspect of the group's meetings is open to the public and reports are made widely available, it becomes a way of increasing transparency, gaining input from technical experts, and a venue for SMEs working on the study to engage in dialog on technical issues. The focus would be on dialog about challenging technical issues, rather than formal advice to LMRCS on a path forward.

Acknowledgements

This memo was drafted by Dr. Denise Reed and Mr. David Muth with support from the National Wildlife Federation. Discussion with a number of individuals at USACE, LSU, CPRA and Tulane provided helpful context for the points made here.

Attachment B

National Wildlife Federation Scoping Comments on the Lower Mississippi River Comprehensive Management Study

River Management and Flooding: The Lesson of December 2015–January 2016, Central USA

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ABSTRACT: The huge winter storm of December 23–29, 2015 delivered heavy rainfall in a broad swath across the USA, deluging East-Central Missouri. Record high river levels were set at many sites, but damages were most pronounced in developed floodplain areas, particularly where high levees were built or river channels greatly narrowed. An average of 20 cm of rain that mostly fell in three days impacted the entire 10 300 km² Meramec Basin. Compared to the prior record flood of 1982, the highest relative stage (+1.3 m) on Meramec River occurred at Valley Park proximal to (1) a new levee, (2) a landfill in the floodway, (3) large floodplain construction fills, and (4) tributary creek basins impacted by suburban sprawl. Even though only a small fraction of the 1.8 million km² Mississippi River watershed above St. Louis received extraordinary rainfall during this event, the huge channelized river near and below St. Louis rapidly rose to set the 3rd-highest to the highest stages ever, exhibiting the flashy response typical of a much smaller river. KEY WORDS: floods, Mississippi River, levees, floodplain development.

0 INTRODUCTION

Human modification of landscapes and climate are profoundly impacting rivers and streams. Urbanization with its attendant impervious surfaces and storm drains is known to accelerate the delivery of water to small streams, causing flash flooding, channel incision and widening, and loss of perennial flow. The landscapes of large river basins in the central USA have been profoundly modified by agricultural activities and development. Meanwhile, large river channels have been isolated from their floodplains by progressively higher levees, and dramatically narrowed by wing dikes and other navigational structures (e.g., Pinter et al., 2008; Funk and Robinson, 1974). Direct consequences are higher, more frequent floods and underestimated flood risk (Criss, 2016; Belt, 1975). In many areas rainfall is becoming heavier, exacerbating flood risk (e.g., Pan et al., 2016), while new floodplain developments greatly magnify flood damages (Pinter, 2005).

The extraordinary winter storm of December 23–29, 2015 provides additional evidence for progressive climate change, while delivering more tragic examples of record flood levels and underestimated flood risk. What is perhaps most remarkable is that the flood on the middle Mississippi River had a much shorter duration than its prior major floods, and closely resembled the flashy response of a small river. This paper discusses how the Meramec River and the middle Mississippi

Manuscript received January 8, 2016. Manuscript accepted January 14, 2016. River responded to this massive storm, and examines how their recent response differed from prior events.

1 STORM SYNOPSIS

Very strong El Nino conditions developed during fall 2015, bringing some welcome relief to the California drought as well as anomalously warm temperatures to much of the USA. An extraordinary winter storm, appropriately named "Goliath", delivered heavy rainfall in a broad belt across the central USA, as a long cold front developed parallel to, and south of, a southwest to northeast-trending part of the jet stream. Rain delivery was greatest in the central USA, particularly southwest of St. Louis, Missouri (Fig. 1). The three-day rainfall delivered by Goliath is considered to be a "25-year" to "100-year" event at most meteorological stations in this region (NOAA, 2013). With this huge addition of late December precipitation, the record-high annual rainfall total (155.5 cm) was recorded at St. Louis in its official record initiated in 1871 (NWS, 2016a), although less reliable records suggest that annual rainfall was greater in 1848, 1858 and 1859. Flooding associated with Goliath resulted in great property damage and caused at least 12 fatalities in Missouri, 7 in Illinois, 2 in Oklahoma and 1 in Arkansas.

The extraordinary rainfall that fell at St. Louis on Dec. 26–28 closely followed significant rainfall on Dec. 21–23. The earlier storm saturated the ground, so runoff from the second pulse was greatly amplified.

2 MERAMEC RIVER FLOOD

Meramec River drains a 10 300 km² watershed in East-Central Missouri, and enters the Mississippi River 30 km south of St. Louis (Fig. 2). This river has very high wildlife diversity

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and is one of the very few un-impounded rivers in the USA (Criss and Wilson, 2003; Frederickson and Criss, 1999; Jackson, 1984). Population density is low, except for the lower basin near St. Louis. Intense rainfall events cause flash flood-

ing of the basin, as recorded by numerous long-term gauging stations (Fig. 2). Winston and Criss (2002) described one such flash flood, and the references cited in the aforementioned publications provided abundant information on the basin.

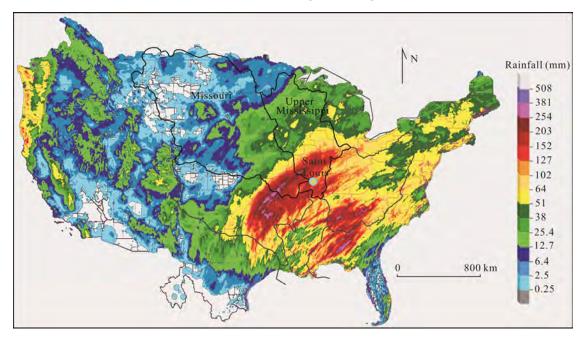


Figure 1. Map showing the observed, 7-day precipitation for December 22–29, 2015, according to NWS (2016a). Superimposed on this map are the boundaries of the upper Mississippi and Missouri watersheds (labeled) and other major river basins. Goliath delivered an average of 20 cm of rain to the entire Meramec River Basin (Fig. 2), but extraordinary rainfall exceeding 10 cm (orange, red and purple shading) impacted only a small fraction of the huge Mississippi-Missouri watershed upstream of St. Louis (blue dot near center).

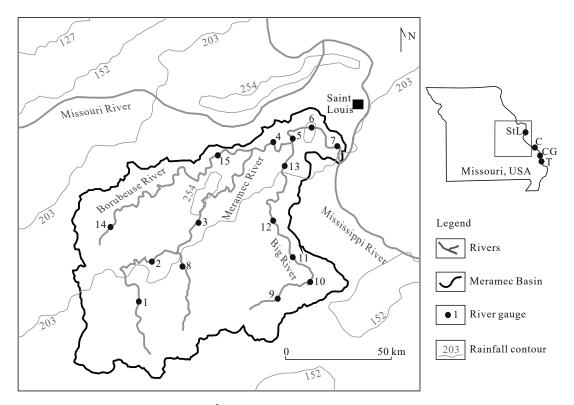


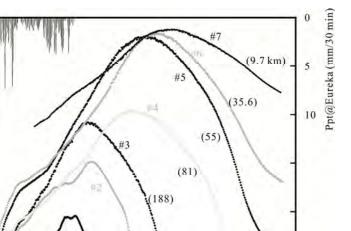
Figure 2. Map of East-Central Missouri showing the 10 300 km² Meramec River Basin (dark outline) and contours for precipitation delivered from December 22–29, 2015 according to NWS (2016a). Labeled dots are river gauging stations; stage hydrographs for the stations along the main stem of Meramec River (#1 to #7) are shown in Fig. 3. Water levels at Union (#15), Eureka (#5), Valley Park (#6) and Arnold (#7) set new records, while that at Pacific (#4) came close. The index map of Missouri shows the area of detail, and the location of river gauges at St. Louis (StL), Chester (C), Cape Girardeau (CG) and Thebes (T) along the middle Mississippi River (cf. Fig. 6).

15

10

5

River stage (m)



 $0 + \frac{1}{25} + \frac{1}{26} + \frac{1}{27} + \frac{1}{28} + \frac{1}{29} + \frac{1}{30} + \frac{1}{31} + \frac{1}{2} + \frac{1}{3} + \frac{1}{28} + \frac{1}{29} + \frac{1}{30} + \frac{1}{31} + \frac{1}{2} + \frac{1}{31} + \frac{1}{3$

Figure 3. Stage hydrographs showing the propagation of the 2015 flood wave down the main stem of Meramec River, for sites #1 to #7 on Fig. 2. Numbers in parenthesis are the distance in km above the confluence with the Mississippi River to the south of St. Louis. Hydrographs for each site are plotted relative to its local datum, except that 0.75 m was added to the Valley Park hydrograph (#6) for clarity. Thin bars at upper left represent 30 minute precipitation (right scale). Data from USGS (2016) and NWS (2016b).

Goliath delivered an average of 20 cm of rain, mostly in 3 days, to the Meramec River Basin (Fig. 2). The resultant flood wave rapidly grew as it propagated downstream (cf. Yang et al., 2016), moving at a rate of about 3 km/h in the lower basin, where it set all-time record high stages (Fig. 3).

Runoff after storm Goliath was extraordinary, with flows attaining a value approaching 4 500 m³/s, as documented by direct field measurements at the Eureka gauging station on December 30 (USGS, 2016). Of the precipitation delivered above Eureka by Goliath, 85% returned as runoff at Eureka in only 14.3 days. For comparison, the average, long-term annual flow at Eureka is only 92 m³/s for a basin that receives an average of about 109 cm of precipitation per year, indicating an average for the USA.

3 COMPARISON TO 1982

The prior flood of record in most of the lower Meramec Basin occurred on December 6, 1982, during another very strong El Nino condition, although at some basin sites the flood of August 1915 was more extreme. Given the strong similarities in time-of-year, ENSO condition and basin response, it is very useful to compare the peak water levels of 1982 to those of 2015 (Fig. 4). The river stage at Pacific was slightly lower in 2015 than in 1982; this site is not rated for discharge, but the observed stage is consistent with the recent combined peak flows upstream at Sullivan and Union also being slightly lower in 2015. Big River enters the main stem of Meramec River about 4.8 km above the Eureka gauging station, and the peak flow at the lowermost station along it (#13 on Fig. 2) was about 150 m³/s greater in 2015 than in 1982. Given these small differences, one might expect that the 2015 peak

flow at Eureka would closely match that of 1982, but direct field measurements at Eureka on Dec. 30, 2015 suggest that the peak flow was 4 500 m³/s (USGS, 2016), when it was only 4 100 m³/s in 1982 (USGS, 1983). Taking this 400 m³/s difference at face value, and using the rating curves (USGS, 2016, 1983), the associated river stage at Eureka should have been only about 0.5 to 0.6 m higher at Eureka in 2015 than in 1982, when the observed difference was 0.97 m.

Alternatively, the estimated difference between the 2015 and 1982 stages at Eureka would be only about 0.25 m if it is assumed that the flow at Pacific was identical in the two years, and the ~150 m³/s difference for the flows on the lower Big River is accounted for. That the observed 2015 stage at Eureka was much higher than suggested by these two estimates (crosses, Fig. 4) demands explanation.

An even greater difference between the 2015 and 1982 river levels occurred at Valley Park (Fig. 4). This area has changed in the following way between these floods: (1) the size and height of a landfill at Peerless Park (cover photo) was greatly increased, significantly restricting the effective width of the Meramec River floodway mapped by FEMA (1995); (2) the 5.1 km-long Valley Park levee (Fig. 5) was constructed in 2005, restricting the width of the inundation area of the regulatory "100-year flood" (see FEMA, 1995) by as much as 70%, while reducing floodwater storage capacity; (3) the adjacent basins of three small tributaries, Williams, Fishpot and Grand Glaize Creeks, experienced rapid suburban development, destroying the riparian border, increasing the impervious surface, and making flash floods frequent (Hasenmueller and Criss, 2013); and (4) the floodplain area experienced continued commercial development on construction fill, impeding overbank flow while amplifying flood damages. It would appear

that these changes added at least 1.0 m to the 2015 water levels at Valley Park, and at least 0.4 m upstream at Eureka, compared to what levels would have been in the 1982 landscape condition. Water levels may also have increased at Arnold due to such changes, but this is not clear, because the Mississippi River level was nearly 2 m higher in 2015 than in 1982 at the mouth of Meramec River during its flooding. This higher level at the confluence would impede the flow of the lowermost Meramec River, and flatten and elevate its water surface.

One final difference is that water temperatures measured by USGS (2016) were higher in 1982 (~13 °C) than in 2015 (~6 °C) near the times of peak flooding, so both the density and viscosity of water were higher in 2015. The associated effects on river levels are complex and not easy to determine. Nevertheless, if the 2015 peak stage and flow at Pacific were both similar to

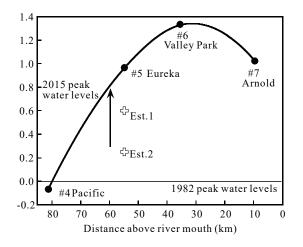


Figure 4. Relative difference between the peak water levels of December 30–31, 2015 and those of December 6, 1982 at different sites in the lower Meramec Basin (cf. Fig. 2). This difference was greatest close to Valley Park, where a large levee was built in 2005; this and other changes appear to have increased stages at Valley Park as well as upstream and downstream. Two estimates (crosses) suggest what the stage difference between these floods should have been at Eureka, had the 2015 flood occurred under the 1982 landscape condition (see text). Big River (arrow) enters the Meramec River from the south, 4.8 km upstream of Eureka.



Figure 5. The Valley Park levee looking south, only 1 hour after the flood gates were reopened on January 2, 2016. The floodwater level (dark) almost breached the levee and exceeded the estimated level for a "100-year flood" (FEMA, 1995) by nearly 2 m, forcing evacuation of the protected area to the left. Bicyclist (circled) on levee top shows scale. Photo by Robert E. Criss.

those in 1982, as is seemingly demanded by available data, temperature effects at Eureka are probably small.

Eight great floods (site stage >11 m) occurred at Eureka since 1915. For the six that occurred prior to 1995, the local stage at Valley Park was 0.96 to 1.40 m lower (avg. 1.20 m) than the local stage at Eureka. Only two >11 m floods occurred at Eureka since, in 2008 and 2015, and for those the local stage at Valley Park was only 0.68 and 0.59 m lower than that at Eureka. These relative differences clearly indicate that the stages of large floods at Valley Park have recently increased, relative to stages at Eureka, by about 0.8 ± 0.5 m. New developments such as the 2005 Valley Park levee are the probable cause for this large difference.

4 THE JANUARY 2016 FLOOD ON THE MIDDLE MIS-SISSIPPI RIVER

Only a day after the peak flooding on the lower Meramec River, water levels on the Mississippi River at St. Louis were the 3rd highest ever recorded, and only a few days later, record stages were set downstream at Cape Girardeau and Thebes (Fig. 6). This flood is truly remarkable in several respects.

First, the Mississippi River at St. Louis was above flood stage for only 11 days during this recent flood, compared to 104 successive days in 1993 and 77 days in 1973, the only years with higher floods at St. Louis. We have found a good trend between peak stage and flood duration, with the greatest anomaly being this recent flood, and the next greatest being the brief 2013 flood which ranks 7th. Clearly, during January 2016 the middle Mississippi River experienced what might be considered a flash flood, as it exhibited a response similar to rivers whose basins are a hundred times smaller.

Second, the January 2016 flood occurred at the wrong time of year. Great floods on large midwestern rivers have historically occurred during spring, when heavy precipitation is

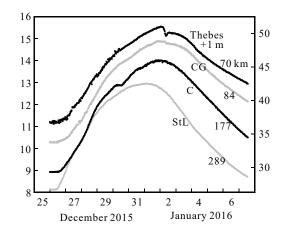


Figure 6. Stage hydrographs at St. Louis (StL), Chester (C), Cape Girardeau (CG) and Thebes, showing propagation of the 2015–2016 flood wave down the middle Mississippi River (cf. Fig. 2). The official stages depicted for each station are relative to its local datum, except that 1 m was added to the data at Thebes (top curve) for clarity. Numbers on curves are distance in kilometers above the Ohio River. The effect of a downstream levee being overtopped is evident near the flood crest at Thebes. This flood is remarkable for its short duration, time of year, and for the new record levels set at Cape Girardeau and Thebes. Data from USGS (2016).

added to rivers swollen with snowmelt. A partial exception was the August 1 peak of the great 1993 flood, but the protracted period of flooding was initiated during late spring. The other significant exception was the 10th highest flood at St. Louis, which occurred on December 7, 1982. Just like the current event, the 1982 flood peak on the Mississippi at St. Louis occurred only one day after the lower Meramec flood peak of December 6, 1982, discussed above. Ehlmann and Criss (2006) proved that the lower Missouri and middle Mississippi Rivers are becoming more chaotic and unpredictable in their time of flooding, height of flooding, and magnitude of their daily changes in stage. This chaotic behavior is primarily the result of extreme channelization of the river, and its isolation from its floodplain by levees (e.g., Criss and Shock, 2001; GAO, 1995; Belt, 1975). The channels of the lower Missouri and middle Mississippi Rivers are only half as wide as they were historically, along a combined reach exceeding 1 500 km, as clearly shown by comparison of modern and historical maps (e.g., Funk and Robinson, 1974).

Third, while the area of extreme precipitation during December 26–28, 2015 spanned the entire Meramec Basin, only 5% of the gigantic watershed of the Mississippi River above St. Louis experienced 7-day rainfall greater than 10 cm (Fig. 1). Nevertheless, because the Mississippi and Missouri rivers are so channelized and leveed proximal to St. Louis, the rainfall that was rapidly delivered to the nearby part of the watershed had nowhere to go, so river levels surged. Downstream, river stages were even higher because of the addition of floodwaters from Meramec River, affecting Chester, and then from the addition of Kaskaskia River, affecting the narrow Mississippi at Cape Girardeau and Thebes. For these sites, the fraction of their upstream watersheds affected by great December precipitation was only slightly larger than for St. Louis.

Finally, the record high water levels just set at Cape Girardeau and Thebes would have been even higher, but for the damaging surge of overbank floodwater that followed the overtopping of the Len Small Levee north of Cairo. The stage hydrograph for Thebes clearly shows that a sharp, 0.5 m reduction occurred when the water was still rising (Fig. 6), so the stage recorded just prior to that drop underestimates what the peak level would have been. A smaller but similar effect occurred slightly later at Cape Girardeau.

5 DISCUSSION

The aftermath of storm Goliath provides another example in an accelerating succession of record floods, whose tragic effects have been greatly magnified by man. The heavy rainfall was probably related to El Nino, and possibly intensified by global warming. Heavy rainfall impacted the entire Meramec basin, which accordingly flooded. But new record stages were set only in areas that have undergone intense development, which is known to magnify floods and shorten their timescales.

The Mississippi River flood at St. Louis was the third highest ever, yet it occurred at the wrong time of year, and its brief, 11-day duration was truly anomalous. Basically, this great but highly channelized and leveed river exhibited the flashy response of a small river, and indeed resembled the response of Meramec River, whose watershed is smaller by 160×. Yet, only a few percent of the watershed above St. Louis received truly heavy rainfall during this event; the river rose sharply because the water simply had nowhere else to go.

Further downstream, new record stages on the middle Mississippi River were set. Those record stages would have been even higher, probably by as much as 0.25 m, had levees not failed and been overtopped. The sudden drop of the water level near the flood crest at Thebes clearly demonstrates how levees magnify floodwater levels. In this vein, it is very significant that the water levels on the lower Meramec River were highest, relative to prior floods, proximal to a new levee and other recent developments. Forthcoming calls for more river management, including higher levees and other structures, must be rejected. Additional "remediations" to this overbuilt system will only aggravate flooding in the middle Mississippi Valley (see Walker, 2016).

Finally, this event provides abundant new examples of greatly underestimated flood risk. During this event, water levels on the lower Meramec River were 1 to 2 m above the official "100-year" flood levels (e.g., FEMA, 1995), while those that at Cape Girardeau and Thebes were 0.5 and 0.7 m higher, respectively. New commercial and residential developments in floodplains are foolhardy.

6 CONCLUSIONS

The huge winter storm of Dec. 23–29, 2015 delivered heavy rainfall in a broad swath across the USA, with as much as 25 cm of rain falling on East-Central Missouri in three days. The entire 10 300 km² Meramec Basin received an average of \sim 20 cm of rain during this event, and the river responded with a dramatic pulse that grew as it propagated downstream at \sim 3 km/h. Record high water levels were set at several sites, all in areas where the floodplain was developed, runoff was accelerated, high levees were built, or the floodway was restricted. In particular, compared to the prior record flood of 1982 on the Meramec River, the highest relative stage (+1.3 m) was seen proximal to a landfill in the floodway and to a new levee and that restricted the effective width of the "100-year" water surface by as much as 65%.

In contrast, Goliath's extraordinary rainfall impacted only a tiny fraction of the huge, 1.8 million km² Mississippi River Basin above St. Louis, yet flooding occurred which was truly remarkable for the high water level, time of year, and brief duration. This continental-scale river exhibited the flashy response typical of a much smaller river such as the Meramec. This unnatural response is clearly consistent with the dramatic channelization of the middle Mississippi River and its isolation from its floodplain by levees, as clearly pointed out by Charles Belt more than 40 years ago. It is time for this effect to be accepted and for flood risk and river management to be reassessed.

ACKNOWLEDGMENTS

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Letter ID: 79 Name:

Org/Agency/Company: National Wildlife Federation, Environmental Defense Fund, The Nature Conservancy, Theodore Roosevelt Conservation Partnership, National Audubon Society

Our undersigned organizations appreciate the opportunity to provide input during this scoping period for the Lower Mississippi River Comprehensive Study (LMRCS). The LMRCS represents a tremendous opportunity: to reexamine the lower Mississippi River system holistically, and refocus management and operation of the river to substantially improve ecosystem health, community resilience, social equity, and economic prosperity, while continuing to carry out USACE responsibilities. Our organizations have chosen to submit this letter addressing critical overarching subjects that both align with the authorized intent of the LMRCS and would make the most of the potential that this study presents for a transformational reassessment of the status quo, and the multiple benefits that can be achieved for resource management.

Our groups: National Wildlife Federation, Environmental Defense Fund, The Nature Conservancy, Theodore Roosevelt Conservation Partnership, and National Audubon Society, submit the following comments addressing three primary topics: 1) modifying study objectives to achieve a multiple-objective assessment, 2) maintaining an inclusive and actionable study process, and 3) wholly addressing variable conditions exacerbated by climate change. We look forward to continued collaboration with USACE throughout the study timeline, and stand ready to provide organizational and collective resources to ensure that the LMRCS final product meets this moment of opportunity.

Modifying Study Objectives to Achieve a Multiple-Objective Assessment

The legislative language authorizing the LMRCS sets an ambitious vision for reimagining how the USACE and partners manage the Lower Mississippi River. We recognize that the draft objectives identified at the systemwide and regional levels seek to articulate that multiple-benefit approach. However, we believe the current objectives leave critical gaps that could undermine the value of the LMRCS. It is particularly important that USACE move beyond confining the conceptualization of actions and projects within the limits of the silos of navigation, flood control, and ecosystem restoration. Many actions can be taken to advance flood risk reduction and navigation that would improve ecosystem health. Similarly, many ecosystem restorationoriented actions can achieve flood risk reduction or navigational objectives. With a multipleobjective approach in mind, we propose the following alterations:

• Add a new Systemwide Objective elevating river/floodplain connectivity and restoration, and nature-based solutions to support ecosystem function, including through ecosystem restoration, flood risk reduction, and navigation actions. This addition would more fully

align the Study Objectives with the LMRCS authorizing language and identified Regional Objectives.

• We further recommend that the system-wide objectives evolve to reflect the full range of opportunities inherent in modifications to lower river operations. In limiting the metrics to

"maximizing channel stabilization", the opportunity is missed to manage for much more. USACE should identify opportunities to maintain navigational priorities and infrastructure while also maximizing opportunities for flood resilience, ecosystem health, and recreation, including through structural and operational modifications to the navigation system. Additionally, the objective of channel stabilization should be modified to focus on achieving "channel resilience", allowing for a reliable navigation channel while facilitating natural processes that can effectively restore riverine, floodplain, and coastal wetland habitats.

• Modify the Systemwide Objective to "reduce flood risk to economically and socially disadvantaged communities along the Lower Mississippi and Atchafalaya Rivers." Expand this objective into a more comprehensive, equity-informed goal that includes the ecosystem restoration and nature-based solutions benefits that a holistically managed river would provide to economically and socially disadvantaged communities, in addition to flood risk management. Ecosystem services from restoration and floodplain connectivity measures include improved flood risk reduction, air quality, water quality, pollination, recreation and more. For vulnerable and disadvantaged populations hit the hardest by flood risk, environmental quality deficiencies, and a lack of recreational access, these benefits are critical to acknowledge and extend. For example, modify the objective to state: Reduce flood risk and maximize ecosystem services for economically disadvantaged communities along the Lower Mississippi and Atchafalaya Rivers.

Critically, USACE should not limit itself during this study to consideration of already conceptualized place-based projects that are brought forward by the districts or stakeholders. Some of the most promising opportunities to improve the health and resilience of the system are likely not yet conceptualized projects; this should not deter their evaluation. The Agency has a unique opportunity and responsibility to take a holistic view of the system and identify areas of opportunity to modernize the system and achieve multiple sustainable benefits. To help ensure this holistic review, we recommend that the Corps establish Opportunity Areas for deeper, cross-mission area evaluation. Opportunity Areas should include an evaluation of reaches where floodplain restoration and/or levee setbacks could provide effective flood risk management while also advancing ecosystem restoration and reductions in nutrients entering the river, and reaches where navigation infrastructure (such as river training structures and revetment) could be removed or modified to support ecosystem restoration and/or reduce flood risks while still supporting navigation. Further, we encourage the Corps to coordinate closely with states and local governments to identify opportunities for recreational access to be incorporated into study objectives.

Working groups could be established for each Opportunity Area to explore approaches, assessments, measures, and recommended actions and/or tiered studies that could be implemented across the multiple USACE projects and missions that affect the opportunity area. Importantly, this process could identify locations and reaches where future, more detailed planning holds the most promise for achieving the Opportunity Area objectives. This would help USACE planners take a systemic approach to managing the LMRCS, rather than considering only those actions that fall under a particular mission area or authorized project silo.

Maintaining an Inclusive and Actionable Study Process

The lower Mississippi River and the LMRCS study area are an economic engine for the United States, a critical zone for wildlife and bird habitat, and also heavily comprised of communities identified through the Justice40 Initiative as "disadvantaged and marginalized by underinvestment and overburdened by pollution". For these reasons and many others, it is critical that the LMRCS be centered in principles of equity, providing affected communities and stakeholders a regular opportunity to check in and provide feedback on the evolving study, while accurately assessing the benefits that a holistically managed river would provide to these communities.

The LMRCS must also make the most of the identified study timeline and the process charted in the enabling legislation (Water Resources and Development Act of 2020). The geographic area, subject matter, and objectives are vast, and the legislation specifically directs some resources and procedures that will augment and contribute to the success of the final product. Below, we identify some key measures to ensure an equitable process, while maintaining an actionable timeline:

• The USACE should commit to a continued feedback loop with community members, the public, and stakeholders. The recent scoping meetings were held across the study geography, with multiple meetings per day, with access to study team members for greater detail. This was an encouraging demonstration of inclusivity, and we ask that such efforts continue throughout the study timeline, to ensure that objectives and solutions are grounded in the needs of the communities that will be affected, with meaningful impact and consideration by the project management team as the study continues.

• The Annual Reports required by the enabling legislation should identify actionable recommendations that have become immediately apparent in the course of the study, as well as recommendations for tiered studies, rather than waiting to present these ideas at the conclusion of the study. This will allow the USACE, partners, and our organizations to support timely funding and commencement of tiered studies. Additionally, the USACE should identify constraints in the USACE' existing authority and policy or regulatory changes that are necessary to achieve the maximum benefits from the LMRCS as soon as they are identified and in the Annual Reports. Again, this will allow for such constraints to be understood and potentially addressed early in the process rather than waiting until the end of the study.

• The enabling legislation requires that the USACE consult with a host of partners and stakeholders and to utilize sources of data that will benefit the LMRCS. Our organizations will help identify such planning materials, including modeling efforts and prioritization methodologies applied to issues in the lower Mississippi region. However, we strongly encourage the USACE to engage with universities and other scientific experts up and down the river throughout the course of this study.

• The USACE also has close at hand two efforts that embody the multi-objective assessment intent of the LMRCS: the U.S. Army Engineer Research and Development Center (ERDC) and the Engineering with Nature (EWN) Initiative. The professionals involved with both of the programs possess important knowledge, case studies, and expertise to help achieve the multiplebenefit assessments and project development that will strengthen the LMRCS and the region. We encourage the USACE to align and coordinate these efforts for an optimized final product. • We also recommend that the USACE prioritize the incorporation of adaptive management plans with clear triggers and criteria for existing and proposed water resources development projects.

• Regional planning processes on the lower Mississippi River have been challenged by the lack of a central forum where federal, state, and local representatives are able to come together and align various elements of a vision for a holistically managed river system. In lower river states, various state organizations may have regulatory or policy authority over environmental quality, water resources, economic development, recreational access, and ecosystem health – all areas impacted by USACE management of the Mississippi River. The USACE's efforts to create a "gate to the state", common forum for state leadership and USACE project leadership, are thoughtful first steps in realizing a venue for comprehensive river management planning. Our organizations see the value in a similar, conceptual common forum to achieve comprehensive planning efforts moving forward, not only streamlining inter-governmental efforts, but potentially serving as a forum for affected communities and stakeholders to bring concerns and solutions. We envision entities with regulatory authority and the resources to implement solutions establishing this common forum for planning efforts and a comprehensive view of the river but centered in meeting the needs of ecosystems and underserved communities. In short, taking the holistic approach described in this letter and operationalizing the process long-term.

Addressing Variable Conditions Exacerbated by Climate Change

Recent years have demonstrated the unpredictability and severity of changing conditions on the Mississippi River as exacerbated by climate change. Flash flooding, flash drought conditions, saltwater intrusion in south Louisiana, and emergency dredging efforts are becoming regular events rather than anomalies. This reality requires an assessment that accounts for the extreme variability and the uncertainty inherent in project development and planning processes. With these factors in mind, we submit the following:

• The USACE should account for the predicted effects of a range of climate change-impacted river flows and the associated uncertainty. The LMRCS offers an opportunity to address these challenges through comprehensive and holistic management of an entire river system, adaptively addressing the variability through more flexible operations and innovative solutions that align "green" and "gray" projects as equally valid elements of management. The USACE should incorporate up-to-date climate data and modeling efforts such as the recent Coupled Model Intercomparison Project Phase 6 (CMIP6) to ensure that management efforts are prepared and informed for the most extreme variability, and to fully quantify the levels of uncertainty associated with project designs, ensuring that communities are adequately informed regarding flood protection in these highly variable scenarios. Modeling the impacts to operations from a range of hydrologic conditions will allow for adaptive management recommendations to be developed.

• Despite the study area's necessary geographic limitations, the operations and solutions at hand are defined by the river's hydrologic connectivity and the factors impacting river conditions in the Upper Mississippi River and major tributaries such as the Ohio and Missouri rivers. While this study is limited to the lower river, actionable recommendations and solutions should be identified that recognize these conditions and respond accordingly, such as by managing the basin's nutrient loading and hypoxia, as well as flooding, through nature-based solutions and

improved floodplain connectivity in the lower river. Our undersigned organizations appreciate the opportunity to provide these comments on the scoping phase of the LMRCS. We hope this critical assessment will signify a new era in Mississippi River management: moving beyond siloed mission objectives into comprehensive management of the resources at hand. Our organizations stand ready to support the USACE throughout study development, and to work closely with the project management team to achieve the legislative vision.

Sincerely,

Jessie Ritter, Associate Vice President, Water and Coasts, National Wildlife Federation

Allie Olsonoski, Projects Analyst LA Coasts & Watersheds, Environmental Defense Fund

Hannah Amsterdam, Senior Policy Associate, Mississippi River Basin Floodplain, The Nature Conservancy

Christy Plumer, Chief Conservation Officer, Theodore Roosevelt Conservation Partnership

Brent Newman, Mississippi River Program Director, National Audubon Society

Letter ID: 56 Name: Navarre, Curtis Org/Agency/Company: -

The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944 and recommended by the Mississippi River Commission. Maintaining the 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commerical barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitve by making significant investments in their respective infrastructure.

Letter ID: 195 Name: Newburn, Brenda Org/Agency/Company: -

Cape Girardeau river front recreation is an important opportunity to include within this progect.

Letter ID: 30 Name: No Name Given, Org/Agency/Company: -

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Letter ID: 37 Name: No Name Given, Org/Agency/Company: -

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Letter ID: 59 Name: No Name Given, Org/Agency/Company: -

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Letter ID: 94 Name: No Name Given, Org/Agency/Company: -

I agree with the Mississippi Sound Coalition that what happened with the spillway in 2019 can't happen again, that the sound might not recover. Science has shown interconnectedness in nature. The results show that the action had disastrous results, and in the long run, will not be a viable solution for flooding. I also believe that the science is already out there on alternative solutions. Ultimately, I believe that more environmental restrictions are needed so that the pollution and degradation of the environment resulting in flooding are not happening in the first place, but in the meantime, opening other spillways to lessen the blow to the sound could be a solution in the short-term until other solutions can be fully implemented.

Letter ID: 95 Name: No Name Given, Org/Agency/Company: -

Perhaps, you should talk to the native folks and they'd tell you straight up ya can't tame a river! Do better for everyone. Please and thank you Letter ID: 96 Name: No Name Given, Org/Agency/Company: -

Please consider gauge readings as action trigger for flood risk management as opposed to channel volume. Please consider annual 70,30 at the Old River complex. Please restore the flexibility in operating procedures for all facilities in the system, this would allow your team to manage every rise efficiently with least possible negative impacts. The team has been handcuffed by policy. ..La Hwy 1 at Morganza Spillway. Still have levee slide concerns on tail bay side of railroad. MORGAN CITY..this outlet needs immediate attention. It's one of two outlets for 41% of the United States Watershed. Why are we not using it. SEE FACTS FROM 2011 RECORD FLOOD. Risk to human life was red flag level at Baton Rouge yet we harvested crops on the Atchafalaya banks.

Also, more flow down the Atchafalaya can cause Red River Hydraulic Dam. Perhaps a pumping station would be in order. Thank you for the opportunity to participate with your team. Flexibility in policy, operating manuals is key.

Letter ID: 97 Name: No Name Given, Org/Agency/Company: -

[Comment from IL resident] We need pumps easily accessible so that we never have another flood like 2019.

Letter ID: 138 Name: No Name Given, Org/Agency/Company: -

Save our MS Sound! It is our way of life with tourism and food.

Letter ID: 139 Name: No Name Given, Org/Agency/Company: -

Moon Lake area in NW MS Delta. Also look at the Quiver River area near Money, MS. Would like to see more agriculture water supply/ecosystem restoration included on the Mississippi and Arkansas Delta's. We are seeing streams drying up due to agriculture and we should use water from the MS River during growing season to help offset areas throughout the Delta. Pumping water into Moon Lake (MS) and letting it travel down through the Delta would be ideal.

Letter ID: 141 Name: No Name Given, Org/Agency/Company: -

Specific project information

Letter ID: 142 Name: No Name Given, Org/Agency/Company: -

I got an email from CRCL bragging that 110,000 cfs is gushing through Neptune Pass ("more than the sediment diversion will ever flow"). Meanwhile, I'm reading the exec. summary of the EIS for the mid-Barataria diversion (the "sediment" part is controversial, no?) and seems the main point of that project is to build a storm surge buffer for New Orleans with direct inverse adverse impacts on the birdfoot delta (never mind the poor sods in Plaquemines Parish whose way of life will be destroyed, by design, no less). There's a ton of intellectual dishonesty in the so-called science community on the payroll of the CPRA, and I wonder if the Army Corps feeds into that by not calling a spade a spade in public. If the MBSD will divert a max of 7% of the river but more like 1-5% most days and have some pretty serious adverse effects in the birdfoot delta, what kind of impact is Neptune Pass at 20% having? Please review EJ issues (MBSD), saltwater intrusion, the fragility of the delta itself.

Letter ID: 144 Name: No Name Given, Org/Agency/Company: -

Please include applicable state DOTs in the conversation so their transportation assets are considered in the scoping and vetting processes.

Letter ID: 153 Name: No Name Given, Org/Agency/Company: -

The briefing was at the EOC and points were highlighted as to their mission. Not brought up in the briefing I attended was the Davis diversion with no levee protection on the western side of the tie in to the levee. The eastern side has a rr ate _____ none on the western side. A storm with high winds pushing the water to the north would put that water into the old Davis Crevasse area and negate the levees further to the south (luling Heights / Bayer/etc). This was brought up to the CORPS but the priority was a levee tie in.

There are other problems but this to me is the highest priority to tie the Lafourche levee system into the Western tie in I mentioned sliding gates south of HWY 90 no response.

Letter ID: 165 Name: No Name Given, Org/Agency/Company: -

I request that the study identify the adverse effects of Mississippi River discharges from both controlled and uncontrolled structures, Spillways and Levees, on the habitat, environment and economy of affected areas and develop options to mitigate the damaging effects. This should include reevaluating the requirements to open additional discharges or close levee breaches based on the adverse effects of all potentially impacted communities as it relates to jobs, environment and habitat.

Letter ID: 191 Name: No Name Given, Org/Agency/Company: -

We are having issues with the streets damaging with the flooding

Letter ID: 192 Name: No Name Given, Org/Agency/Company: -

Expressing concerns with the way that farmland is treated by the corps. Thinks that its disrespectful to the farmers for how the levees and water levels are managed.

Letter ID: 193 Name: No Name Given, Org/Agency/Company: -

What would happen to Cairo? How would we save our town and protect the environemtnent here?

Letter ID: 194 Name: No Name Given, Org/Agency/Company: -

We are having a housing crisis and the areas youre talking about are areas with a housing crisis, it doesn't sound encouraging for people to move here. When the entire environment and local area could drastically change (flooding) so how do you encourage people to move here and to live here

Letter ID: 196 Name: No Name Given, Org/Agency/Company: -

How did this all come to be and where was the idea from. It said that stakeholders needed information and should keep involved. I wanted to know if MRCTI is involved?

Letter ID: 197 Name: No Name Given, Org/Agency/Company: -

Is the study going to identify alternatives with a preferred alternative. What are the process and need for the study, and why did they go through the full NEPA process?

Letter ID: 200 Name: No Name Given, Org/Agency/Company: -

I am retired from Plaquemines Port. I know how important a port is. I truly believe a port should not be put into such a small parish population. This is a family small community. This port should be in a rural area not in one that will destroy a parish. It would be better located and cheaper for the ships to unload at the mouth of the river. Barge up to NOLA . These ships are entirely too big, stacked too tall.. They are dangerous to any community on the sides of the of the river.

Letter ID: 35 Name: Norris, Duck Org/Agency/Company: -

The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944 and recommended by the Mississippi River Commission. Maintaining the 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commerical barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitve by making significant investments in their respective infrastructure.

Letter ID: 182 Name: Northridge, Bruce Org/Agency/Company: -

I'll let you decide or calculate what you think the average age is of the people who showed up here today. And then the comment from the personal friend that this is a plan for how the Mississippi River could be used for the next hundred years. But, obviously, most of us are going to be dead for most of that hundred years. So my question is how do you get more young people involved in this process? Thank you. Letter ID: 89 Name: Perez, Janet Org/Agency/Company: -

First, I am angered that the USACE did not hold a single public hearing in St. Bernard as part of this study. Nor did you advertise in any local newspapers about either virtual meetings or those held in neighboring parishes. Given the impact and scope of the proposed LIT will have on St. Bernard and the enormous effect this project would have on the Mississippi River here, the residents of St. Bernard deserved the opportunity to have a public comment meeting in St. Bernard.

I have deep concerns regarding the proposed container terminal that is being planned for Violet, St. Bernard Parish by the Port of New Orleans. Their permit for this project is currently in the hands of the USACE and I feel that it should be denied for many reasons. First and foremost is that this project has not been fully vetted. PONO is taking advantage of an opportune moment in procuring land in St. Bernard, but that does not make this location the best for this type of project. It is not safe for ships the size they hope to attract to travel 80+ miles upriver. They will pose a threat to our levee protection as well as to other river traffic. This project will have detrimental effects on our residents, environment, infrastructure, wildlife, and quality of life. The permit on file is NOT for the full scope of their project and the scope of what they have submitted has changed several times since the permit was filed. I am asking that the USACE deny any permits for the LIT.

Letter ID: 209 Name: Perez, Janet

The inland navigation community believes there is an opportunity in this study to advance the Please add this report to my comments that were submitted via your website/link. This report prepared by Mr. John Vickerman, PE, AIA of Vickerman and Associates documents the follies and pitfalls of the proposed Louisiana International Terminal. It should also be noted that there are, currently, two legal challenges against the Port of New Orleans for their proposed LIT project, before the courts. There have been countless complaints lodged with both local, state, and federal officials, and roughly 10,000 signees on a petition protesting the LIT. All of this combined with the negative impact(s) this project will have on St. Bernard Parish and the function of the Mississippi River should cause the USACE to, at the very least, place on hold any permit approvals. This project should not be allowed to proceed until all legal challenges have been answered, until all facts from studies are known, until a final plan and scope is understood, until a unified port system is developed by the state of Louisiana, until all possible locations regardless of which port authority maintains control have been vetted.

{PLEASE SEE ATTACHMENT}



PROPOSED PONO LOUISIANA INTERNATIONAL TERMINAL (LIT) CONTAINER TERMINAL, VIOLET, LA **CRITICAL DEVELOPMENT ISSUES OVERVIEW REPORT**

JANUARY 15, 2024

Abstract

This Louisiana International Terminal (LIT) Critical Development Issues Overview Report was commissioned to identify significant detrimental concerns with the Port of New Orleans (PONO) proposed LIT Container and Intermodal Rail Terminal for Violet, LA, and the project development attributes according to the information submitted to the U.S. Army Corps of Engineers (USACE) in support of the PONO project permit application submittal.



PONO LIT CONTAINER TERMINAL, VIOLET, LA CRITICAL DEVELOPMENT ISSUES OVERVIEW REPORT

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PONO's LIT Critical Development Issues Overview Summary Findings

INTRODUCTION - PREAMBLE

This **Critical Container Terminal Development Issues Overview** was prepared by Vickerman & Associates, LLC under a consulting agreement commissioned by the St. Bernard Parish Government for the reference and use by the constituents of St. Bernard Parish. This Critical Container Terminal Development Issues Overview Report is intended as a public briefing and resource presentation for the citizens of St. Bernard Parish regarding the conclusions and finding of the Vickerman & Associates critical analysis and evaluation of the Port of New Orleans (PONO) proposed Louisiana International Terminal (LIT) container and intermodal rail terminal development in Violet, LA.

In the opinion of this Critical Development Issues Overview Report, the PONO neglected to conduct and/or share crucial project due diligence information and justification analysis to properly support this mega container and intermodal rail terminal development proposal, including, but not limited to, a detailed market cargo demand analysis which is fundamentally critical to evaluating the need for any modern successful marine terminal development project, and particularly required for the citizens of Louisiana, the constituents of St. Bernard Parish, and for deliberations involving the USACE permit application submittal.

Nevertheless, based on an economic development impact analysis report commissioned by the Port of New Orleans, it can be calculated that the truck trip volumes generated by the container terminal could reach 1,728 per day at full capacity. These tremendous daily truck trip volumes would negatively impact southeastern Louisiana traffic congestion, regional vehicular safety, and could deleteriously impact environmental air quality.

Because the current project will result in substantial and potentially deleterious public health, safety, environmental and traffic impacts on the citizens of St. Bernard Parish, a cohesive and compelling regional statewide strategy focused on conducting a thorough proper terminal site selection evaluation is critically needed. Not conducting such a **comprehensive site selection analysis** would be a strategic mistake for the State of Louisiana, and indeed the nation, now more than ever.

This Critical Development Issues Report urgently recommends that a **development advisory committee** should be formed to critically assess the market driven economic viability and needs assessment for a mega container port development in southern Louisiana. This Overview Summary endorses a proposed location and conceptual development plan for the intermodal container project, which must include state-of-the-art marine container and intermodal rail terminal capabilities and terminal characteristics.

This expert development advisory committee is urgently necessary considering the many prior market demand analysis reports reflecting the region's lack of a local population consumption market which would be needed to successfully support the magnitude of the intermodal container terminal complex proposed by the Port of New Orleans at the Violet riverfront site. The comprehensive terminal site selection evaluation is also necessary to ensure that the proposed intermodal container terminal is located at a superior and more optimal terminal site further downriver than the proposed site in Violet to avoid the potentially deleterious harm that will otherwise result to the stakeholders, citizens, constituents, and taxpayers of southeastern Louisiana.



PONO LIT TERMINAL MULTIPLE LAYOUT AND DESCRIPTION MODIFICATIONS:

The PONO proposed \$1.8 billion LIT Container Terminal Development Project in Violet, LA has been significantly revised multiple times by the PONO since the December 2021 PONO USACE permit application submission.

This LIT Container and Intermodal Rail Terminal Project **Critical Development Issues Overview** is primarily based on recent <u>Freedom of Information Act (FOIA) responses from the USACE</u> and other related US Public Port Authority and maritime industry public information and data.

PRESUMED PONO CURRENT LIT TERMINAL LAYOUT AND CHARACTERIZATION:

Since the December 2021 submittal to the USACE, the PONO has made major changes in the LIT terminal layout several times. As of the publication of this Critical Development Issues Overview Report, the following terminal plan and artist's rendering are believed to be reflective of the most recent PONO's latest LIT Terminal layout recommendations. These latest project changes differ substantially from the December 2021 PONO USACE project permit submittal.



An artist's rendering of the latest proposed PONO LIT terminal development follows:

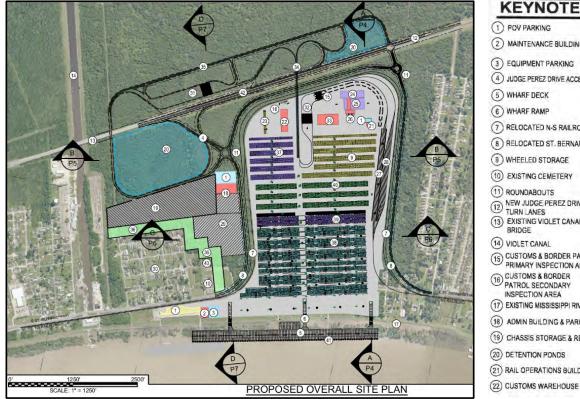




Port of New Orleans, LIT Container Terminal, Violet, LA CRITICAL DEVELOPMENT ISSUES OVERVIEW January 15, 2024 – FINAL REPORT

A. PONO DECEMBER 2021 USACE PERMIT SUBMITTAL DETAILS

The USACE published a public permit announcement for the LIT project on January 24, 2022, based on the Port NOLA (PONO) permit application for development of a commercial container terminal (Permit # MVN-3032-00270-EG – AECOM Drawings dated 11/8/2021) in Violet, LA as illustrated below:



KEYNOTES



At River Mile 83, the LIT permit calls for a total of 3,600 lineal feet of a new pile support wharf/quay with three berths (two vessel berths + one barge berth), and three terminal truck access ramps. Berth lengths: berth # 1: 1,500 ft., berth # 2: 1,500 ft., and berth # 3: 600 ft.) serviced by ten wharf/quay 100 ft. gage ship-to-shore (STS) electric cable reel gantry cranes.

The container yard has approximately 36 mobile yard gantry cranes (each crane spanning a 7 containers-wide stack by six containers high + one pass-over container and one truck lane). The project also includes 1 million cubic yards of native soil excavation; 3.9 million yards of hauled-in sand; and 61,119 cubic yards of riprap stone armoring protection over the riverbank slope. 404 acres of wetlands banking credits from USACE mitigation bank would be used. Estimated total potential LIT operational terminal gross acreage, including wharf/quay and access ramps, is 561 acres - Reference: AECOM Drawing P3 and P13 dated 6/4/2021, Job No. 60637450; Potential Terminal Boundary Impact (+/- 316 acres); + Additional Potential Terminal Area Impact (+/- 245 acres).

B. LIT MARKET DEMAND AND FUTURE CARGO FORECAST ANALYSIS

There was no LIT container and intermodal rail market demand analysis report submitted to the USACE by the PONO. The following overview data was derived from a recent USACE FOIA response based on an economic development analysis prepared in the spring of 2021 in a report titled,



Port of New Orleans, LIT Container Terminal, Violet, LA CRITICAL DEVELOPMENT ISSUES OVERVIEW January 15, 2024 – FINAL REPORT

"Louisiana International Container Growth: The Economic Impact of the Louisiana International <u>Terminal Complex</u>" prepared by Dr. Dek Terrell, Ph.D. of Lewis Terrell and Associates.

Dr. Terrell's report assumes an anticipated \$1 billion construction project for LIT and also assumes that a fully operational LIT with a "*two berth container facility has a capacity of handling 2 million TEUs (twenty-foot equivalent unit ISO containers) per year.*") The conversion rate for container lifts in Dr. Terrell's report is 1.62 TEUs/Lift with 2019 as a base year (1,234,568 container lifts). The economic impacts in Dr. Terrell's report are predicated on estimated construction costs occurring from 2021 – 2031, and operations from the anticipated opening of the first LIT berth and the following 22 years, from 2028 – 2050.

Dr. Terrell's 2050 Total PONO container forecast throughput volume in 1,000s of TEUs is as follows:

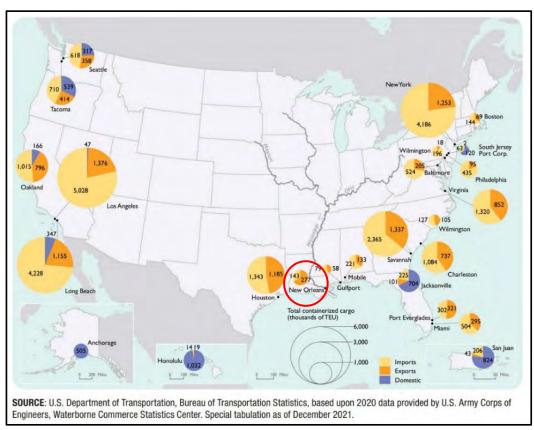
Imports: 317.2 TEUs (15.5%); Exports: 957.9 TEUs (46.8%); Empties: 768.7 TEUs (37.6%) **Total: 2,045.9 TEUs** (note the dominant export/import ratio of 3 to 1).

The PONO's current Strategic Master Plan, published in Spring 2018, indicates the PONO container throughput forecast as follows:

High Forecast: 865,000 TEUs; Base Forecast: 710,000 TEUs; and Low Forecast: 645,800 TEUs.

The **2020 and 2023 Port Performance Freight Statistics Program: Annual Report to Congress** prepared by the Bureau of Transportation Statistics ranks PONO as **number 18** on the list of top 25 container ports by TEUs in the U.S. as illustrated below. Note the PONO comparative volume size.

As depicted in the graphic below, the LIT throughput volume of 2 million TEUs would be larger than the current throughput of the entire port complex of Charleston, SC, and slightly less that the entire port complex of the Virginia Port Authority (VPA), Port of Virginia.





C. ESTIMATED LIT TRUCK TRAFFIC VOLUME (TRUCK-TRIP GENERATION CONCERNS):

Tremendous truck-trip volumes will have a direct bearing on future traffic congestion, safety and environmental air emission concerns along local highways and local arterial roads. Commodity-based truck-trip modeling is the current state of the practice in statewide USDOT modeling. Commoditybased trip rates are rarely published and are difficult to derive from available public data. Vehiclebased models are the most frequently used technique for estimating trip generation at the metropolitan level. The variation in truck classification categories, land-use categories, and trip type categories makes it difficult to compare trip generation rates from one study and area to another.

Ports and Intermodal Terminal Data Sources utilized below were derived from truck-trip generation national rationale and methodology recommended by the:

U.S. Transportation Research Board (TRB) NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) NCHRP SYNTHESIS 298 - "Truck Trip Generation Data" Chapter 3 - Port and Intermodal Terminal Data Resources

Use of the criteria contained in NCHRP Synthesis 298 for truck forecasting typically requires a detailed trade econometric forecast analysis. However, no detailed LIT market demand analysis has been provided by PONO and forwarded to the USACE for the LIT permit analysis. This Critical Overview Summary will use the USACE FOIA Response prepared by Dr. Dek Terrell, Ph.D. wherein it is stated that the LIT project as a "*two berth container facility has a capacity of handling 2 million TEUs (twenty-foot equivalent ISO containers) per year* (refer to top of page 2 of this Critical Issues Summary).

LIT Development 2050 annual throughput capacity: 2 million TEUs

LIT Development 2050 annual truck only capacity:1,700,000 TEUs

LIT Development **Daily All Truck-Trips** approximate linear regression:**1,728 Trucks per day** (864 Trucks Inbound and 864 Trucks Outbound Non-Peak Day – assumed One Shift + limitation)

(Total Truck-Trips/Day = $(2.62 \times \text{Acres}) + 40$. The adjusted R2 value was 0.56 with a standard error of approximately ± 37 truck-trips. The corresponding generalized all truck-trip rate was 3.08 trips/acre.)

This analysis assumes a LIT (Semi-Automated) Gate Complex typically operates one shift + per day with a vessel at one or more berths and includes truck bobtails, trucks with empty chassis, and trucks with container on chassis. The CN "*Carter Ratio*" was used for Intermodal Rail Terminal truck-trip generation forecast with semi-automated gate function and reservation system operating one shift + per day with increased shifts when an intermodal Double Stacked Train (DST) is present.

The detrimental impact of 1,728 container trucks per day on local St. Bernard roadways and local arterial roads will be significant on local communities, and especially on local residential neighborhoods in proximity to the LIT. Increased truck traffic volume through local business areas, and industrial districts will no doubt increase urban goods movement auto-truck accident rates for St. Bernard Parish, especially in the vicinity of the LIT terminal entrance and exit truck routes. Air, noise, pollution, and view corridor limitations are all major terminal planning issues.

The proposed St. Bernard Transportation Corridor elevated roadway from LIT to the I-510 Corridor will not handle all of the 1,728 LIT trucks due to local truck traffic origin and destination criteria and typical traffic distribution.



D. THE NEED FOR A COHESIVE REGIONAL AND STATEWIDE APPROACH TO STRATEGIC SOUTHEAST LOUISIANA PORT DEVELOPMENT SITE PLANNING

The development of a new container terminal port and intermodal rail hub development along the lower Mississippi River in southeast Louisiana is a project of **Statewide and National Significance**. A pragmatic and comprehensive site selection evaluation and analysis is needed in Southern Louisiana now more than ever. Not conducting such a port terminal site development evaluation and analysis by the State of Louisiana represents a strategic miscalculation for the region, the State, and the nation.

As a co-author of the "*Port of New Orleans Millenium Port Development and Investment* <u>Study</u>," my final report message to the PONO Port Commission and Mr. J. Ron Brinson, President and CEO, is as valid today as it was in late 1999, and even more now. The Millenium Port statements made in a recommendation letter to the Port of New Orleans continue to serve as an important warning today.

- Public health, safety, welfare, environmental compliance, and environmental justice should be of paramount concern in addressing port development sites and operating scenarios for future Southeast Louisiana port development. Louisiana port stakeholders and the citizens of Louisiana expect these issues to be addressed thoroughly.
- The context of significant port development going forward should encompass the entire southeast Louisiana region, and clearly include the future prospects of other proposed prominent Louisiana public ports in southern Louisiana.
- It would be a mistake to approach the future of a major strategic port plan and distribution hub in Louisiana with a theme of one site or region to be considered to the exclusion of all others.
- A realistic statewide strategic master plan of mega port development for the State seems logical and it should begin with deliberate planning that blends the values and objectives of Louisiana's citizens and marine industry stakeholders/investors/operators in a creative, yet pragmatic port development proactive planning process.
- What is needed is deliberate value-added inspired planning of future port infrastructure development that rigidly follows a discipline of blending and leveraging the State's desire for environmental quality of life values with the State's interests in quality economic development. Such a port planning exercise could lead to a national best in class model for large multi-modal port transportation infrastructure development programing in the U.S.

The current LIT project being proposed by PONO will result in substantial and potentially deleterious public health, safety, welfare, environmental and traffic impacts on the St. Bernard Parish community and the Parish transport roadway and rail systems. Other more suitable terminal sites within Southeast Louisiana and the lower Mississippi river region could be identified that have superior attributes to the current LIT Violet, LA development site.

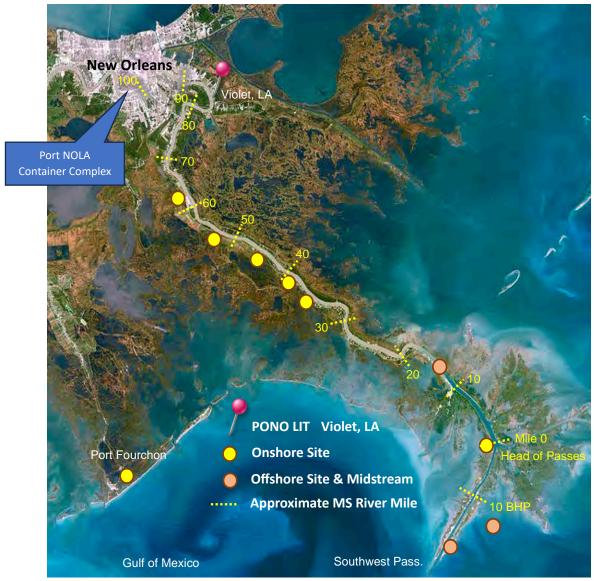
It would be a mistake to approach the future of strategic port planning in Louisiana with a theme that selects a port development from only one site or one region to the exclusion of all others.



Port of New Orleans, LIT Container Terminal, Violet, LA CRITICAL DEVELOPMENT ISSUES OVERVIEW January 15, 2024 – FINAL REPORT

Alternative Container Port Downriver Sites:

Starting with the initial PONO MILLENNIUM PORT STUDY list of potential container port sites (please refer partially to the illustration below), a concise list of the most suitable port development sites can be identified for further analysis and evaluation. A final recommended site suitable for a port and intermodal rail terminal development of **Statewide and National Significance** can be identified.



The formation of a stakeholder, subject matter expert (SME) advisory committee to strategically analyze and evaluate port and intermodal rail terminal site location options from many relevant strategic sites in Louisiana is certainly called for considering the potential impacts of this mega container port terminal development. Consider the following vision, mission, and goals for this Louisiana expert port site selection advisory committee:

Vision: Convene an experienced expert panel of relevant stakeholders, including industry leaders, governmental officials, and other pertinent port development subject matter experts (SME), to identify and thoughtfully analyze potential port development site locations for a mega Louisiana container port terminal development program with superior attributes.



Mission: Thoroughly assess the market driven econometric cargo demand needs and future cargo forecasts of such a port development project and recommend a proposed location site and conceptual development plan for this Louisiana port project of **Statewide and National Significance**.

Goal: Determine the location that is in the highest and best interest and use for the State of Louisiana, the region, and indeed the nation.

Analysis Framework:

- Long-term viability considering state-of-the-art trends and emerging technologies in the ocean and inland river shipping industries.
- Public health, safety, environmental justice, and public welfare mandates.
- Environmental impacts and long term environmental and economic sustainability.
- The analysis should include evaluation of regional port rationalization concepts and opportunities that have been previously discussed by various Louisiana Port Authorities and the State.

E. THE NEED TO EMPLOY STATE-OF-THE-ART INTERMODAL RAIL EQUIPMENT

Intermodal container shipping continues to be one the fastest growing segments for all Class I railways in North America today. Coast to coast, all major U.S. Port Authority container terminals have developed on-dock, near-dock, or remote Intermodal Container Transfer Facilities (ICTFs), sometimes referred to as intermodal rail terminals or yards. Demand for intermodal rail transportation services continues to grow in North America.

The evolution of intermodal rail terminal equipment is rapidly evolving from top lift - Reach Stackers (RS), Straddle Carriers (SC), and Rubber Tired Gantry (RTG) cranes towards automated Rail Mounted Gantry (RMG) / Wide Span Bridge Cranes (WSC) and nested bridge cranes, following the lead of the largest Class I railroads in North America. The deployment of these RMGs and WSCs is focused on generating high-capacity container storage, retrieval and throughput on smaller and smaller intermodal rail terminal footprints.

The initial PONO USACE LIT permit terminal application plan only proposed conventional smaller intermodal rail terminal equipment on fairly short intermodal rail working tracks. The following photograph depicts a modern high-capacity intermodal rail terminal with WSC equipment. An intermodal container terminal site should deploy today's state-of-the-art high productivity intermodal rail terminal yard equipment to reduce the container terminal footprint and maximize intermodal rail container throughput capabilities. The most recent modification to the LIT layout by PONO may include such equipment.





F. SOUTHEAST LOUISIANA LACKS THE LARGE LOCAL POPULATION CONSUMPTION MARKET THAT OTHER MAJOR GATEWAY CONTAINER PORT DEVELOPMENTS HAVE

The following LED, DOTD, BRAC and GNO, Inc. and PONO previous investigations and analysis regarding container and intermodal rail market demand analysis reports have similar findings and conclusions regarding the future of container and intermodal shipping in southeast Louisiana:

In June of 2009, the PONO commissioned **Parsons Brinckerhoff (now WSP)** to prepare a Strategic Advisory Report titled, "<u>Napoleon Avenue Container Terminal Development Utilizing Public-</u> <u>Private Partnerships</u>." This report forecasted a 20-year containerized cargo demand market growth rate for PONO of only 1%, (a base container cargo forecast of approximately 325,000 TEUs in 2028). Even with a high container market forecast scenario attracting two new Asian container carriers, the total long-term PONO forecast was estimated at 550,000 TEUs.

Booze Allen Hamilton issued their final Trade Study Report dated June 11, 2009, to the BRAC and GNO, Inc. in the report titled, "*Strategy to Optimize the International Trade Potential of Southeast Louisiana*." The report indicated that "Southeast Louisiana's key trade strength rests with non-containerized trade, with the lack of industrial and consumer demand as the leading weakness. The State's population has lagged the growth experienced in the rest of the U.S. Local consumption is not the big driver of local trade, the report stated. Industrial activity is below average within the region especially if the petrochemical industry is excluded. Southeast Louisiana captures approximately 7% of the U.S. population within a 500-mile radius compared to approximately 14% for competing ports. The region lacks a cohesive market strategy and lacks a unified vision on trade and the transportation industry."

Louisiana Economic Development (LED) and DOTD commissioned **ATKEARNEY** to prepare a "<u>Port</u> <u>Complex Market and Feasibility Analysis</u>" published December 22, 2009. This report forecast that Louisiana would only "maintain 7% share of the Gulf Container Traffic" even with the opening of the new expanded Panama Canal capability in 2016. The report meanwhile indicated that the Panama Canal expansion would increase traffic to the other Gulf ports.

In the LED and DOTD report, of the 78 market areas analyzed, Louisiana had a low potential opportunity in 58 of the 78 areas. In only 6 of the 78 market areas did Louisiana have a high potential opportunity. The balance of the areas was identified as having a medium potential market opportunity.

PREVIOUS LED, DOTD, BRAC AND GNO, INC. AND PONO INVESTIGATIVE CONCLUSIONS:

The majority of the above referenced containerized market opportunities analyzed for southeast Louisiana and the PONO were pessimistic. In the author's opinion, the potential for new container and intermodal rail markets for Louisiana could be beneficial for the State and the nation, but these markets require a "*Market Driven*" mentality that is laser focused on key targeted cargo commodities that are uniquely advantaged and empowered by the southern Louisiana region.

Southeast Louisiana container and intermodal shipping can drive a new potential market centroid for Gulf Centric Logistical Warehousing and Distribution of containerized cargo activity in southern Louisiana, linked directly to the future form of highway distribution of goods via the "Mississippi River Highway" leveraging emerging current container on barge (COB) and new container on river vessel (COV) technologies.

However, the interface between the large mega container ocean vessels and the "upriver marine highway COB/COV" and landside roadway and railroad transfer points, MUST be located at a more optimal terminal site further downriver than the proposed LIT site in Violet, LA. The optimal terminal site should not carry deleterious factors and negative characteristics that do not fully serve Louisiana's container and intermodal shipping stakeholders, and the citizens and taxpayers of Louisiana.



G. MARITIME VESSEL SIMULATION OF 23,000 TEU ULTRA LARGE CONTAINER VESSEL "ULCV" WITH 4 AZMUTH STERN DRIVE (ASD) - 70 TON BOLLARD - TRACTOR TUGS

On January 27-29, 2021, LOCUS LLC conducted two days of maritime vessel simulation using a Kongsberg Full Mission Ship Simulator located at the Maritime Pilots Institute in Covington, LA. This vessel simulation research was conducted on behalf of the PONO for the purpose of evaluating the feasibility of a proposed LIT container terminal located at Mississippi River Mile 83, on the left descending bank, near Violet, LA. LOCUS LLC published a Final Report on August 24, 2021.

The simulation design vessel was a large, heavy **23,000 TEU ULCV model at 52**' of draft (full load capacity). The vessel was relatively underpowered in comparison to smaller "large" container vessels of 9,000 to 14,000 TEU capacities. The 23,000 TEU ULCV model represents a vessel of 1,312' x 192', which is longer in length, wider in beam, and 100,000 tons larger in displacement, than any vessel in current service on the Mississippi River and is beyond Neo-Panamax lock dimensions.

MAJOR VESSEL SIMULATION ANALYSIS AND PILOT CONCERNS AND ISSUES:

CONCERN A. UNSAFE CLEARANCES WITH OPPOSING RIVERBANK ANCHORED VESSELS:

Vessel simulation studies demonstrated unsafe clearances with anchored vessels under conventional piloting conditions. Given any unforeseen variables in piloting conditions, the **risk** of striking a vessel in the 9-mile anchorage is high. The vessel simulations concluded that having vessels anchored in the 9-mile anchorage opposite the proposed LIT container facility berths poses an unsafe hazard for vessels departing the LIT container terminal berths.

CONCERN B. UNSAFE UPRIVER DEPARTURE CLEARANCE CONDITIONS:

During vessel simulation studies departing the proposed LIT berths and proceeding upriver to turn the vessel was simulated. **These maneuvers were not successful due to unsafe clearance issues**, and they took a great deal of time. As such, the vessel simulation did not recommend departing the proposed LIT berth and proceeding upriver to turn. Rather, the vessel simulation recommended turning directly from the LIT berth downriver.

CONCERN C. DREDGING RIVER REQUIREMENT TO 55' MLLW:

The vessel simulation for this vessel operational area should be dredged to 55' MLLW or greater and be regularly surveyed for silting. Additionally, the area downriver of the proposed berth has shallow water that will need to be dredged to 55' MLLW or greater.

CONCERN D. ADDING A FIFTH TRACTOR TUG FOR HIGH RIVER DEPARTURES:

In the event of extreme high river conditions, the vessel simulations recommend **adding a fifth tug for departures of this class of vessel**. This would obligate every large tug in the Port of New Orleans. It was recommended that in the planning for this proposed LIT facility, it is imperative to address the availability of capable tugs, including the consideration of providing dedicated tractor tugs for the LIT facility.

CONCERN E. FAILURE TO DEVELOP VESSEL HEADWAY DEPARTING LIT LOWER BERTH:

The vessel simulation found that when departing from the lower berth in high river water, the vessel failed to develop enough vessel headway through the water to achieve sufficient steerage to safely navigate through the turn in the river below the LIT berth. Under these high river conditions, the use of the tugs to assist the ship in gaining headway in order to gain steerage for the upcoming river turn at 12-Mile point was required.



SIMULATION AND RIVER PILOT ANALYSIS CONCLUSIONS:

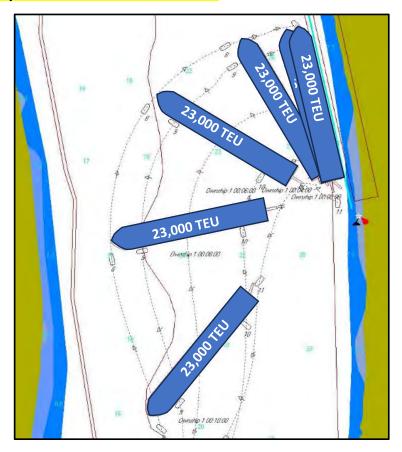
Although the overall vessel simulation and pilot analysis was supportive of the location for the proposed Violet container terminal, the primary concern found in the vessel simulation research and analysis was:

- Unsafe presence of anchored vessels in 9-Mile anchorage, opposite the proposed LIT container vessel berths. Vessel simulations found, if ships are anchored in the lower part of 9-Mile anchorage, it was not safe to turn 400m length ULCV container vessels directly from the proposed berths.
- 2. Additionally, **mid-stream mooring operations** above the proposed LIT site were found to be unsafe for container vessel operations and for transits of other large vessels passing the LIT container berths. The vessel simulation and the Pilots do not recommend a mid-stream mooring operation in the area of the LIT Terminal.

DISRUPTION TO MISSISSIPPI RIVER COMMERCIAL VESSEL OPERATIONS:

The above conclusions to the vessel simulation and Pilots analysis impact and restrict commercial shipping operations in the vicinity of the LIT Container Terminal at the proposed Violet, LA site.

The following graphic was taken from vessel simulation "*Run 11a: Undocking Berth 1, No Wind, 5 Kns Current, Day.*" Please note the departing 23,000 TEU ULCV vessel from LIT Berth #1 will obstruct the majority of the Mississippi River width if the vessel simulation and pilot **Concern B** (previous page) were enforced. As illustrated below, 82% of the navigational river traffic would be completely blocked during vessel departures from the LIT Berth #1.





H. THE NEED TO EMPLOY ALL GREEN TERMINAL – ZERO EMISSION (ZE) EQUIPMENT:

Any new modern international container terminal project should fully embrace current and future green port terminal technological advances and set a national example of State-of-the Art green container and intermodal terminal equipment operations.

These costs can be controlled by executing a modern professional approach for the electrical infrastructure development that is optimized for the power requirements of the planned terminal handling throughput capacity and operating equipment. This includes a utility plan that leverages the right type and size of the terminal's main components (such as transformers) for the planned power distribution system. Once in operation, the energy costs can be controlled by deploying a professional power management terminal solution.

The power distribution system needs to interface with numerous terminal systems or "nodes" when transporting power to the various consumers of power within the River Container and Intermodal Rail Terminal. Each of these electrical power systems can cause disruptive issues and can deleteriously impact terminal reliable operations.

The key in managing this risk lies in precise interface definition between all terminal electrical utility systems. This should be an integral part of the terminal's strategic electrical infrastructure design and, at minimum for the systems outlined below, should be defined, and integrated into the electrical power distribution system for the following major terminal components:

- Ship to Shore (STS) Wharf/Quay Gantry Crane Electrical Systems.
- Refrigerated Container Storage (Reefer) Control and Remote Reefer Monitoring systems.
- Terminal Backland Building, Entry/Exit Truck Gate and Radiological Portal Monitor systems.
- Terminal Storage Yard and General Area Lighting Systems.
- Terminal Electrical Grid Connection and Utility Grid Protection Schemes.

One of the most demanding interfaces to define is the grid connection as it requires substantial understanding of the Terminal electrical power systems at the national, regional, and local levels.

The following Green Terminal (ZE) equipment section is included as a technical reference for the reader.

GREEN TERMINAL– Zero Emission (ZE) and Near Zero Emission (NZE) Terminal Equipment:

The following reference data was derived from a Port of Oakland commissioned analysis titled "<u>Zero-Emission Cargo-Handling Equipment Feasibility Assessment</u>" by AECOM, published November 21, 2019. The **California Air Resources Board (CARB)** and the North American Maritime and Intermodal Industry have in general accepted the CARB regulatory setting implications for future marine terminal applications that are summarized below.

Relevant California regulatory regulation is found in the CARB Mobile Cargo-Handling Equipment Regulation (**Container Handling Equipment (CHE) Regulation**) for Ports and Intermodal Rail Yards, as amended in October 2012. The California CHE Regulation requires new terminal yard and truck equipment to have either a Tier 4 final off-road, or a model year 2010 or newer on-road engine.



Terminal yard tractors (hustlers) were required to be fully compliant with the CHE Regulation by <u>December 31, 2017</u>, and other types of yard equipment (top-picks, RTG cranes, etc.) were required to be fully compliant by <u>December 31, 2013</u>. In March 2017, the CARB Governing Board directed CARB staff to develop new regulations for CHE that will require up to **100% Zero Emissions (ZE) equipment by 2030**. New CHE regulations were permitted to be adopted as soon as 2022 with regulatory implementation starting as early as 2026.

A California CARB rule that requires all terminal equipment in operation to be fully ZE by 2030 is unlikely to be feasible, as this will require terminal operators to get rid of substantial quantities of equipment with some useful life remaining. The following chart depicts anticipated Container Handling Equipment (CHE)**Technology Maturity Status**, for the technical and commercial status of various **Zero Emission (ZE)** and **Near Zero Emissions (NZE)** terminal equipment types.

	2020	2021	2022	2023	2024	2025
Hybrid RTG cranes						
Electric RTG cranes						
Electric off-dock yard tractors						
Electric on-dock yard tractors	7					
Hydrogen on-dock yard tractors						
Hybrid side-picks						
Electric top-picks						
Hydrogen top-picks						
	Early production					
	Revenue-service production					
	Not for sale in US					

Container Handling Equipment (CHE)Technology Maturity Status

The above CARB report findings focused on the analysis of the near-term equipment technologies with sufficiently developed commercial availability to allow for a cost analysis, which primarily are electric yard tractors and hybrid lift equipment. In the above chart, intermediate-term technologies do not yet have substantial cost information available and were only discussed qualitatively.

GREEN TERMINAL Hybrid Electric Rubber Tired Gantry (RTG) Yard Cranes – Current Status:

Hybrid Electrical RTG Cranes are commercially available and may save 40% in fuel compared to conventional diesel RTG terminal yard cranes. Advanced technologies to replace conventional diesel terminal equipment vary in their current state of development. Current options include hybrid NZE equipment, alternative fuel engines that allow NZE operation (e.g., natural gas engines using renewable natural gas), battery-electric vehicles, hydrogen fuel cell vehicles, and terminal equipment that can be connected to the electricity grid through cables or bus bars.

Hybrid Electric RTG Cranes, which use a battery with a small engine for repowering when the energy recovery is insufficient to keep the battery charged, are part of the regular offering list from multiple large terminal lift equipment vendors.



GREEN TERMINAL Zero-Emission (ZE) STS Crane Conclusion Recommendations:

Hybrid Electric RTG yard cranes are the most appealing option to reduce emissions in the near to intermediate term. Hybrid Electric RTG Cranes are currently available from multiple terminal equipment vendors (e.g., Mi-Jack, Kalmar, Kone). An applicable example is the Port of Oakland's SSA Terminals, which operates the Oakland International Container Terminal (OICT) and Matson Terminal and has replaced thirteen 1,000-horsepower engines with 142-horsepower engines via the hybrid-electric RTG project.

GREEN TERMINAL ZE and NZE Terminal Equipment Recommendations:

In consideration of the above industry findings, and considering current industry updates, procurement of the following terminal Container Handling Equipment (CHE) should be considered:

- Hybrid Electric STS Cranes (ZE) at the terminal Wharf/Quay,
- Hybrid Lift RTG (NZE) Yard Cranes, and
- Electric On-Dock Yard Tractors (High Powered Yard Hostlers) (NZE) when practical and economically available, near term, within the container and intermodal equipment industry.

I. CRITICAL LIT DEVELOPMENT ISSUES OVERVIEW FINDINGS AND CONCLUSIONS

This Critical Development Issues Overview Report addresses major paramount LIT port development issues and concerns and is not limited to the identified issues and concerns outlined and described in this report.

In summary, this Critical Development Issues Overview Report finds and has concluded that:

- Because the current project will result in substantial and potentially deleterious public health, safety, environmental and traffic impacts on the citizens of St. Bernard Parish, a cohesive and regional sustainable statewide strategy focused on conducting a suitable competitive container terminal site selection evaluation is critically needed. Not conducting a comprehensive site selection analysis would be a strategic miscalculation for the State of Louisiana, and indeed the nation, and Louisiana's marine and intermodal shipping interests now more than ever.
- A comprehensive statewide container port site selection analysis is critically necessary to ensure that a state-of-the-art intermodal container port terminal is located at a superior, more favorable, and less publicly impactful terminal site further downriver than the current PONO proposed site in Violet, LA.
- The State of Louisiana, and in particular St. Bernard Parish and the southeastern Louisiana maritime shipping and logistics stakeholders, must avoid the potentially detrimental harm that would otherwise adversely impact the lower Mississippi region, southeast Louisiana citizens and taxpayers, and marine and intermodal rail container shipping stakeholders of Louisiana and mid-America.



- This Critical Development Issues Overview report urgently recommends that a Port and Intermodal Development Advisory Committee should be formed to critically assess the market driven economic viability and justifiable needs for a mega container port development in Southern Louisiana. This Overview Summary endorses a proposed riverfront location and conceptual terminal development deliberate planning for a state-ofthe-art marine container and intermodal rail terminal designed to specifically advantage the competitive capabilities of the entire southeastern Louisiana marine container shipping region, and not just a single port complex. John F. Kennedy, in a 1963 speech, stated, "A Rising Tide Will Lift All Boats." Perhaps this metaphorical expression in this instance should be "A Rising Tide Should Lift All Boats."
- The PONO neglected to conduct and/or share crucial project due diligence information and justification analysis to rigorously evaluate and justify the LIT Mega Container Terminal development proposal, including, but not limited to, a detailed market cargo (Container and Intermodal) demand analysis, which is fundamentally critical to evaluating the need for any modern competitively successful marine intermodal terminal development project.
- The truck-trip volumes generated by the container terminal could reach 1,728 per day at full terminal capacity. These tremendous daily truck-trip volumes would negatively impact southeastern Louisiana traffic congestion, regional vehicular safety, and could deleteriously impact environmental air quality.



Port of New Orleans, LIT Container Terminal, Violet, LA CRITICAL DEVELOPMENT ISSUES OVERVIEW January 15, 2024 – FINAL REPORT

ABOUT THE AUTHOR:



PROFESSIONAL BIOGRAPHY Proven World Class Port & Intermodal Terminal Development Expertise

M. JOHN VICKERMAN, P.E., AIA Vickerman & Associates LLC

John Vickerman is the President of *Vickerman Associates LLC*, a firm specializing in the planning and design of port, intermodal and freight coordination facilities and systems worldwide. Much of John's work focuses on assisting ports and shipping companies to recognize and prepare for future market and technological changes.

John has worked on major port projects throughout the North America and the world for more than 40 years. "SIXTY-SEVEN of the NINETY" North American deep-water general cargo ports have benefited from John Vickerman's strategic port master planning and port development design programs. John Vickerman has managed some of the largest Port Planning projects in North America. His international practice includes work for many of the Canadian Ports, the Ports of Rotterdam and Hong Kong, Melbourne Australia, the Panama Canal Authority, the intermodal freight analysis for the Eurotunnel between England and France, the Port of Pecém, Brazil, the new Port of Castilla, Honduras and emerging new transhipment port and logistics development projects in Latin America.

Mr. Vickerman has served as a member of the USDOT Freight Roundtable Advisory Board to the US Secretary of Transportation. He completed two terms as Chairperson for the <u>Intermodal Freight Terminal Design and Operations Committee</u> under the purview of the Transportation Research Board (TRB)/National Research Council (NRC), National Academy of Science. He has served on many national Policy Committees for the TRB.

John is both a licensed Civil Engineer and Registered Architect in 22 states and holds a master's degree with honors in Structural Engineering from the University of California, Berkeley. He retired as a Captain in the Civil Engineer Corps of the United States Navy Reserve after 38 years of continuous service.

LOUISIANA CENTRIC PORT STRATEGIC MASTER PLANNING EXPERTISE:

Port NOLA – Port of New Orleans - Port-Wide Strategic Master Plan - Phase II (2017 – 2019) Port NOLA - Port of New Orleans – "Millennium Port" Strategic Planning Study Port NOLA - Port of New Orleans – West Bank Port Development Strategic Planning "CHANGING COURSE" International Competition Finalist – Future of the Lower MS River Delta Port of Plaquemines Parish - Comprehensive Port Strategic Master Plans (2009 – 2017) Louisiana International Gulf Transfer Terminal (LIGTT) - Port Commission - General Consultant Houma Navigation Canal (HNC) Lock Complex (TE-113) Navigation Study - Terrebonne Parish Calcasieu Ship Channel Salinity Control Measures (CS-065) – Navigation Feasibility Study Port of Baton Rouge – Strategic Port Master Plan Port of South Louisiana – Strategic Port Master Plan

End of Document

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Letter ID: 90 Name: Perez, Samantha Org/Agency/Company: -

Regarding use of the river to support our state, I STRONGLY oppose Port NOLA's proposed LIT project in Violet. This site is too upriver to sustain long-term commercial convenience and would yield devastating--and avoidable--environmental hazards, traffic, health, and other negative impacts to local communities that are immediately adjacent to the container yard and docks. Especially given recent disasters in Baltimore, knowingly constructing an international terminal in a residential area is morally wrong.

Any international port projects should be coordinated at the state-level, not just where the Port of New Orleans has supposed jurisdiction; constructed AWAY from our established neighborhoods; and should be developed further towards the mouth of river to accommodate anticipated growth of future vessels. This makes more efficient, safer use of our Mississippi River.

Given the enormity of this project that will forever affect our parish, public hearings should be held in St. Bernard.

Letter ID: 207 Name: Phillips, Ryan

The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944 and recommended by the Mississippi River Commission. Maintaining the 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commerical barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitve by making significant investments in their respective infrastructure.

Letter ID: 124 Name: Pilie, Jr. (PE), Ellsworth Org/Agency/Company: -

When is MVD going to release the latest project flowline report for the lower Mississippi River? The last one was the 1974 Refined Project Flowline. The one before that was the 1957 Project Flowline released after the 1950 flood. It's been 50 years since the project flowline has been reevaluated. The 2011 flood on the river saw higher stages at lower flows, especially between Natchez, Ms. and Donaldsonville, La. When I retired in Jan, 2016 after 43 years designing levees for the New Orleans District I asked this question and was given a response that didn't fit the facts. Is it because MVD doesn't want to report to HQ that far more work needs to be done on the river levees? That was the consensus among all the engineers that worked on the river levees in the New Orleans District. I am requesting a written response to this.

Letter ID: 177 Org/Agency/Company: Plaquemines Parish Government

My name is Mitch Jurisich. I'm a District 8 council member for Plaquemines Parish. I'm also chairman of Louisiana Oyster Task Force. I'm a third generation oyster farmer from Plaquemines Parish. I own a marina, a restaurant. I wear a lot of hats. I've lived around the river, worked on the river, utilized the river. My main concern right now, you heard it said, is the multitude of crevasses on the eastbank of the river, starting with Mardi Gras Pass which is a very familiar newly created pass since 2012. Between Mardi Gras Pass and the head of the pass down in Venice jump, there are 25 or more of these crevasses; basically, a fractured eastbank of the river. It's very concerning to a lot of us citizens down here that if we don't take action on repairing those crevasses which I know you all have done it, it's in the talk, but it needs to be expedited. We just had a major drinking water crisis in Plaquemines Parish in the lower end of the Parish this past year. Thirty-four to forty percent of our river is now escaping through these crevasses north of the Venice jump. That's way too much water. That water is escaping above our water intake systems for our drinking water for our citizens and our residents. So that's one of my major concerns is that we need to fix the fractured eastbank of our river north of the Venice jump.

Letter ID: 130 Org/Agency/Company: Pleasant Field Farms

[This location is in Drummonds TN]. Construct spur/partial levee between river and farmland / gravel business/ casting field near Coon Valley Rd. This levee would not prevent flooding, but would prevent that high velocity flow from damaging prime farmland, roads, businesses and filling the drainage ditches and fields with sand.)

Letter ID: 111 Org/Agency/Company: Pointe Coupee Farm Bureau

Increase capacity of wax lake outlet to reduce the sediment directly above in the river channel

Use the Kentucky and the Barkley dams more to increase the flow of water in the Mississippi River during extreme low water for navigation and for increased fresh water supply on the lower river

Review the decision to make the 70/30 diversion at old river from daily adjustments back to annual

Letter ID: 86 Org/Agency/Company: Pointe Coupee Parish Gravity Flow Drainage District

Gauge readings versus volume in channel,

Letter ID: 55 Name: Ponsford, Imelda Org/Agency/Company: -

The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944 and recommended by the Mississippi River Commission. Maintaining the 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commercial barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitve by making significant investments in their respective infrastructure.

Letter ID: 133 Org/Agency/Company: Port of Memphis

Consider stabilizing tributaries to of the Mississippi for sediment management. Specifically discussed the need for a stabilization weir at the mouth of nonconnah creek where it enters the Memphis harbor.

Letter ID: 136 Org/Agency/Company: Port of Memphis

Will the study look into upstream influences on water levels in the Lower Mississippi. In other words, will we look into potential changes of Ohio River lock and dam operations, or Upper Miss/Missouri River flows.

Letter ID: 154 Org/Agency/Company: Port of Morgan City

In an informational presentation prepared for Major General Dianna Holland and the Mississippi River Commission in August of 2020, the Port of Morgan City raised concerns over changing conditions in the Atchafalaya Basin that were becoming detrimental to the Morgan City community. With the highest rainfall in 122 years in late 2018 and 2019, Morgan City was above flood stage over 200 days. Then high water returned on the Mississippi and Atchafalaya Rivers in 2020. The record amount of sediment caused record levels of severe shoaling, hindered vessel access to facilities, caused safety issues and traffic shutdowns in the river and adverse impacts to industry and recreation.

Shoaling incidents in Stout's Pass above Morgan City were increasing as well. In 2012, 55,000 cubic yards of sediment was removed from Stouts Pass. In 2014, 86,000 cubic yards were removed. In 2018, cubic yards removed increased to 103,610; then 357,970 cubic yards in 2019; and 1,118,000 cubic yards in 2020.

We are all aware that WHAT HAPPENS ON THE MISSISSIPPI HAPPENS ON THE ATCHAFALAYA! The above statistics are a prime example of this statement. If there is high water on the Mississippi River, the Atchafalaya River experiences high water and a heavy sediment load.

The Atchafalaya Basin Floodway runs directly through the Port of Morgan City, so many of the recommendations that will be made during the Lower Mississippi River Comprehensive Management Study (LMRCMS) comment period can create an adverse impact on our community.

We are a maritime community – a community that supports shipbuilding, fabrication, energy services and government projects. These projects support the Department of Defense activities providing safety and security for our nation. While we have a flood wall that protects our homes, schools, medical facilities and retail establishments, the industrial facilities mentioned above are located outside of the City of Morgan City flood protection. It is critical that a viable waterway be maintained while our businesses and citizens be protected from a flood that will not only forever change our lives locally, but regionally and nationally as well.

One of Louisiana Governor John Bel Edwards Second Term Coastal Priorities was "Pursuing a more integrated approach to the Mississippi and Atchafalaya Rivers" through the creation of the Atchafalaya River Basin Restoration and Enhancement (ARBRE) Task Force by Executive Order on December 14, 2020. One duty of the Task Force was to elevate critical issues facing the Atchafalaya River Basin and the importance of holistic management for navigation, flood control and restoration. The ARBRE Task Force Overview on CPRA's website. states, "The Atchafalaya River Basin is the nation's largest river swamp and holds significant ecological and cultural significance for Louisiana and the nation. The Basin produces the largest wild caught crawfish harvest in the nation, supports thriving finfish and shellfish fisheries and hosts a unique and diverse array of plants and animals. The Basin also serves as a critical relief valve for

extreme flood events on the Mississippi River and is home to the Port of Morgan City, a critical connection point for inland and coastal shipping routes. Modifications to the natural flow regime of the Atchafalaya River and its swamp have caused sedimentation and water quality issues in the basin. These issues threaten the ecosystem, navigation, flood control, and the communities that rely on the basin's natural and cultural resources."

The ARBRE Task Force presented recommendations to the Louisiana Coastal Protection and Restoration Authority as requested. As awareness of the situation increases, many solutions are being proposed.

One solution suggested is to reengineer the control structure so more mud runs down the floodway, keeping the Mississippi relatively mud-free.

Why is the Mississippi Riverbed rising downstream of Old River?

Have we determined how much mud currently runs down the Atchafalaya?

Wouldn't running more mud down the Atchafalaya further fill the backswamps, reducing the floodway's capacity even further, creating negative impacts to the ecosystem, navigation and flood control?

Can the original control gates, still perform as needed during a flood?

Another option offered is to determine whether small tweaks to the flow through the Old River Control Structures might improve the basin's ecology.

What would the new trigger point be for opening or closing the structure?

What will the impacts be (positive or negative) to the area by increasing or decreasing the flow from the Mississippi River to the Atchafalaya River?

What would the level of flooding be in unprotected areas of Morgan City and surrounding areas?

What would the consequences be for non-leveed areas in Iberia Parish?

Would the Bayou Chene Flood Control Structure be less effective in protecting St. Mary, Assumption, Iberia, St. Martin, Iberville, Lafourche, and Terrebonne Parishes from back water flooding?

Can the flood protection around Morgan City withstand the stress caused by stronger currents and flood waters in the area for a longer duration?

How would the Atchafalaya, Terrebonne and Lafourche Basins be affected? How would services provided by the Ports of Morgan City, West St. Mary, Iberia, Krotz Springs, Delcambre and Abbeville be affected? What about industries operating out of each of these port districts?

Will wildlife in the basin, sugar cane farmers, and the crawfishing industry survive?

What impact will there be for boat ramps and for recreational boating?

What will the impacts be (positive or negative) to navigation interests by increasing or decreasing the flow from the Mississippi River to the Atchafalaya River on the following waterways/structures?

- Mississippi River
- Atchafalaya River Northbound / Stouts Pass
- Atchafalaya River South Bound to the Sea Buoy
- Bayou Boeuf Locks
- Bayous Boeuf, Chene and Black
- Calumet Cut / Wax Lake Outlet
- GIWW Northbound, Southbound, Eastbound and Westbound

Just as the first people who lived in the swamps knew, the Mississippi River and the Atchafalaya Basin and River are places of constant change. Are we better prepared to re-design a system that can continue to manage this water in the future as conditions continue to change?

A 2021 feature article in the Bitter Southerner magazine called "Atchafalaya Mud", written by Boyce Upholt, tells of remnants of ancient forests buried by sediment that has accumulated over the past few thousand years in the Atchafalaya Basin. The introduction to the story, "After years of dredging, straightening, and leveling, the largest river swamp in the United States needs help" commands our attention. The author continues, "But no one can agree on what this iconic wilderness is supposed to look like. How do you conserve a landscape when the only constant is change?" There have been many books written about the Mississippi River / Atchafalaya River relationships suggesting what could inevitably take place. The final chapter of James F. Barnett, Jr.'s BEYOND CONTROL The Mississippi River's New Channel to the Gulf of Mexico, the author states that, "Without doubt, the US Army Corps of Engineer has done everything possible to keep the Mississippi in its familiar channel. Yet the main drawback to the Old River Control Structures is their permanence. Except for their movable gates, the low-sill and auxilliary structures are fixed to the landscape while the river they were designed to control is dynamic and ever-changing."

Barnett mentions a study completed for Colorado State University's Water Resources Institute, by engineer John D. Higby, Jr., titled Possible Capture of the Mississippi by the Atchafalaya River, which indicates there is plentiful evidence that supports the claim that the capture of the Mississippi by the Atchafalaya will happen. Higby suggested that the Mississippi be allowed to change its course at Old River by effecting a gradual and regulated channel diversion. Barnett notes that this change in strategy would allow a chance to design the Mississippi's path that could minimize property damage and prevent loss of life. Barnett noted that Morgan City need not be sacrificed with proper planning.

Barnett ends by stating "...we now realize that "normal" cannot be a static river. Instead, the status quo is a river of change..." In his last statement, referring to the Corps of Engineers,

Barnett chillingly states, "They might be facing the map-changing flood no one thought would ever come."

We strongly recommend a report that recommends follow up actions toward solutions that provide for holistic management of water and sediment in the Atchafalaya Basin, designating ecological restoration along with flood control and navigation.

The Morgan City area experiences seasonal high water, and associated strong currents, which pose a significant navigation safety risk. It is imperative that ANY proposed changes to the present management of the Atchafalaya River's flow south from the Mississippi River take into consideration ALL potential impacts on navigation including but not limited to:

• Increased current/velocities creating elevated navigation safety risk along the length of the Atchafalaya River, in particular, in the vicinity of its intersection with the GIWW in the Morgan City area, and the potential impacts they may have on routine GIWW transits.

• Increased shoaling due to increased sediment deposition along the Atchafalaya River and in the intersection of the Atchafalaya River and GIWW in Morgan City negatively impacting navigation.

The Port of Morgan City also recommends that under the LMRCMS focus area "Stabilize Channels and Improve Channel Resilience", that USACE move the federal channel along the Atchafalaya River in the vicinity of Stouts Pass (ACH MM 113 - 117) to Little Island Pass.

As this 5-year study progresses, we should be equally concerned as to how these projects can be quickly implemented and paid for (including increased dredging funds that will be needed to remove increasWade3ed sedimentation on the waterway system). We don't know how much time Mother Nature will give us to figure this out!

Letter ID: 114 Org/Agency/Company: Quail Forever

There is a new sub species of firefly, Photuris Walldoexyi that is classified by the IUCN as vulnerable and Imperiled by the NatureServe Status. This firefly occupies cypress swamp type environments, and in the southern occurance locations (34.582732,-92.253734; 34.64543,-91.05344 [south-central Missouri near Alton, 100 miles west of Miss. River]) it has showed strong correlation to bottomlands connected to the Mississippi river. These locations are also natural areas or state parks, protected to some degree from heavy metals entering the swamp or other disturbance. It should also be noted these areas are not well lit at night which is important for these after dusk dwellers. There habitat is along the path from little rock area to memphis, and i believe that money could be used to preserve these areas along this stretch of bottomland

Letter ID: 230 Name: Raffety, Elott

I am affiliated with LD#3 Missouri

To Whom It May Concern,

Protecting Farmland is in the public interest.

Use dredge material to improve levees where able.

Use existing Borrow Areas for material to enhance Levees.

Cost Benefit ratio used by Corps is incorrect. (Linn Small is good example of this.)

Letter ID: 52 Name: Ralph, Caleb Org/Agency/Company: -

The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944 and recommended by the Mississippi River Commission. Maintaining the 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commercial barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitve by making significant investments in their respective infrastructure.

Letter ID: 212 Org/Agency/Company: Restore or Retreat, Inc.

The following comments are regarding the Lower Mississippi River Comprehensive Management Study. They are submitted on behalf of Restore or Retreat, Inc, a regional nonprofit located within the Barataria/Terrebonne basins. Our organization works to protect our coast, communities and its culture using science to drive our direction and program. Founded in 2000 by business and land owners, community stakeholders and private citizens to support both large and small scale projects for the benefits of our region.

Restore or Retreat (RoR) supports the desire of the USACE to begin a comprehensive study of the management of the river which has remained largely unchanged for nearly 8+ decades. Commerce, navigation and environmental factors have changed over this time period with population growth along the river and the need for management to shift from simply flood protection and navigation and more towards viewing how the river is managed from a holistic standpoint. The opportunity with this study to look at how navigation, flood control and ecological restoration can co-exist is imperative to the long-term sustainability of our coast here in South Louisiana.

What we know: Louisiana is in a crisis. Land Loss in our region is some of the fastest in the world and we have lost around the size of the state of Delaware due to erosion, subsidence, storms and other factors including most notably the leveeing of the river. Our state and delta were built by the river and its sediment. The levees were built originally for the development of flood protection for communities along the river and navigation of commerce for the United States. That was in the 1930s. Our nation was rapidly expanding and the rivers' role was vital to that growth. It still is vital for future generations. Fast forward and we have allowed for those two factors to now carry over into the 2020's. Nearly 100 years later, our state has seen a dramatic rate of land loss and there is no doubt that the levees were a major contributor to the land loss. Communities once thriving are now dying. With those concerns for long term community sustainability, we provide the following points for consideration.

What we hope the study will consider in the process.

RoR asks that the major components of the management of the river be adapted to incorporate the allowance for the river to do what we know and believe it is capable of doing. The science indicates it is capable of building land. Reconnecting the river to the floodplains would allow for multiple benefits to the habitat and at the same time reducing some of the downstream cumulative flood risks to communities that are disadvantaged and at a heightened risk of environmental impacts. • Benefits of reconnection include but are not limited to increased biodiversity and habitat re-creation from the re-nutrification with the waters from the river of the basin and its surrounding wetlands.

• Allowing the river to restore our wetlands with its natural abilities to quickly support wildlife.

• In places where it is not a hazard to navigation, allowing the river to divert and deposit sediment in order to build land.

• Addressing the ecological impacts from the river with regards to our cultural losses in communities along the river. How the erosion has impacted them. More specifically how will those communities be protected from catastrophic flooding should the levee collapse.

• Studying how we will protect our indigenous communities and cultural sites located along the river for the long term.

• Diverting water upstream would address some of these concerns while also adding sediment and water in regions that have long been deprived. (Working to address the upriver intrusion of saltwater and the impacts from the salinity changes along with the benefits to marsh by pushing the saltwater further south.

• Looking at how Bonnet Carre can best be managed using flood controls on the west side upstream to aid the Western side wetlands and systems.

Restore or Retreat appreciates the USACEs consideration of these main points of concern for the lower Mississippi River. We as an organization are committed to being an active and engaged partner with the USACE as this study moves forward. Please do not hesitate to contact either Dr. Orgeron or myself with any questions or assistance needed. Both of our contact information is below.

Letter ID: 228 Org/Agency/Company: RESTORE

A fundamental duty of all engineers and planners is to tell the decisionmakers what those people need to hear, not what they want to hear.

Throughout its history the Corps of Engineers has spent millions (if not billions) of dollars of public money on projects that it knew to be unsustainable, temporary, and likely to lead to future "fixes" that would also be temporary and increasingly expensive.

The Corps could have better served its masters by always immediately telling them the truth, as did the engineer LaTour centuries ago when he resisted the Governor's order to build a city (New Orleans) where it could not be kept dry.

Until the Corps gets enough gumption to tell special interests up and down the Mississippi River that some things being demanded are simply impractical, shortsighted, unsustainable, and not to be done, the least you can do is to add a chapter named "Significant Uncertainties" to your eventual report.

In that chapter you should list realities that have already happened, such as the ongoing increases in climate change that have led to Mississippi River water level extremes, acceleration of sea level rise beyond what had been projected, and increased strength and frequency of tropical storms and hurricanes coming ashore from the Gulf of Mexico. Being clear about what those things have each meant to previous plans and implementations of projects would make obvious that new planning must not underestimate the unexpected. Lessons being learned should stop the wasting of public funds on projects that will become useless eventually.

Another major uncertainty that should be included in the chapter is the inevitable major earthquake that will occur near Cape Girardeau, causing dramatic realignment of watercourses in that area with significant losses and additions of flows at various places historically downstream.

Such an also inevitable course-realignment event somewhere in the Louisiana area will be the sudden swing of the Mississippi River westward into the Atchafalaya Basin, despite the Corps' efforts to keep most of it flowing past Baton Rouge and the Port of New Orleans. The sooner those cities accept the realities the sooner people will understand the necessity of relocation of themselves and their enterprises to stable areas of the planet.

The "ecosystem and environmental restoration" purpose listed in the website description of the study is a sad reminder that during and after the 1927 flood, the great Louisiana biologist, Percy Viosca, had plead for recognition that trying to modify the river would have very negative consequences. As we have seen, he was right. The levee system has sent out over the continental shelf the sediment that was needed to preserve our coastal wetlands. That and the upsets in

hydrochemistry have caused great distortions in both inshore and offshore ecosystems. The only way to get back to the magnificent dynamic equilibrium that the Creator had established is to stop meddling with it.

Many years ago, I complained about the Corps' arrogance in its public statements about its having "shackled" the Mississippi River. Fortunately, much of that haughty public attitude has been itself "shackled" as the Corps realizes what it has gotten itself into by convincing politicians and much of the general public that enough money can override nature.

Now you need to transfer some of that newfound humility into the minds of the shortsighted. It will be to their benefit in the long term, and to yours.

Letter ID: 231 Org/Agency/Company: Restore the Mississippi River Delta

MississippiRiverDelta rg

March 21, 2024

USACE-MVN LMRComp c/o Project Management 7400 Leake Ave New Orleans, LA 70118 LMRComp@usace.army.mil

Re: Scoping for the Lower Mississippi River Comprehensive Management Study

Dear Project Team,

Restore the Mississippi River Delta (MRD) is a coalition of national and regional nonprofit organizations working to ensure an equitable, safe, and flourishing coast for Louisiana's communities, ecosystem, and economy. We are represented by conservation, policy, science, and outreach experts from Environmental Defense Fund, National Audubon Society, National Wildlife Federation, Coalition to Restore Coastal Louisiana, and Pontchartrain Conservancy, and we represent thousands of Louisiana members and supporters. As a coalition with long-standing interest in coastal Louisiana, we appreciate this opportunity to provide comments for the scoping of the Lower Mississippi River Comprehensive Management Study (LMRCS.)

The MRD Coalition is dedicated to large-scale ecosystem restoration in the Mississippi River Delta, and we agree LMRCS provides a directive to analyze the management of the Mississippi River with a comprehensive perspective, including flood control, navigation, ecosystem restoration, and other important uses. The LMRCS provides an unprecedented opportunity to establish the foundation for a sustainable and contemporary river system.

Underlying the present management of the Mississippi River are ideas based upon the political and socio-economic priorities of the late nineteenth and early twentieth centuries. Central to those priorities was the shared imperative to tame nature and to make possible the maximum utilization of the nation's land and water for settlement, agriculture, and commerce. Wild places, especially wetlands, were seen as impediments. River and alluvial floodplain management systems of the 1890s to the 1930s, including the flood-control system, the navigation system, and the agricultural system, though tweaked and modified for the last 85 years, are largely unchanged since the development of the Mississippi River and Tributaries (MRT) System in the years immediately after the passage of the MRT Act in 1928.

LMRCS gives the U.S. Army Corps of Engineers (Corps) an opportunity to break down silos across the Corps' mission areas to structurally integrate ecosystem restoration into management of the LMR to create multiple benefits. It further gives the Corps an opportunity to fully embrace an expanded view of the system, and to revise its traditional mission emphasis upon navigation and flood control, thereby allowing those systems to harmonize with restoration of a healthier, sustainable LMR natural and sociopolitical system.











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@RestoreDelta

Flood volume and frequency, drought intensity, storm frequency and intensity, and many other factors are changing before us. More change is coming, and the pace is accelerating. This is the opportunity to set a new course for the next 100 years. Below, we further detail critical considerations for this management study.

Re-establish hydrological connections between the river and its floodplain, allowing natural processes to maintain wetlands as the climate changes

- Controlled river water diversion into the floodplain would rebuild and revive wetland habitat for fish and wildlife while still allowing human use of those areas.
- Small diversions provide large benefits, as demonstrated by the reconnection at Bayou Lafourche. Even microdiversions could provide outsized ecosystem benefits and the concept should be examined where openings existed before levees at places like Bayou Plaquemines, Bayou Manchac, or Bayou Grand Liard.
- Reconnecting acreage to the floodplain is valuable for flood height reduction, for wildlife, and for ecosystem services like carbon and nitrogen sequestration. It substitutes more sustainable green infrastructure for costly gray infrastructure that needs constant maintenance, while also providing superior flood-risk reduction over time, especially in a changing climate.

Analyze the concept of levee setbacks

- Investments in levee setbacks, along the mainstem and enclosing spillways, floodways, and backwater areas, should be examined. If placed nearer to the historic interface between floodplain and upland, setback levees could reduce flood height and pressure on levees downstream, increase acreage for habitat, and would be less expensive to maintain and less prone to catastrophic failure.
- As the nation confronts both its aging infrastructure and the challenge and cost of maintaining existing infrastructure in the face of climate change, LMR should examine ways to reduce long-term costs by making initial investments in levee setbacks.
- Strategic levee setbacks would allow more of the floodplain in key areas to function as overflow lands for the river.

Increase Acreage in Floodways and Spillways

- The swamps flanking the outside Atchafalaya and Bonnet Carré levees are moribund, having subsided to the point that recruitment of new trees is impossible because of permanent standing water. As sea level rises, these swamps are dying as saltwater intrudes. Without new sediment inputs to gradually raise ground levels, they are doomed to disappear in the face of climate change.
- In contradiction to wetlands declining due to lack of riverine input as mentioned above, swamps inside the Atchafalaya Floodway and Bonnet Carre Spillway system are filling so quickly with sediment that they are being replaced with less-flood-tolerant bottomland hardwoods.
- LMRCS should consider whether it continues to be necessary to minimize the extent of its floodways. Expanding floodways would increase the net productivity of the entire floodplain, decrease the cost of providing flood protection to most developed areas (which, being on higher ground farther from the flood source, would require lower levees), and reduce the likelihood of catastrophic damage to life and property in the event of levee failure.











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Infrastructure needed to protect the smaller communities in these flanking wetlands and areas of productive
agriculture on higher natural levees should be sited as close as possible to the protected assets and scaled to the
need. It may not be necessary to continue to invest in 20-foot-high levees miles from a protected asset when a
five-foot-high levee immediately adjacent to the asset, combined with non-structural measures, are more effective
and affordable over the long term.

Examples: Bonnet Carré Spillway (BCS)

BCS is the shortest route to sea level for river water above New Orleans. Though it flows into a huge estuarine system flanked by marsh and swamp, the guide levees were extended through the flanking wetlands all the way to open water. Today, those flanking levees serve little purpose and prevent the movement of river water into wetlands that desperately need the freshwater, sediment and nutrients the river provides.

The frequency of BCS openings is increasing, and the trend is likely to continue. It is fully consistent with the predictions of climate scientists, as is the trend towards greater "flashiness"—very wet years and very dry years. A warmer climate drives extreme weather events, and there is every indication that the Mississippi River is now in the grip of rising global temperatures, and that conditions will get worse as average global temperatures continue to rise.

These openings of the BCS can often be ecologically disruptive. The site for the BCS was chosen by the Corps because it provided the greatest hydraulic efficiency and caused the least impact on private property and commerce. It is not the best location from an ecological standpoint. Opening it on an emergency basis shocks the ecosystem because it forces cold spring snowmelt in the river to massively invade a warmer, saltier estuarine bay, Lake Pontchartrain, and the downestuary areas nearer the Gulf that the lake feeds, including Lake Borgne, Mississippi Sound, and Chandeleur Sound.

The receiving estuary is now much saltier on average than it was before the river was confined by artificial levees. As a result, when the spillway is operated, the shock of massive river water can cause temporary disruptions and problems, including algal blooms, impacts on sedentary organisms like oysters, and recruitment of larval estuarine organisms like brown shrimp. All these disruptions affect human uses, including commercial and recreational fisheries; swimming, boating and water skiing; and tourism. The State of Louisiana, through its Coastal Master Plan (CMP), is proposing and pursuing a series of river diversions—controlled opportunities to safely move water during the natural flood cycle through the levees and into flanking estuaries where wetlands are disappearing at alarming rates. In other words, to do, in a controlled way, what nature had always done; allowing the river to distribute sediment to sustain and build new land, and to spread floodwater into an ecosystem that can respond and thrive under those conditions.

BCS openings remain a necessary adjunct to the carefully calibrated design of the MRT. Modeling now shows that building and operating diversions along the Lower Mississippi River could substantially reduce the need for BCS use, both in terms of volume and duration. Floodwaters, instead of being dumped directly into open water, could be diffused through swamps and marshes that desperately need the flow, the freshwater, the sediment, and the nutrients they provide. Consideration of such opportunities should be evaluated as part of LMRCS.











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Additionally, BCS infrastructure has outlived its design life and will likely need to be replaced over the coming decades. The Corps should examine whether a far less costly modification of the existing structure could serve the emergency function of the spillway, while providing maximum ecosystem services, at little cost. One possibility to examine is converting the structure from an active to a passive floodway. This could be as simple as removing the wooden pins. Once removed, floodwaters could flow through the structure whenever the river rises above the base structure height.

This conversion would be less costly, cause less strain on downstream levees in years without emergency floods, and provide long term ecological benefits to the Pontchartrain—Mississippi Sound Estuary. Combined with degrading or gapping of the levees beyond U.S. Highway 61, this could result in huge ecological benefits to the Labranche wetlands on the east and the Manchac landbridge on the west.

Example: the Atchafalaya Floodway System

The Atchafalaya River, through which flows water from the Red River and a controlled volume of the Mississippi River, regulated daily by the Corps, is the largest expanse of forested floodplain forest in the temperate world. Though confined by levees to the east and west that cut the river's overflow from half of its floodplain, it is still, at 600,000 acres, the largest remaining fragment of the Mississippi River floodplain. That 600,000-acre forest is contiguous with nearly the same amount of forest, outside the east and west guide levees of the Atchafalaya floodway system.

A rigid flow distribution at the Old River Control Structure (ORCS), where the Corps attempts to maintain a 70/30 distribution between the Mississippi and Atchafalaya rivers, tends to flatten the highs and lows of the flood cycle within the basin. The result sometimes diminishes the highs, but much more often raises the lows. The flood cycle is critical to many natural processes, including allowing dry downs for tree seeds to sprout and floods to replenish backwaters. Among many negative consequences of the current management are stagnation of backwater swamps and the inability of forests to recruit new growth as older trees age and die. This flattening of the natural flood cycle is a common problem for river stretches below dams where the engineering goal, often strengthened by the desire to maximize hydroelectric efficiency, is to maintain a steady state condition as closely as possible.

The LMRCS should examine the operational assumptions governing the choice of a 70/30 split at the ORCS and of the design of the Atchafalaya system. This study could also examine whether or not flood risk (and the cost of gray infrastructure) in the Morgan City area could be reduced by structural and operational modifications. This could include considering a second flood outlet at The Jaws to duplicate the land-building successes of the Wax Lake Outlet, which reduced downstream flood risk and increased ecosystem services.

Rethink navigation to allow for the re-establishment of sustainable natural delta-building processes.

- Continue efforts now underway pursuant to the Louisiana Coastal Area program and other initiatives to rebuild and restore the wetlands of the Mississippi River Delta through sediment and freshwater diversions, marsh creation, barrier island restoration, and other means.
- In order to maximize the amount of sediment and freshwater available to provide managed delivery of ecosystem services, decouple the navigation channel from the river's delta-building capability by creating a modern channel designed specifically for entry of ships from the Gulf of Mexico into the Mississippi River.







Pontchartrain Conservancy



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See <u>https://mississippiriverdelta.org/changing-course/</u>.

Modernize Operation and Maintenance of the Mississippi River Navigation System

- To advance systemic restoration of the Mississippi River, the LMRCS should assess alternative management regimes for the lowermost river.
- The present system led to the collapse of much of the Birdsfoot Delta's marsh, and it has only been partially restored by crevasse gapping and expensive beneficial use of sediments. It also exacerbates the problem of Gulf hypoxia—the Dead Zone. By jetting nutrient and sediment-laden water into the deep Gulf, the river's plume is quickly picked up by circulating currents and moved northeast or west along the shallow shelf. Diffusing that water through wetlands instead could trap sediment and allow biological and chemical uptake and capture of nitrogen and phosphorus before it reaches the open Gulf.
- The LMRCS should examine decoupling the navigation linkage between the river and the Gulf from the river's distributary function. Instead, evaluating if a new navigation channel could maximize the ability of the river to build land where it is needed, while ships enter the river through a modern channel not dependent upon outdated 19th century technology and crippling annual maintenance costs for dredging and jetty repair.

Example: Delta Mud Engine

Recently, some have pioneered the idea of "sand engines"—the dredging and deposition of a sufficient quantity of sand into dynamic beach areas to supply the littoral system with a steady source of sand for redistribution by natural processes. By making the initial investment and placing large quantities of sand into the natural beach-sand-distribution system, the need for annual maintenance disappears, and the system behaves more like a natural system, reducing long-term costs. The Birdsfoot Delta at the mouth of the Mississippi might be an opportunity for a mud engine. There is a huge lobe of clay, silt, and sand in the Birdsfoot, most of it beneath the sea surface and all of it doomed to inundation in coming decades. Navigation channels are maintained at enormous expense on the surface of the constantly sinking lobe. It is this lobe that impedes navigation, and it is the navigation channel that continues to deliver new mud.

Divorcing the navigation channel from the distributary system might be a solution. River flow is diverted upstream, and sediment is no longer delivered to the Birdsfoot. Once done, the lobe of mud would be available for redistribution into upstream areas to supply sediment to the littoral zone and to build marsh. Southwest Pass is dredged and jettied for over fifteen miles on sinking mud to reach a place on the slope of the Continental Shelf where sediment can no longer accumulate. Using dredges to move the mud out of the way could shorten the route to deep Gulf waters by moving that bathymetric contour steadily landward.

Redistributing the mud farther inland could create marsh habitat in a range of salinities (including saline marsh important in the life cycle of many important seafood species) and nourish and buffer the barrier island and headland rim. The material could be moved into more geologically stable areas where subsidence is lower, and natural processes could do the work of redistribution as sea level rises and the coastline retreats. Removing the lobe could also obviate the need for dredging a completely new ship channel, which is part of most conceptual plans proposed thus far. Keep the existing channel and shorten it. Without delivery of new sediment, it could stay shorter without the need for maintenance. By investing in lobe removal now, long-term dredging costs could be greatly reduced.







Pontchartrain Conservancy



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Obviously, there are numerous logistical challenges to such a solution, but not necessarily more than for any other solution. Certainly, oil and gas wells and pipelines pose a challenge, but as the Birdsfoot goes under water, as existing oil and gas fields become depleted, and as the world's economy transitions away from fossil fuels, this infrastructure will, in any case, must be abandoned, moved or redesigned to withstand higher seas. The slow redistribution inland of the Birdsfoot lobe could allow time for this economic transition, and for wildlife and wildlife-based recreation to shift as well.

Conclusion

The LMRCS is a critical opportunity to reexamine the LMR and its management, as well as the historic functions of the system, particularly related to the deltaic system and land creation. The Corps should holistically analyze how nature-based solutions, such as levee setbacks, can be best used for more cost-effective, sustainable, and efficient water management and other ecosystem services. Furthermore, the Corps must consider how the MRT has impacted crucial estuarine and wetland ecosystems in the LMR, and how it can undo some of those negative impacts. In this quickly changing climate, better management of the Mississippi River is of the utmost importance to the communities, wildlife, and commerce that rely on this landscape.

On a final note, we appreciate your efforts to increase and extend accessibility to the scoping process throughout the project area to affected communities, many of which are disadvantaged. We would like to help you continue to reach stakeholders on this critical study consideration; please let us know how we can best assist in these efforts.

Thank you for considering these comments, and we hope to continue working with you on this vital study.

Sincerely,

SimoneMaloz

Simone Maloz, Campaign Director Restore the Mississippi River Delta

Kindon Davis Keyler

Kimberly Davis Reyher, Executive Director Coalition to Restore Coastal Louisiana

Tauren Bong

Lauren Bourg Director, Mississippi River Delta Program National Audubon Society

Kristi Jual

Kristi Trail, Executive Director Pontchartrain Conservancy

Will: C. MyDen

Will McDow, Senior Director, Climate Resilient Coasts & Watersheds Environmental Defense Fund

Juranda R Moore

Amanda Moore Senior Director, Gulf Program National Wildlife Federation











Letter ID: 66 Name: Richards, Jana Org/Agency/Company: -

The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944 and recommended by the Mississippi River Commission. Maintaining the 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commercial barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitve by making significant investments in their respective infrastructure.

Letter ID: 64 Name: Rodgers, Chase Org/Agency/Company: -

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Letter ID: 93 Org/Agency/Company: Save our St. Bernard

No port in violet, place in New Orleans

Letter ID: 204 Org/Agency/Company: Save Our St. Bernard

No port in violet, place in New Orleans

Letter ID: 3 Name: Schoeffler, Harold Org/Agency/Company: -

What are the impacts on downstream coastal landloss and fisheries from many dams on the Miss. River system? There are 17,200 dams on the Missouri River and tributaries, 29 on Mississippi River, and 22 on the Ohio--these are dams large enough to be monitored in the Dam Safety Program. Every dam and impoundment behind each reduces annual flow, sediment, and bio mass needed to sustain coastal fisheries. What are the impacts of these dams on the following: 1. A reduction in annual flow down the Mississippi River at Red River Landing (This is where ORCC is). 2. Sediment reduction and the impacts that has on coastal land loss. 3. The impoundments behind the dams cannot grow cane vegetation to feed marine species; this decreases biomass. This results in biomass reduction that affects marine fisheries (shrimp, menhaden, crabs--production in the whole marine ecosystem).

It's the annual flow that determines the size of the river, not the flood that occurs every 8 or 10 years. As annual flow is reduced, the size of the river gets diminished. The dams and their impoundments reduce annual flow, sediment, and biomass (cane vegetation that feeds shrimp, oysters, menhaden). When this is reduced, impacts on the marine ecosystem due to reduced biomass, sediment, and flow reductions are affected all the way down to the gulf.

The levee systems are dramatically failing above Morgan City. We don't have the channel capacity to handle the project flood in the Atchafalya Basin because the channel capacity is diminished. We need 100,000 sq. feet of capacity in the Atchafalaye River and we only have 15,000 ft. of capacity (that is optimistic-needs verification in the study).

Letter ID: 126 Name: Ser, U Org/Agency/Company: -

To truly be comprehensive, the study MUST include the effect that management of the Mississippi River has on the Mississippi Sound in the Gulf of Mexico!

Letter ID: 91 Name: Serpas, Lori Org/Agency/Company: -

We do not want or need the port in Saint Bernard Parish. We want to keep our heritage our land and wetlands.

Letter ID: 5 Org/Agency/Company: Sierra Club

Was at recent Hancock Library presentation, etc. There were no discussions about Bonne Carre Spillway Flow, which decimated the Mississippi Gulf Oyster Harvest! This is pathetic! The Corps is responsible!!

Letter ID: 6 Org/Agency/Company: Sierra Club, Conservation Committee, New Orleans Group

The Conservation Committee of the New Orleans Group of the Sierra Club wishes to submit the following comments regarding the Scoping Study phase of the Lower Mississippi River Comprehensive Study. A stated goal of this study is to "evaluate the trade-offs between flood risk management, navigation, and ecosystem restoration". The conservation and stewardship of the many thousands of acres of ecologically irreplaceable wtlands (much of it forested) within the study area are key to the Corp's stated study goal of ecosystem restoration. The following comments and questions largely address the Corps' regulatory responsibilities with respect to wetland and floodplain protection within the study area.

Ecosystem Restoration

What has been the ecological impact of Corps administered Section 404 permit (Clean Water Act) development (oil and gas, residential subdivision, commercial development)? In particular:

(a) Impact on watersheds and tributaries of the Mississippi River;

(b) How many non-wetland alternative sites have been identified and recommended in accordance with Section 404/NEPA evaluation guidelines within the LMR Comp Study Area? How many 404 permit applications within the LMR Comp Study area have been denied because viable alternative non-wetland site(s) have been identified and recommended? The LMR Comp Study should provide a multi-year year analysis by District (St. Louis, Memphis, Vicksburg, and New Orleans) of 404 permits denied because of insufficient alternative site analysis

(c) Has watershed based compensatory mitigation (mitigation banking) qualitatively compensated for loss of wetlands? The LMR Comp Study should have an analysis at the watershed level of wetlands lost or significantly degraded from 404 permitted development compared to wetlands ostensibly protected/enhanced through mitigation banks.

(d) Since there is so much variability/ "wiggle room" in NEPA mandated alternative analysis among the four Corps districts within the LMR Comp Study area, should the Corps standardize evaluation procedures for alternative site review for 404 permit applicants within the LMR Comp Study area? What revisions/Regulatory Guidance Letters in the Corps District Office Evaluation divisions need to be implemented to assure that non-wetland locations are objectively evaluated before compensatory mitigation is considered?

(e) After-the-fact 404 permitting and Permit violations—The LMR Comp Study should conduct and make public a multi-year evaluation of after-the fact permits and permit violations in the four District jurisdictions. How much additional enforcement staffing is needed at the District level especially in the Vicksburg and New Orleans Districts to address 404 Permit violations?

Induced Development

The adopted 2017 Louisiana Comprehensive Master Plan for a Sustainable Coast , Appendix E states that "Induced development occurs when the construction of structural risk reduction projects (e.g., levees) unintentionally encourages development in flood hazard areas as these projects can provide a false sense of protection". The Plan makes recommendations for addressing induced development that should be incorporated into the LMR Comp Study:

"If the residual flood risk associated with structural projects is not considered in land use planning, development may gravitate to areas behind levees rather than in areas that are less hazardous to build.... Limiting induced development during the planning, design, and implementation of structural protection projects can be accomplished by implementing a land use plan, creating stricter development standards for areas protected by levees, or maintaining prestructural project flood damage prevention standards."

Related issues regarding ecosystem restoration

The adopted 2017 Louisiana Comprehensive Master Plan for a Sustainable Coast , Appendix E also make the following recommendation, which directly relates to the Corps administering of Section 404 of the Clean Water Act, particularly regarding the evaluation of non-wetland alternative sites, as discussed above:

"Prohibit development in wetlands and other environmentally sensitive areas and avoid development that would require new infrastructure in coastal areas"

Should future Corps Structural Flood control and navigation projects within the LMR Comp Study area be predicated on and consistent with State, County/Parish, and municipal master/land use plans that explicitly address ecological carrying capacity with respect to population density, sea level rise, subsidence, flood risk and land loss due to climate change?

Water Quality

How will the LMR Comp Study address the Gulf of Mexico "Dead Zone"? Will water quality have equal footing with flood control in existing and new Corps flood control projects? (this is a particular issue with the Bonnet Carre Spillway in Louisiana) in LMR Comp Study. EPA TMDL analysis should be incorporated into LMR Comp Study—current non-attainment areas should be listed with source of non attainment specified.

Salt Water Wedge—How will this study address the salt water wedge from the Gulf of Mexico which has in recent years periodically advanced up the Mississippi River, threatening drinking water for communities as far up the river as New Orleans?

Thank you for the opportunity to comment on this important study

Letter ID: 223 Org/Agency/Company: Sierra Club Delta Chapter

The Sierra Club Delta Chapter wishes to submit the following comments regarding the Scoping Study phase of the Lower Mississippi River Comprehensive Study. We are in total agreement with the points stated by the Sierra Club New Orleans Group Conservation Committee. In addition, we want to add a reminder that in October 2023, the United States Court of Appeals for the Fifth Circuit found that EISs and EAs have not always received the necessary attention to detail that are required by NEPA. Please keep this opinion in mind as you review the decisions made in regard to the Lower Mississippi River study.

A stated priority of this study is to "evaluate the trade-offs" between flood risk management, navigation, and ecosystem restoration". The conservation and stewardship of the many thousands of acres of ecologically irreplaceable wetlands (much of it forested) within the study area are key to the Corp's stated study goal of ecosystem restoration. The following comments and questions largely address the Corps' regulatory responsibilities with respect to wetland and floodplain protection within the study area.

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Related Issues Regarding Ecosystem Restoration

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How will the LMR Comp Study address the Gulf of Mexico "Dead Zone"? Will water quality have equal footing with flood control in existing and new Corps flood control projects? (this is a particular issue with the Bonnet Carre Spillway in Louisiana) in LMR Comp Study. EPA TMDL

analysis should be incorporated into LMR Comp Study—current non-attainment areas should be listed with source of non attainment specified.

Thank you for the opportunity to comment on this important study.

Letter ID: 135 Org/Agency/Company: Sierra Club - Memphis (as described by D. Ward - MVM)

How will the NEPA document be developed? Will it be a programmatic document with followon site-specific documentation, or will it attempt to cover every specific item covered in the study.

Is the proposed Yazoo Backwater Project going to be included in this study, how are other Corps proposals going to be addressed.

Letter ID: 215 Org/Agency/Company: Society for Louisiana Irises

These comments are from the Society for Louisiana Irises (SLI).

SLI is in full support this broad, long overdue assessment of how water management desicions reach across strict boundaries, and effect the entire web.

SLI applauds the inclusion of the Teche/Vermilion complex into this study, as it has been greatly impacted by flood control actions in the past. The Mernentau River system has also been effected, and should be included if possible.

SLI endorses maximizing sediment infusion into natural breaks in the levees and manmade diversion structures to maximize land building accompanied with nutrient rich, sweet waters of the Mississippi and her distributaries.

SLI embraces the reconnection of the river to her vast floodplain. These flood-mitigating, duck-friendly, fishery-hatcheries known as forested wetlands are now almost completely cut off.

SLI supports all Federal Allocations for failures of the Federal Levee system be fully funded and implemented.

New Orleans Region needs a long term drinking water project.

Letter ID: 175 Name: Cali, Nicholas Org/Agency/Company: Southeast Louisiana Flood Protection Authority - West

Hi. So I'm the Director of the Flood Protection Authority West. One of the big challenges we have, especially during high river, is that there's no enforcement mechanism for barges that get too close to the levees. To a particular problem, when you're near the locks and you have several backed up waiting on turn to go through the locks, these guys will push into the levee which then crushes all the slope pavement that protects the levee embankment from wave wash. There's a State statute that allows us to levy civil fines. And during the 2018-2019 high water, we levied 50- or \$60,000 civil fines against barge companies for violating that buffer zone. But we think that a more effective way would be to get some legislation to give the Coast Guard some enforcement arm, some enforcement authority to be able to either pursue them civilly or criminally and ensure that we maintain a safe distance from the levee. That's it.

Letter ID: 213 Org/Agency/Company: Southeast Missouri Regional Port Authority

On behalf of the Southeast Missouri Regional Port Authority (Semo Port) located near Cape Girardeau, Missouri, I am sending this email as a response to the study. Semo Port would prefer that the study focus on the original intent of the Mississippi River Commission and the USACE which is flood control, drainage, navigation and commerce. The following statement is on the MRC's home webpage:

The Mississippi River Commission (MRC) was established by an Act of Congress on June 28, 1879. Congress charged the MRC with the mission to develop plans to improve the condition of the Mississippi River, foster navigation, promote commerce, and prevent destructive floods—perhaps the most difficult and complex engineering problem ever undertaken by the federal government up to that time.

Please let me know if you have any questions.

Letter ID: 128 Name: St. Germain, Karen Org/Agency/Company: -

No comment

Letter ID: 157 Name: Mancuso, Monica Org/Agency/Company: St. Mary Excel

St. Mary Excel, an NGO in Morgan City, LA, appreciates the US Army Corps of Engineers being in Morgan City LA for a scoping meeting for the Lower Mississippi River Comprehensive Management Plan.

Morgan City, LA has a significant investment in the outcome of the Management Plan as it - and its sister-city, Berwick, are the last municipalities along the currently designated 30% flow of the Atchafalaya River.

As lifelong residents along the Atchafalaya River, we know how important the Atchafalaya River is for the drainage of over 40% of the continental United States. We also understand that we are part of the 3rd largest watershed in the world. For all of the Atchafalaya River's importance in handling 30% and sometimes more of the flow from the Mississippi River, one of our main recommendations to the Army Corps of Engineers is that you, the USACE, maintain a permanent presence in Morgan City along the Atchafalaya River.

[Note: The current USACE placards during storm events are not enough for this riverine homeland entrance.]

In your scoping meeting presentation, you stress the importance of local input. Local input and innovation are what we are best at! Here is an example. President Nixon formed the National Environmental Protection Agency—in 1973 he was also praising the courage of area flood victims when then Mayor C.R. Brownell and the city council were inspecting the barge that was sunk to keep backwater flooding from happening from the Bayou Chene. 50 years later, we now have a permanent structure to protect our citizens from that flooding.

In providing innovative input, we want to offer a permanent office to the Army Corps of Engineers in Morgan City in our planned Resilience Lab so that you will be able to monitor the 70/30 split on a daily basis as we do.

St. Mary Excel's purpose here is to align local efforts with the Corps in its examination of a Lower Mississippi management plan as we operate as an NGO within the municipality of Morgan City, LA.

St. Mary Excel recognizes the significance of the river as to its flow, challenges, and opportunities. With the river's significance highlighted for us in a community funded study by the Urban Land Institute report titled, Morgan City and Berwick LA: "Building the Foundation for a New Economy Along the Atchafalaya River, the study strongly recommended making resilience prominent in our area— RESILIENCE PROMINENT IN OUR AREA! (https://americastage.uli.org/wpcontent/uploads/ULI-Documents/MorganCityandBerwick PanelReport-v5-with-cover.pdf --- page 18)

The Urban Land Institute report and our efforts since the report came out in early 2019, align

with the Corps Comprehensive management plan:

- the right balance of water and sediment
- The river and its floodplain
- Improving channel resilience,

• Improving economic efficiencies in inland navigation (crawfishermen would jump for joy on this one)

• Structure use for flood risk management, ecosystem restoration, and water supply

• Reducing flood risk in economically disadvantaged census tracts along the Atchafalaya River (here so much of Morgan City and Berwick)

To align with you in this comprehensive management plan we invite you to occupy office space in our Urban Land Institute recommended Resilience Lab, right out here on our river on the flood-impacted area, amidst the flow, sediment, and nutrient decisions to our north.

We are currently planning the facility and The Corps is invited to be a presence in the studied area for making key river decisions that are BEST only studied within the last municipality of the 30% flow and other decisions to our north.

Join with us through an office located within a resilience lab on the Atchafalaya... making an investment in a disadvantaged community, that equitably places resources that have historically been disinvested in human capacity resource allocations.

Do not study us from afar, but be here with us to equitably, efficiently, and thoroughly create a comprehensive management plan that places the human capacity in place to manage the waters now strictly managed by the infrastructure of floodwalls and the "locals."

In your introduction to the "open house" portion of the public hearing, it was stated that there might be some things that the Army Corps of Engineers might miss and you are hoping that local input will help you identify everything. We challenge you to establish a permanent location here in Morgan City on the Atchafalaya River,—you won't miss anything if you are here.

Letter ID: 115 Name: Mancuso, Monica Org/Agency/Company: St. Mary Excel

To align with you in this comprehensive management plan we invite you to occupy office space in our Urban Land Institute recommended Resilience Lab, right out here on our river on the flood-impacted Atchafalaya area, amidst the flow, sediment, and nutrient decisions to our north.

We are currently planning the lab and The Corps is invited to be a presence in the studied area for making key river decisions that are BEST only studied within the last municipality of the 30% MS flow and other decisions to our north.

Join with us through an office located within a resilience lab on the Atchafalaya... making an investment in a disadvantaged community, that equitably places resources that have historically been disinvested in human capacity resource allocations.

Letter ID: 205 Org/Agency/Company: St. Mary Levee District

On behalf of the St. Mary Levee District (SMLD) located in St. Mary Parish along the Atchafalaya Basin in Louisiana, I would like to offer some comments and point out some of the concerns that we have in the ongoing operations for the Mississippi River & Tributaries (MR& T) project.

The operations of the Atchafalaya Basin component of the MR& T which seeks to maintain a flow through Old River of 30% of the latitudinal flow through the Basin, has resulted in significant deposition of material within the Basin. Lakes have been converted to mere streams reducing the capacity of the Basin to manage flood waters. While designed as a floodway, the reduced capacity of the Basin places more stress on the levees bordering the Basin as smaller River flows result in higher water elevation within the Basin . This is occurring on an everyday and every year basis. An additional impact of the Basin's deposition and loss of capacity is that more sedimentary material reaches the navigation channel of the lower sections of the Atchafalaya River and Gulf Intracoastal Waterway (GIWW) causing significant navigation restrictions. The annual dredging requirement for these channels has exceeded the everyday capacity of the USACE to properly maintain these channels. While acknowledging that navigation channel and flood control channels are different, reducing the capacity of the navigation channel will make it less efficient as a flood conveyance channel.

In 2010 the USACE issued its last completed flow line study on the Atchafalaya Basin levees. In that study, miles of levees in St. Mary Parish were found to be deficient in its ability to pass the project flood. The freeboard noted by the Flow Line is lacking in providing comfort for many of the sections that do meet the standard elevation. Since the 1927 flood and the resulting legislative acts that followed, the safe passage of the project flood has been the controlling objective of the MR& T and the Atchafalaya Basin component of that effort. Any re-evaluation of the River operations must include Basin -wide improvements to assure the residents within the influence of the Atchafalaya Basin Levee system, that the project is fully capable of safely passing the project flood.

Our observations at the end of the Basin "funnel" also acknowledge that the flows of the Atchafalaya River have an increasing impact on the backwater areas to the East of the mouth of the Atchafalaya River. Since 2011 it has been noted that at even a relatively moderate River stage at Morgan City of 3' (gauge elevation at Morgan City's waterfront), Bayou Chene to our East, begins to receive significant River flows. This backwater issue threatens five other surrounding parishes with flooding and should be included in the analysis of the operations of the MR& T project. The USACE has acknowledged responsibility for this backwater effect and the New Orleans District has taken a position recognizing that it has authority to deal with the backwater effect, but no Federal project has come about to address this problem. Instead, State and local governments, including SMLD, have addressed the issue by constructing the Bayou Chene Flood Protection project and the Morgan City backwater levee project with fully local funds. These projects do not fully address the needs of the entire region.

We have also observed that the Wax Lake Outlet is capturing a larger portion of the flow through

the Basin. As time goes on, we expect that this trend will continue. There is an opportunity to consider whether allowing the WLO to do so could provide a better conveyance channel for flood flows from the Basin.

As the Wax Lake Outlet delta grows, and slows the river flow down, more water appears to be transiting through the GIWW to the West. Our observations indicate that these flows and higher resulting water elevations are evidencing themselves beyond the current footprint of the Federal Levees of the Atchafalaya Basin. In fact, we see evidence of River influence along the GIWW beyond the Charenton Drainage Canal into Iberia Parish. Additional protection measures are needed to fully protect residents from the operation of the floodway.

It is important to note that an Atchafalaya River elevation of 6' (gauge height) at Morgan City causes the City to close floodgates and begins shutting the operation of businesses located along the Riverfront. A gauge elevation of 4', causes the USCG to implement high water restrictions on the River to protect marine traffic. I mention this to emphasize that any consideration of changes to the operational conditions for the Basin must take these factors into account or mitigation of these impacts must be in place first.

The drinking water supply for this area is provided by the River, so our concern is that any change should consider those that rely on the River for its drinking water. No sub surface or well water is available in this part of the State.

We are already seeing impacts of Sea-level rise and /or subsidence. Water elevations relative to the land are already impacting us by making drainage for rainfall events a bigger challenge. We expect the challenges of protecting our community will continue to grow. As we stated above, much work is left undone on the original concept of safely passing the project flood, therefore, these issues must be addressed before any significant operational changes can be considered.

We look forward to continuing the dialogue on this study. We carefully follow the River impacts in Cape Girardeau, MO at the head of this study area and ask all to remember that we are at the outlet for perhaps as much as 50% of that flow.

Letter ID: 131 Name: Wise, Jim Org/Agency/Company: State of Arkansas, Lower Mississippi River Conservation Committee (LMRCC)

A USFWS – ES Office needs to be established as the lead for the FWCA process for the LMR Comp Study.

LMRCC developed the Lower Mississippi River Resource Assessment in July 2015. It highlights some significant areas for ecosystem restoration within eight areas of the LMR. A Feasibility Study was just completed for one of the areas. The LMRCC suggests that the remaining seven areas be included in the Comp study for the development of a Feasibility Study. In addition, LMRCC suggest that implementation language for each study also be included. The LMRCC and USACE has developed a comprehensive model, the Hatchie/Loosahatchie Study, to move forward with in the Comp study.

Real Estate policies concerning ecosystem restoration needs on the LMR needs to be addressed moving forward with each Feasibility and Comp study.

Letter ID: 41 Name: Stumler, Julie Org/Agency/Company: -

The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944 and recommended by the Mississippi River Commission. Maintaining the 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commercial barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitve by making significant investments in their respective infrastructure.

Letter ID: 99 Org/Agency/Company: Sustainable Cobourg

I'm an educator interested in knowing how this project will support retraining of the skilled trades (e.g., using drones to survey and monitor Low Impact Development as well as create 3D landscape designs for nature-based solutions on industrial, commercial and residential properties).

Letter ID: 10 Name: Tague, Alex Org/Agency/Company: -

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Letter ID: 72 Name: Tague, Alex Org/Agency/Company: -

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Letter ID: 78 Org/Agency/Company: Teche-Vermillion Fresh Water District

My name is Donald Sargrera, Executive Director of Teche-Vermilion Fresh Water District. I would like to make a comment. Our district is made up of four parishes -- Lafayette, Vermilion, Iberia, and St. Martin Parishes -- and the objective mission of our district is to provide a flow of fresh water in Bayou Teche and the Vermilion River whenever there is not adequate flow due to rain fall runoff. So usually, we have to provide this flow about 185 days per year, and this past year was a very dry year and we provided the flow for about 240 days. The benefits of the district are to prevent stagnation in the water bodies and to reduce pollution, and also to prevent saltwater intrusion, especially in the lower parts of the Vermilion River.

Before the [Teche-Vermilion Fresh Water] district was set up and the pump station was built to where we could deliver this fresh water, these two water bodies were very polluted. The Vermilion River was one of the most polluted water bodies in the United States, and Bayou Teche was also suffering from an inadequate supply of water. So we would definitely like to support the Comprehensive Study because we are part of it. We are part of the Mississippi River and Tributaries Project. The reason that we exist is because the flow that used to come into Bayou Teche and the Vermilion River were cut off whenever the protection levees and floodways were established.

So one of the big things that we've noticed this past year is that saltwater intrusion was at record high levels in the Vermilion Bay, which resulted in there being record high levels of salinity in the lower reaches of the Vermilion River. If this project had not been in existence at the time, the saltwater intrusion would have been a lot worse. It would have come up the Vermilion River possibly as far up as Abbeville, or even Lafayette.

We're here to support the study and to offer a tremendous amount of data that we have collected. We have been managing a water quality monitoring project in our watershed for the last ten years. Currently, we're monitoring 25 sites throughout the watershed, and we take meter readings as well as lab samples to evaluate water quality. One of the things that we do monitor is saltwater intrusion, in addition to dissolved oxygen, temperature, pH. We also monitor --collect lab samples where we have chloroform as well as nitrite, TKN, and all of those processes analyzed by a lab, and we have all of those records.

One of the other things that we are very concerned about is the amount of subsidence and sea level rise which is adding to the problem of saltwater intrusion. Not only is this happening in lower parts of the Vermilion, it's also happening in some of the fresh water lakes that farmers in our area use as a supply of irrigation water. Those lakes are located in the Mermentau Basin — White Lake, Grand Lake, even Lake Arthur had saltwater intrusion last year. So because of that, we are asking that the Corps consider expanding the boundary of the study area to include the Mermentau Basin, because that would take in both Grand Lake and White Lake. They are experiencing similar saltwater intrusion problems that we are in the rural parts of Vermilion Parish. It's a tremendous amount of agriculture lands that use water from White Lake and Grand Lake for irrigation, not to mention all the wildlife in those areas, including alligator production, alligator egg collection. Those kind of things are very dependent on there being an adequate supply of fresh water. We think there needs to be a study of the encroachment and how this saltwater is getting into Grand Lake and White Lake, and we think it's because of subsidence and high tide going over the marshes and going over the levees, and saltwater is getting into the lakes. Once the saltwater gets into the lakes, we find that it takes a very long time to flush that water out because the lakes are so big. So we think that it's very necessary that this be studied and be part of this comprehensive study that's going on that the Corps is undertaking. Thank you very much.

Letter ID: 168 Org/Agency/Company: Teche-Vermillion Fresh Water District

Teche-Vermilion Fresh Water District supplies a flow of freshwater to the Vermilion River, Bayou Teche and the Floodway Borrow Pit Canal also called Bayou Amy. Our mission is accomplished by operating a series of control structures throughout the watershed which divert flows as needed to eliminate stagnation, reduce pollution, and prevent the intrusion of salt water into our waterways. When the watershed does not receive sufficient rainfall to supply adequate flow, it is supplemented by pumping water from the Atchafalaya River. The pump station is located along the Atchafalaya River about 2 miles north of Krotz Springs, La.

Congress authorized construction of the Project by the U.S. Army Corps of Engineers' New Orleans District in the Flood Control Act of 1966 as part of the Mississippi River and Tributaries Project. The cost of the project was \$39.7 million. Upon its completion, the Teche-Vermilion project became the property of the people of Acadiana, who manage and operate it. It is managed and operated by a Board of Commissioners that are appointed by the parishes of the district. Each of the parishes of the district (Lafayette, Vermilion, St. Martin, and Iberia) appoint one member and St. Landry Parish appoints an advisory member. The Project is funded by a 1.5 mill property tax that was first approved by the voters of the four parishes in1970 and has been overwhelmingly approved for renewal each 10 years since. The percent favorable vote is in the upper 70% to low 80% which indicates to us that the citizens of the district appreciate the benefits that the project provides as well as the confidence in the job that the commission is doing.

The local tax income that the district receives is sufficient to operate the project. Our Charter Commissioners recognized that a reserve fund would be needed to fulfill the district's obligation to make major repairs and replacement in the future and wisely created an account set aside for that purpose using a small amount of surplus funds, when available, over a long period of time. Maintaining the reserve fund is still a major priority of current commissioners. With the project having been operating 42 years the reserve fund is now being used for major replacement and repair. Because of this, the district has been able to meet its obligations and not ask for additional funding from the federal government, state government, or the taxpayers of the district.

In 2014, the district partnered with several other agencies to start a long-term water quality monitoring project. That project has been successful and is ongoing with no expectations of it ending. The benefit of the monitoring project to the district is that it demonstrates the importance of having a flow of fresh water through the watershed. We have also found that the water quality of the Atchafalaya River is much better than stormwater runoff from within the watershed so when pumps are running, higher quality water is flowing.

This past year, monitoring documented that salinity levels of water in Vermilion Bay were record high and saltwater intrusion occurred in lower reaches of the Vermilion River and Bayou Teche. Elevated salinity levels were also found to have entered Lake Fausse Point. The flow of fresh water that the district provided from the Krotz Springs pump station minimized saltwater intrusion and provided a source of irrigation water for many farmers in the district. Without the Teche-Vermilion Project, the situation would have been disastrous.

The flow of fresh water from the Atchafalaya River through the municipalities of the district reduces fecal coliform and improves Dissolved Oxygen content in both Bayou Teche and the Vermilion River. Lab results for fecal coliform indicate that of the 72 samples from the Atchafalaya River at Krotz Springs over the past 6 years, 100% of the samples met the threshold for primary contact. Meter readings for Dissolved Oxygen are always higher for Atchafalaya River water than water within the watershed. Following rainfall runoff events in the watershed, monitoring finds that runoff reduces water quality including increased fecal coliform counts and reduced Dissolved Oxygen. Once the watershed is drained and fresh water pumped in, water quality improves.

Teche -Vermilion Fresh Water District has aggressively taken action to benefit drainage within the watershed. In addition to following those guidelines set out in our operation manual, the district has hired engineers with the University of Louisiana at Lafayette (ULL) Flood Center to conduct modeling of our flood preparation policies and asked them for additional recommendations that would be beneficial. In addition to the ULL studies, the district has engaged in an extensive monitoring of watershed conditions by using existing gauges and by installing more gauges and cameras. The district has also partnered with the Acadiana Planning Commission and the ULL Flood Center in a regional gauge project through which 100 additional gauges will be installed within the watershed. This continuous monitoring of gauges helps in making decisions for operating pumps and adjusting structures to aid drainage of runoff water.

Teche-Vermilion Fresh Water District would like this information and the following statements included in the Lower Mississippi River Comprehensive Study:

1. There is more need for the freshwater flow in the service area than there was when the Louisiana Department of Public Works conducted the 1956 study that lead to the implementation of this project. Municipal areas have grown significantly since 1956 and demands for fresh water in coastal areas have increased.

2. We have been requested, through a resolution by the St. \ Martin Parish Government, to provide an additional flow of fresh water to Bayou Amy and the West Atchafalaya Protection Levee Borrow Pit Canal during times of low flow. We have asked the New Orleans District to conduct the necessary study to address this request.

3. Coastal erosion, subsidence and sea level rise have increased the severity and frequency of saltwater intrusion in our coastal parishes. There is a need for increasing the flow of fresh water to those areas by our district and we would like this to be addressed in the comprehensive study.

4. White Lake is partially in Vermilion Parish and partly in Cameron Parish and Grand Lake is in Cameron Parish. Some of White Lake is in the study area. Both Lakes are in the Mermentau Basin. Both Lakes provide a freshwater reservoir for those coastal parishes. It is a common occurrence for saltwater to get into these lakes during high tides and possibly through failed structures. We ask that the issues that allow these lakes to be subject to saltwater intrusion and solutions to the problem be addressed in the study. This would involve expanding the study area to include White Lake and Grand Lake areas.

5. The district has collected an extensive amount of data over the past years. The data include

flows, elevation readings, Modeling and reports by the University and water quality information. All of this data is available for use in this or any other study of conditions in our area.

Please contact us with any questions or comments.

Letter ID: 123 Org/Agency/Company: The Arlene and Joseph Meraux Foundation

Please consider adding more flooding capacity in the Mississippi River tributaries and main channel. This will lower flood stage chances and improve the rivers habitat.

Please consider changing protocols for the Bonnet Carre and Atchafalaya spillways. Alternating between the two spillways will have less of an impact on local fisheries and improve water quality in our estuaries.

Letter ID: 214 Org/Agency/Company: The Little River Drainage District

The 1927 Flood absolutely devastated the USA with more than 1/3rd of our Gross Domestic Product lost that year alone. The passage of the 1928 Flood Control Act created the Mississippi River and Tributaries (MR&T) project with a proven track record of providing a return on investment in excess of 131 to 1 on flood damages prevented (2023), along with billions of transportation benefits/savings each year. The MR&T is undoubtedly one of the greatest civil works infrastructure investments to ever exist (while only being 89% complete as authorized). It's imperative to understand the base infrastructure investment was built by the local people decades, and in some cases nearly a 1/2 century, prior to federal investment. Today this system has global implications due to the reliability and connectivity of our highly productive agriculture landscape to our massive inland waterway system to global markets feeding people throughout the globe.

Comprehensive flood control and navigation have been paramount to the success of the MR&T Project passing record floods on the Mississippi River in 2011, 2016, and 2019 without incident. During record droughts in 2012, 2022, and 2023 Mississippi River navigation continued to function due to the infrastructure of the MR&T. The success during record floods and record droughts speaks volumes to the foresight of our forefathers providing predictability, protection, and opportunity well beyond anything conceivable at the MR&T's inception.

While past success does not guarantee future success, we should certainly take the opportunity to learn from what works and what doesn't work. Keeping Flood Control and Navigation paramount to the function of the Mississippi River has yielded massive success. Attempting to balance 8 authorized purposes within the Missouri River Basin has yielded failures on a multitude of fronts. Let's not repeat past failures, but rather build on past success. Keep Flood Control and Navigation at the forefront of the mission, as we have for nearly a century with successful results, of the Mississippi River and Tributaries Project.

Letter ID: 8 Org/Agency/Company: The Nature Conservancy

See attached letter.



Hannah Amsterdam Senior Policy Associate 4245 Fairfax Drive Suite 100 Arlington, VA 22203

March 21, 2024

Col. Cullen Jones Commander, New Orleans District U.S. Army Corps of Engineers

Re: Public Scoping for the Lower Mississippi River Comprehensive Management Study

Dear Col. Jones,

The Nature Conservancy appreciates the opportunity to provide comment during the public scoping phase of the Lower Mississippi River Comprehensive Management Study (LMRCMS).

The Nature Conservancy (TNC) is a global conservation organization with the mission to conserve the lands and waters on which all life depends. We work toward a vision of a world in which both people and nature thrive. Working in all fifty states and over seventy countries, we use a collaborative approach that engages local communities, governments, the private sector, and other partners. TNC is an active partner with the U.S. Army Corps of Engineers (Corps) around the country and on the Mississippi River in both the Upper and the Lower portions. TNC has been active on the Lower Mississippi River mainstem since the mid 2000's and became the lead cost share partner for the Lower Mississippi River Resource Assessment (LMRRA) in 2012.

The Lower Mississippi River Comprehensive Management Study offers a remarkable opportunity to rethink the operation and management of the Lower Mississippi River (LMR) with consideration for modernization, ecosystem restoration, nature-based solutions, and a systems-based approach. For 85 years, the management system of the river has remained largely unchanged. The LMRCMS presents the Corps with a chance to reassess this system and systematically incorporate ecosystem restoration into the management of the Lower Mississippi River. This is a pivotal opportunity to align navigation and flood control systems with restoration efforts, fostering a healthier and more sustainable lower river system to benefit all stakeholders and interests. TNC offers the following recommendations for the Corps as this impactful study progresses.

Objectives

In light of the objectives outlined by the Corps during public scoping meetings in February and March, TNC offers the following recommendations to enhance and align study objectives with the purposes laid out by Congress and to support holistic management of the Lower Mississippi River.

Systemwide

1. Modify the Systemwide Objective to "reduce flood risk to economically and socially disadvantaged communities along the Lower MR and Atchafalaya Rivers." Expand this objective into a more comprehensive, equity-informed goal that includes the ecosystem

restoration and nature-based solutions benefits that a holistically managed river would provide to economically and socially disadvantaged communities, in addition to flood risk management. Ecosystem services from restoration and floodplain connectivity measures include improved flood risk reduction, air quality, water quality, pollination, recreation and more. For vulnerable and disadvantaged populations hit the hardest by flood risk, environmental quality deficiencies, and a lack of recreational access, these benefits are critical to acknowledge and extend. For example, modify the objective to state: *Reduce flood risk and maximize ecosystem services for economically and socially disadvantaged communities along the Lower MR and Atchafalaya Rivers*.

- 2. Include a Systemwide Objective to support ecosystem health and flood resilience by maximizing floodplain connectivity and habitat restoration, while continuing to maintain navigation. A system-wide objective that prioritizes ecosystem health is necessary in order to effectively embed the purposes directed by Congress to investigate fish and wildlife habitat resources, floodplain connectivity, and nature-based solutions while ensuring alignment on a basin-level. Relying solely on regional objectives risks an incomplete and disjointed approach to managing the LMR for ecosystem restoration and its co-benefits.
- 3. Prioritize multiple-benefit solutions throughout all objectives. We urge the Corps to prioritize for projects that yield multiple benefits for both communities and ecosystems, rather than viewing them solely within mission area boundaries. For example, adjustments in operations and maintenance can simultaneously mitigate flood risks and enhance habitat in river and side channels, all while maintaining navigation functionality. Likewise, initiatives focused on floodplain reconnection not only promote the overall health of floodplains but can bolster flood protection for nearby communities. Identifying and promoting such integrated solutions should be a central and overarching goal of the study.

Regional: St. Louis, Memphis, and Vicksburg

- 4. TNC supports objectives to maximize river-floodplain connectivity to support ecosystem function. The Corps should include in these objectives the priority conservation reaches identified within the Lower Mississippi River Resource Assessment (LMRRA), and the findings and model provided by the Hatchie-Loosahatchie Ecosystem Restoration Feasibility Study. The LMRRA reaches cross the entire geography of the study and should not be limited to the Vicksburg region objectives. These reaches serve as critical areas for ecosystem restoration, floodplain connectivity, fish and wildlife habitat enhancement and recreation.
- 5. Modify all Objectives focused on "maximizing channel stabilization" to focus instead on maximizing channel resilience while ensuring the maintenance of flood risk management and ecosystem priorities. To maximize channel resilience, the Corps should prioritize nature-based solutions and minimize the use of gray infrastructure where possible in order to achieve ecosystem restoration co-benefits along with navigation and flood risk management.

6. Ensure that objectives to address economic efficiencies take ecosystem restoration objectives into account, including incorporating potential economic benefits of ecosystem services and nature-based solutions. The Corps should follow the <u>guidance</u> recently released from OMB: "Guidance for Assessing Changes in Environmental and Ecosystem Services in Benefit-Cost Analysis"

Regional: New Orleans

- 7. TNC supports objectives to optimize the use and operation of the Old River Control Structure to support flood risk management, ecosystem restoration, and water supply, and modify existing river features to maintain or establish natural landscapes and hydrologic connectivity in the Atchafalaya River Basin. To this end, the Corps should complete and incorporate findings from the Atchafalaya Sustainable Rivers Program project at Old River Control Structure.
- 8. The Corps should evaluate the use of floodways, spillways and diversions and the benefits of enhancing flow and sediment management in conjunction with ecosystem priorities. Flexibility should be incorporated into the operations of flood control structures to manage water on a regional basis and reduce overreliance on specific mechanisms, ensuring a more adaptive and sustainable approach to water management. Operations of floodways farther up-river, such as the Old River Control Structure or the proposed Ama and Union Diversions could also reduce impacts from possible openings of the Bonnet Carre Spillway and should be investigated. However, the use of these floodways should be studied not just from a flood control perspective but also for ecosystem perspective, to avoid ecological damage and promote ecological health.

Study Approach

Systemic and Optimized Solutions

To effectively address the complex challenges of the LMR, it is crucial for the Corps to adopt a systemic approach that optimizes and balances each of the priority study purposes to the greatest extent possible. By operationalizing and optimizing for ecosystem restoration alongside navigation and flood risk management, this study has the opportunity to maximize the long-term resilience and sustainability of the LMR while meeting the diverse needs of stakeholders. When comparing alternatives, the Corps should utilize a balanced and transparent multi-benefit analysis to optimize solutions for each of the Study's priority purposes, including ecosystem restoration and equity considerations. Interconnected and interdependent effects of current conditions and proposed measures must be considered, and multi-benefit solutions should be given priority when reviewing alternatives.

TNC urges the Corps to plan beyond individual project-based solutions and recognize the interconnected nature of the LMR as a unified system. Adopting a tiered, cross-scale approach is essential, wherein systemwide goals are translated into regional objectives and further refined into site-level actions. This approach will ensure alignment with basin-level objectives and

minimize the risk of disjointed efforts. The alternative approach of identifying site-level actions first and aggregating those across the Study area risks failing to achieve the basin-level goals.

Opportunity Areas and Guiding Resources

Recognizing the large scope of this study, TNC underscores the need to develop actionable recommendations that transcend individually designed constructable measures and operational changes. This could entail the development of maps and other guiding resources that help prioritize opportunities and can serve as crucial tools for guiding future project development and design-level actions. The measures within these maps/resources need not be fully designed within the 5-year study but should lay the groundwork for informed decision-making. By concentrating efforts on designated areas of opportunity, with priorities informed by authorizing language from Congress, the Corps can create venues for the exploration of priority approaches that may not yet be grounded in specific places or projects.

Opportunity areas should include, among other things:

- 1. Reaches where floodplain restoration and/or levee setbacks could provide effective flood risk management while also advancing ecosystem restoration and reductions in nutrients entering the River. These might include areas already targeted for conservation, areas where repeated flooding is proving challenging, or areas where levees are preventing inundation of wetlands or open waters.
- 2. Reaches where navigation infrastructure (such as river training structures and revetment) could be removed or modified to support ecosystem restoration and/or reduce flood risks while still supporting navigation.
- 3. Floodways, spillways, and control structures where operational or structural modifications could reduce flood risks while also advancing ecosystem restoration and reductions in nutrients entering the River.
- 4. Reaches along the Mississippi River batture where reforestation and other nature-based solutions can accomplish channel resilience at areas vulnerable to cutoff or instability while providing habitat or other ecosystem benefits.

These opportunity area resources may lead to the identification of specific projects for advancement or serve as foundational data to guide future planning or tiered studies. For example, a study outcome could involve the creation of a system-wide map for the LMR identifying optimal levee setback opportunities or other large-scale nature-based strategies. This map would lay out strategic interventions that not only enhance ecosystem restoration efforts but also take into account navigation and flood risk management interests. Leveraging Corps data on recurrently flooded regions or repeated levee failures, the study can then effectively identify areas prime for additional exploration of these approaches.

By prioritizing opportunity areas and embracing a systemic perspective, the Corps can foster collaboration, innovation, and resilience across the Lower Mississippi River Basin, facilitating sustainable management and development for decades to come.

Opportunity Areas, Measures and Operational Changes

Using this framework of identifying opportunity areas, constructable measures, and operational changes, the Corps should consider the following detailed recommendations:

Ecosystem Restoration and Floodplain Connectivity

- 1. This study should pursue ecosystem restoration measures in priority conservation reaches identified in the Lower Mississippi River Resource Assessment. These reaches serve as critical areas for enhancing ecological integrity, facilitating floodplain connectivity, and enhancing fish and wildlife habitat. Initial measures have already been identified within those reaches for their geographic, ecological, and practical benefits and each of those measures should be incorporated into potential alternatives. If not incorporated into the initial 5-year study, these reaches should be identified as a Tiered Study opportunity in which the priority areas would be bundled together in one study. Such a study could build off of the Hatchie-Loosahatchie model and proceed efficiently.
- 2. The study should develop a systematic approach to floodplain restoration and conservation for flood storage effects, prioritizing areas where effective flood risk management aligns with ecosystem restoration objectives. This includes identifying where vegetative areas need to be conserved for flood storage purposes, and not removing roughness if it will have negative ecosystem and flood management effects. These interconnected effects should be considered, and multi-benefit solutions should be given priority.
- 3. Pursue floodplain connectivity through the reconnection of side channels and the restoration and conservation of rare geological features like meander scarps and oxbow lakes, important habitats for endangered resident and migratory aquatic species in the LMR that no longer occur naturally. Data and lessons learned in the Hatchie-Loosahatchie Study show the importance of these river features. Meander scarps are one of the rarest and most important habitats for aquatic species in the LMR and due to channel management activities, these unique channels are not reforming. This habitat is especially valuable for endangered species such as pallid sturgeon, fat pocketbook mussels and other associated aquatic species that are pivotal to the ecology of the LMR system.
- 4. Avoid and minimize habitat impacts of channel construction and maintenance and pursue measures that support a mosaic of ecologically important habitats that will provide benefits for species on the federal list of threatened, endangered, or proposed listed species and species of special concern. By enhancing habitat for native species, the Study will support a competitive advantage for those species over invasive species, such as Asian carp. Consult the Conservation Plan for the Interior Least Tern, Pallid Sturgeon, and Fat Pocketbook Mussel in the Lower Mississippi River (Endangered Species Act, Section 7(a)(1)) and State Wildlife Action Plans for habitat protection benefits.

- 5. There is a lack of readily available and usable base-line data on ecosystem restoration, habitat and floodplain connectivity needs in the LMR. This study should encompass or lead to the development of regular data gathering and gap analysis on ecosystem needs and opportunities. The Hatchie-Loosahatchie Ecosystem Restoration Study provides a useful model for pursuing the necessary data on species of special concern, habitat quality, connectivity needs, and more, and for developing mapping and modeling in the region. Initiatives and studies at the Corps Engineer Research and Development Center (ERDC) (including Engineering With Nature (EWN) and Regional Sediment Management (RSM)) should be utilized to the greatest extent feasible for this purpose.
- 6. Develop a system-wide approach to native vegetative plantings along levee systems to provide ecosystem and habitat benefits.
- 7. Explore the potential of local land use planning to reduce future flood risks and support the use of floodways to manage flood risk, integrating community engagement to ensure equitable access to flood risk reduction measures.
- 8. Recognizing the LMRCMS's boundary within the MR&T system, it is vital for the Corps to acknowledge its connectivity to both the Upper Mississippi River and Ohio River systems upstream, and the Gulf of Mexico downstream. Water quality issues in the Gulf, such as hypoxia and algal blooms, are ultimately driven by nutrient loads originating in the Upper Mississippi River Basin. The LMRCMS presents an opportunity to address these challenges by enhancing the Lower Mississippi River's nutrient-retention and processing capacity through strategic floodplain reconnection throughout the study area.

Levee and Infrastructure Optimization:

- 1. Enhance hydrological connections between the river and its floodplain by implementing levee setbacks along the mainstem and enclosing spillways, floodways, and backwater areas. Setback levees, if positioned closer to the historic floodplain interface, can decrease flood volume and pressure downstream, expand habitat acreage, and offer cost-effective maintenance with reduced risk of catastrophic failure.
- 2. Develop a comprehensive opportunity map for the Lower Mississippi River to pinpoint optimal levee setback locations that promote ecosystem restoration while addressing navigation and flood risk management concerns.
- 3. Identify areas where other Corps infrastructure (e.g., river training structures, navigation channels, revetments) can be decommissioned, modified, or removed to support ecosystem restoration and mitigate flood risks while maintaining navigation capabilities.
- 4. Leverage Corps data on repeatedly flooded areas or repeated levee failures to pursue potential non-structural alternatives such as levee realignment and setback levees to enhance flood resilience and habitat preservation. The Corps should commit to more robust engagement in pre-disaster planning through the PL 84-99 program by identifying likely locations where damages will occur based on repetitive losses, and coordinate with

other federal, tribal, and state agencies and local sponsors to plan potential nonstructural alternatives and nature-based solutions in those areas before a flood occurs.

 Improve the sustainability and resilience of the Mainline Levee System by sourcing all levee and berm construction material from non-wetland locations to preserve wetlands. Restore wetland buffers on the riverside of the levees to bolster system integrity and provide essential habitat for fish and wildlife.

Climate Resilience and Monitoring:

- 1. Explore and model the impacts of expected climate change weather patterns on river operations, providing recommendations to adapt future operations to changing conditions.
- 2. TNC urges that the study recommend the development of comprehensive, integrated, and accessible near real-time monitoring programs for water quality, ecosystems, navigation, and flood risk management to inform adaptive management strategies and enhance resilience. TNC has designed a <u>Sentinel Monitoring System</u> with partners including technical assistance from the Corps and the U.S. Geological Survey (USGS) that would expand the present system at strategic location and address priority areas of flood risk management, navigation safety, and water quality. The Comprehensive Study should leverage this monitoring effort in its evaluations and recommendations.

Dredging and Channel Resilience

- 1. Identify locations where dredging practices could be reduced or modified to minimize adverse impacts, or where additional dredging is needed to reduce flood risks while managing for ecosystem effects. Side casting of material may result in blockage of flow to side channels and backwater areas and should be minimized throughout the system in favor of beneficial uses.
- 2. Examine how to systematically increase the beneficial use of dredged material and apply it in under-utilized areas that are sediment-poor.
- 3. Maximize channel resilience using nature-based solutions while ensuring the maintenance of navigation. The Corps should articulate the prioritization of nature-based solutions in channel stabilization objectives and minimize the use of gray infrastructure, such as concrete mat sinking, where possible in order to achieve ecosystem restoration co-benefits along with navigation and flood risk management.
 - For example, examine the Mississippi River batture to identify opportunities for reforestation that can accomplish channel stability at areas vulnerable to cutoff while providing habitat. Reforestation has been shown to be a successful Corpspreferred alternative to mitigate the long-term risk of cutoff formation, as seen in the Mississippi River Geomorphology and Potamology (MRG&P) Report No. 9.
 - Nature-based solutions for channel resilience include reforestation, sand revetments, riparian vegetation, wetland restoration, marsh-sill structures, dredged material islands, and more.

Flow Regimes, Floodways and Outlets

- 1. The Corps should evaluate operational modifications for floodways, spillways, and diversions to optimize flow and sediment management in conjunction with ecosystem priorities and flood risk management. Flexibility should be incorporated into the operations of flood control structures to manage water on a regional basis, reduce unnatural ecological shock of spillway openings and overreliance on specific mechanisms, ensuring a more adaptive and sustainable approach to water management.
- Pursue operational modifications to support flexibility in flow regimes and triggers for structures including the Old River Control Structure, Bonnet Carre Spillway, Morganza Spillway, and Birds Point-New Madrid Floodway to improve flood risk management and ecosystem restoration objectives.
 - To this end, the Corps should complete and incorporate findings from the Atchafalaya Sustainable Rivers Program (SRP) project at Old River Control Structure in order to inform their operation modifications by providing critical information on what the Atchafalaya Basin needs to be sustainable and how flexibility in flows to attain flood resilience throughout the LMR will affect those needs. While the necessary modeling to provide these answers may fall outside of the study scope and capacity, this SRP project can be completed expeditiously alongside the Comprehensive Study and its results can be incorporated and will be extremely valuable.
- 3. Design processes for better coordination among stakeholders when opening structures including the Morganza Spillway and Bonnet Carre Spillway to address stakeholder concerns
- 4. Increase application of environmental flows and update water control manuals, including expanding the capacity and application of the SRP in the LMR region. Potential SRP sites within the Study geography that have already been identified for their SRP potential include:
 - o Atchafalaya River
 - o White/Black/Little Red Rivers
 - St. Francis River
- 5. Investigate the benefits of new outlets for the Mississippi River including the proposed Ama and Union Diversions and examine uncontrolled openings such as Neptune Pass.
- 6. Analyze the impacts of the Mid Breton Diversion on the Mississippi Sound alone and in combination with potential future releases through Bonnet Carre. TNC has completed a modeling assessment of potential future river flows and the effects of those flows on salinity and oyster habitat in the receiving basins: <u>TNC OysterFlows Tool</u>. Mississippi Sound was assessed during this study, which included an assessment of the effects of Bonnet Carre and potential future use of that spillway. These results should be used as

information to guide assessment of the effects of Mississippi River inflows for flood control and coastal restoration on Mississippi Sound.

Groundwater and Water Supply

- 1. A comprehensive Study of the Mississippi River's management must anticipate future water demands and contexts, including considerations for ecosystems, agriculture, and emerging industries, to ensure sustainable resource management and environmental resilience. The Study should acknowledge our gaps in understanding of how much water is currently used and how much will be needed throughout the system in the future. The Corps could consider a Tiered study opportunity to address this large and complicated question if not included in the main Study.
- 2. The Study must also recognize the interconnectedness of surface water and groundwater in managing the Mississippi River and the impact of significant declines in aquifers throughout the Mississippi River basin, with withdrawals exceeding recharge rates. This depletion affects both surface water availability and the broader hydrological system. The Study should recognize that state and regional efforts are underway to address this and that new legal, policy and management frameworks will need to be taken into account in the future.

Incorporate critical policy recommendations

Policy and programmatic needs will be critical to the success of this study and future projects in the Lower Mississippi River. Policy levers will make it possible to ensure an efficient and effective use of resources and time for the projects and recommendations that will result from this study. We recommend that policy recommendations be communicated early and often to Corps Headquarters, the Mississippi River Commission, and to Congress through project updates and Annual Reports.

1. Early Identification of Required Authorization Changes

TNC urges the Corps to identify those projects that it believes would require authorizing language changes to be able to advance the goals of the LMRCMS as early as possible in the study process and notify Congress and the public as early as possible including through the required annual reports to Congress.

2. Operationalization and Governance

TNC believes that the success seen in the Upper Mississippi River Basin has been made possible because of a systemic, geographic program with an implementing organization, the Upper Mississippi River Restoration Program and the Upper Mississippi River Basin Association, created on the heels of a similar study and planning effort for the Upper Basin. We urge the Corps to consider what structure and programmatic needs will be necessary to operationalize this study at its conclusion and to embed the results and needs identified for the LMR beyond the five-year study timeframe.

3. Real Estate

In order to successfully execute measures within the LMRCMS, it is imperative that the Corps and this Project Delivery Team confront real estate challenges on private land in the LMR. We recommend that the Corps take steps to effectively modify and simplify the path to accepting less than full fee title acquisition in anticipated Real Estate guidance, Chief's Reports and Project Partnership Agreements as relevant for the LMRCMS. For example, the Corps could establish easements as a standard estate option to reflect the needs and realities of private landowners on the LMR and reduce risk of landowner opposition to proposed projects within the Comprehensive Study. We encourage approval of such estate issues to be shifted to the District, rather than Headquarters, to improve efficiency and to reflect District familiarity with local issues and laws.

Acquisition of land rights less than fee title for beneficial use, ecosystem restoration and mitigation projects is fully supported under existing Corps real estate guidance. Corps E.R. 405-1-12, Section 12-9(a) states that it is Corps policy to "acquire, or to require a non-Federal sponsor to provide, the **minimum interest** in real property necessary to support a project," while Section 12-9(b)(6) provides that fee title is generally required for "fish and wildlife mitigation lands, ecosystem restoration, and other environmental purposes. However, a lesser, or easement estate, may be appropriate based on the extent of interest required for the operation or requirements of a project."

Yet, requests for a non-standard estate require Headquarters approval and are subject to lengthy negotiations that can effectively stall or kill projects. In cases where full title fee acquisition is impractical and not reasonably needed, this practice will continue to result in costly delays and impediments to measures and projects authorized for the benefit of communities and national resources

This issue is critical to the LMR Comprehensive Study, given that much of the active floodplain in the Lower Mississippi River is privately held. To achieve widespread conservation and restoration, the Corps must be able to partner effectively with landowners who are committed to maintaining their investment in these lands long term. Many of these entities are more than willing to allow for conservation and restoration to occur on their land and will give the necessary land rights, sometimes at no cost. But these landowners are often not willing to sell their land, making the Corps' standard requirement for acquiring all project lands in full fee title impracticable.

In addition to addressing the non-standard estate challenge as this study progresses, the Corps should develop a standard working agreement or MOU with NRCS and other relevant agencies to access and construct on property held in easement by those agencies for Corps purposes including flood risk management and ecosystem restoration.

Incorporate existing findings, initiatives, and stakeholders

- 1. Incorporate findings from other Corps initiatives, including the Atchafalaya SRP, the Hatchie-Loosahatchie Ecosystem Restoration Feasibility Study, and the Lower Mississippi River Resource Assessment (LMRRA).
- 2. Coordinate and align with other initiatives in the LMR, including planned Corps ecosystem restoration feasibility studies, the Lowermost Mississippi River Management Program, and the developing Atchafalaya National Estuarine Research Reserve.
- Engage with stakeholders, technical experts, and resources outside of the Corps, including organizations like TNC, the Lower Mississippi River Conservation Committee (LMRCC), the Louisiana Coastal Protection and Restoration Authority (CPRA), Mississippi Department of Marine Resources (MDMR), Arkansas Game and Fish Commission (AGFC), University of Louisiana at Lafayette and more.
- 4. Utilize tools such as the TNC <u>Floodplain Prioritization Tool</u> and the TNC Freshwater Resilient and Connected Network (soon to be released) to prioritize reaches for the purposes of floodplain connectivity, restoration, flood risk reduction and more. The Nature Conservancy developed the Floodplain Prioritization Tool to identify critical opportunities for floodplain conservation and restoration in the Mississippi River Basin. Working with data developed by TNC and provided by several partners, the Tool is designed to help identify places where these actions would have the greatest impact on the overall health of this iconic river system. The tool is interactive, web-based and designed to help decision-makers optimize their conservation and restoration investments and minimize the impacts of development.
- 5. Consult relevant published research and models including:
 - a. "Improving ecosystem health in highly altered river basins: a generalized framework and its application to the Mississippi-Atchafalaya River Basin" (McLellan et al. 2024)
 - b. The Old River, Mississippi River, Atchafalaya River, and Red River (OMAR) Technical Assessment
 - i. Findings from OMAR should be broadly communicated and applied to this study.
 - c. MRP&G Study No. 28 on predicted precipitation
 - d. Climate data from the most recent (CMIP6) climate models
 - e. MRG&P Report No. 9 on the Merriwether-Cherokee Potamology Study for examples of reforestation as a solution for channel resilience
 - f. Office of Management and Budget "Guidance for Assessing Changes in Environmental and Ecosystem Services in Benefit-Cost Analysis"
 - g. Conservation Plan for the Interior Least Tern, Pallid Sturgeon, and Fat Pocketbook Mussel in the Lower Mississippi River (Endangered Species Act, Section 7(a)(1))
 - h. State Wildlife Action Plans
 - i. TNC OysterFlows Tool

In conclusion, TNC remains committed to supporting the Corps in its efforts to advance the LMRCMS and promote holistic, systems-based, and resilient management of the Lower Mississippi River. We stand ready to collaborate and provide expertise as the study progresses.

Thank you for considering our detailed recommendations. We look forward to continued engagement and collaboration on this exciting and critical endeavor.

Sincerely,

Halfridd dh

Hannah Amsterdam Cohen

Senior Policy Associate, Mississippi River Basin Floodplain

The Nature Conservancy

Letter ID: 190 Name: Thornman, Vanessa Org/Agency/Company: -

Nothing has been done on the river here, its all been temporary. Even when it broke, it wrecked havoc even eastward into illinois. Every town down here, all the towns along the river, are effected. They used to tell us that messing with the Mighty Mississippi even just a bit would upset the system. The fishing used to be much better here, and now theres an imbalance in the ecosystem. It became a way of life to experience flooding and to deal with the flooding issues. There is alot of pollution in the Mississippi, and the ecosystems are not the same they used to be. Migratory neotropical birds dont migtrate in this area like they used to. My biggest concern is with the ecosystem. There was little to no activity on the river, until the american barges showed up, and the locals are sued to watching the barges and we enjoyed it. The locals are upset over the intentions of the past that never came to fruition. Streets are caving in and the ground is soft from the high water table. I have to have a centrifigual pump to pump the water put from my basement. There used to be three pump stations in the town, one on the end of town going south, one in main street, and another next to the boat ramp by the Fine Arts center. We cannot handle the overflow. The infrastructure is damaged from the flooding, and some infrastrure is outdated. The locals have a evacuation plan for when they are expecting a flood, and there were many mitigation efforts that never came to anything. We get little to no assistance in this town. The community has little to no trust in the promises made when it comes to assistance. Wildlife are moving into the residential areas and it is assumed that the wildlife are migrating due to the habitats being effected from constuction and work going on with the levee. People in the town arent able to mitigate the animals due to conservation laws. Local officials can only do so much with the wildlife being in the residential areas as well.

Letter ID: 13 Name: Trapani, Cary Org/Agency/Company: -

My name is Cary Trapani. I'm a lifelong resident of the Mississippi Gulf Coast. I lived through the results of the opening the Bonnet Carré Spillway to relieve pressure on the flooding Mississippi River, to the aspect of vegetation, marine life, estuaries who were all killed and destroyed, as well as the beaches closed due to mold spores and pollution from the river. Not only that, but then the swarms of flies that covered our houses that couldn't be pressure washed, that ruined the value of our properties that we live on the water, to the aspect of I literally wanted to move away from my house on the water on a Bayou that I catch fish and enjoy every single day of my life. I can appreciate that the relief of the floodwaters on the Mississippi River need to be done, but the solution of dredging the natural tributary of the Mississippi River at South Pass to relieve the pressure of the water from all spots north, is a recommendation that I feel would be a solution. The Mississippi River Breton Sound Diversion Project is also another Corps of Engineers' plan that I'm truly opposed to. And, again, the solution to relief of the Mississippi River at Port Ease and other spots further south. Putting up jetties to rebuild lost marshland down there would be a better solution than trying to build artificial marshland. Thank you. Letter ID: 129 Name: Trent, Brad Org/Agency/Company: -

My concern is the water quality in Mississippi Sound. If more water was diverted down the Atchafalaya river, Mississippi Sound could support more seafood and recreation. I.E. The oyster population is completely devastated by the unnatural diversion of the Mississippi river. Years ago before the Corp diverted the water into MS Sound there was plenty of oyster beds and gamefish in the Sound. The river could be deep dredged to support the industry along the river. The Atchafalaya river basin is the natural course of the river at this time. I'm not suggesting stopping the flow of the MS river, simply diverting a percentage of water down the Atchafalaya to improve the water quality in the Sound.

Re: Lower Mississippi River Comprehensive Management Study

The Tulane Institute on Water Resources Law & Policy appreciates the opportunity to submit these comments on the public scoping phase of the Lower Mississippi River Comprehensive Management Study. The Institute recognizes the importance of this Study for the future management decisions along the Mississippi River. As water-related challenges continually arise with the changing climate, the rights and responsibilities that surround water management must have a renewed focus as the Mississippi River Commission embarks on this Study. The following comments highlight some of those pressing matters.

1. Water Availability

Congress outlined the main objectives for the LMR Comp Study in the Water Resources Development Act of 2020, listing hurricane protection and storm damage reduction, navigation, ecosystem restoration, water supply, hydropower, and recreation. All important, no doubt. Based on the recent public scoping meetings, the Study's project managers have indicated that the primary objectives are navigation, flood control, and environmental enhancement. Yet it is still unclear how water supply fits in with the study: water supply for whom? For what? For when? The LMR Study should address this.

Water supply cannot be relegated to a secondary priority or tiered off in a subsequent study. A sufficient water supply is a precursor to all other things, no matter how the "who," "when," and "what" questions are answered. Ongoing saltwater intrusion, compounded by continued sea level rise, show just how critical it is for the Army Corps to understand how much water is needed to keep the Gulf of Mexico from compromising the needs of those communities that rely on the lowermost end of the Mississippi River. To create a working understanding of the Lower River's water budget, the MRC must study and attempt to quantify public use, industrial use, existing rights and uses, and projected future needs.

a. Public Supply

If the compromised drinking water intakes in Plaquemines Parish and continued threats to greater New Orleans' water supply have not already prompted more comprehensive river

management considerations, this Study must be a vehicle to prioritize such issues. We appreciate the financial constraints and deadlines the MRC must abide by in undertaking the large task that is the LMR Study. Nevertheless, there are several items that should be included in such a study that has a directive to consider water supply.

Public water supply must be a primary consideration even if it is not the primary focus of this Study. This is a foundational principle of American water management, particularly where interstate waters are involved. The United States Supreme Court perhaps put it best in its ruling in *Connecticut v. Massachusetts* when it said "[d]rinking and other domestic purposes are the highest uses of water. An ample supply of wholesome water is essential."¹ This Study carries implications for industrial, agricultural, and public drinking water systems that will steer plans and programs for generations. If those uses, many of which are grounded in legal rights and mandates under state laws (discussed in more detail below), are not brought to the table, they cannot be balanced alongside the other main objectives of the study. It is vital to keep in mind that it is a river that many are planning for and not just narrow suite of uses. We deeply appreciate that the Corps will use its existing authorities as a lens to scope this Study and develop recommendations based on it, but to fail to embrace these other needs up front could lead to a Study that, regardless of how well intended and well conducted, is ultimately self-defeating.

We would also like to note that there is a fundamental inconsistency between the geographic scope of the Study and its goal of comprehensive management of the Lower Mississippi River. While we are sure you are more aware of this than anyone, the fate and future of the LMR is impossible to understand without understanding the systems that feed it – the Upper Mississippi River, Ohio River, and Missouri River, in particular. The limiting impacts of that constraint need to be noted and, where possible, planned around in order for the most holistic geographic scope, range of information, and array of authorities to be brought to bear on the Study. At the least, a basic understanding of how these systems contribute to and impact Lower Mississippi River flows must be incorporated into the Study.

b. Understanding Existing Industrial Uses and Future Demand

State officials and business leaders continue to make major decisions that will shape future uses of the river for decades to come. Manufacturing demands are changing to speed the energy transition, and new technological industries are experiencing an era of rapid growth. As artificial intelligence and other emerging fields continue to boom, the demand for water will also boom. A remarkable amount of water is needed for cooling at these facilities. For example, water used for cooling at data centers in West Des Moines accounted for six percent of water use in the district. There are additional data centers slated to be built in the area, as well as in

¹ Connecticut v Massachusetts, 282 U.S. 660, 673 (1931).

Cedar Rapids. It's not just Iowa. In Mississippi, state legislators recently approved an incentive package for Amazon Web Services to build two large data centers near Jackson.² Growing water demand will continue to pose challenges, not only in the communities where these centers operate, but also for larger watershed planning.

In addition to the tech industry, ExxonMobil has proposed constructing a lithium mine in Arkansas near the border with Louisiana and the Red River.³ With mining comes intensive water demand. Unlike the issues associated with data centers, mining operations generate a lot of wastewater – and with it, a lot of polluted water. Demand for these minerals will continue to grow as the race to produce domestically grows.

The Corps cannot expect to have a comprehensive understanding of available water and future supply without cooperative management and data sharing from the states. At the least, there would be immense value in establishing a process for cooperation with state water agencies to share data on surface water and groundwater withdrawals.⁴ No (reliable) assumptions can be made without fully understanding the number of existing users and future plans for development. We also feel compelled to stress that, in the process of developing a "river budget," it is not just water availability that is a concern. The amount of sediment carried by the river is of key importance for uses in coastal projects. Without an understanding of a water budget and a sediment budget in the river, it is difficult to plan for any of its many uses.

c. Existing Legal Rights to Mississippi River Water

As water demand continues to increase in the Mississippi River Corridor, the Army Corps cannot afford to overlook existing water rights. In particular, there must be a working understanding of federal reserved water rights for Native American tribes, as well as riparian rights of property owners through the MR&T.

When Congress reserves land for a particular purpose, it also impliedly reserves sufficient water to fulfill the purpose of the reservation.⁵ There are at least twenty-nine federally recognized tribes that reside in the ten states of the Mississippi River Corridor, many of which reside on reservations in close proximity to the main stem, and several more in proximity to the waters in the MR&T that feed the main stem.⁶ Tribes in the Eastern United

² Emily Wagster Pettus, *Mississippi Legislators Approve Incentives for 2 Large Data Centers by Amazon Web Services*, AP NEws (Jan. 25, 2024), <u>https://apnews.com/article/mississippi-data-centers-a143ba6970a4e1ff401f5463f2cd80a8</u>.

³ ExxonMobil Corp. News Release, *ExxonMobil Drilling First Lithium Well in Arkansas, Aims to be A Leading Supplier for Electric Vehicles by 2030*, (Nov. 13, 2023), <u>https://corporate.exxonmobil.com/news/news-releases/2023/1113</u> exxonmobil-drilling-first-lithium-well-in-arkansas.

⁴ Not all states in the LMR have permitting regimes to quantify water use. The Corps should work with those states that do not regulate withdrawals to better understand existing and projected future demands. ⁵ Winters v. United States, 207 U.S. 564 (1908).

⁶ Bureau of Indian Affairs Tract Viewer, *Mapped Lands in Indian Country*, <u>https://biamaps.geoplatform.gov/biatracts/</u> (accessed Apr. 2, 2024).

States have not yet asserted federal reserved rights, as has been seen in the Western United States. However, worsening drought along with increasing demands are creating the conditions which would raise that necessity. The MRC should keep the water needs, indeed rights, of tribes at the forefront of its planning process. Furthermore, federal reserved rights do not just apply to federally Native American tribes. They extend to all congressional reservations of land, which also include National Wildlife Refuges. Just earlier this year, the U.S. Fish and Wildlife Service asserted federal reserved water rights with respect to water levels in the Okefenokee National Refuge.⁷ It is likely these legal issues will increasingly arise in the coming years as water resources in the Mississippi River system become more strained in the changing climate. The MRC should view this study as an opportunity to incorporate these considerations into its project and programmatic recommendation process.

There are also long-established, legally protected uses by riparian landowners throughout the Study area. Riparianism, the foundation for water law in the Eastern United States, shapes state water management and allocation and impacts the cost and planning of MR&T work. Though there is little federal oversight in state riparian regimes, the MRC must have a comprehensive understanding of existing riparian rights and established uses in the varied state water law regimes.

Next, the Corps must be aware of the legal implications of sea level rise and tidally influenced waters on federal jurisdiction and public rights in the Study's area. For example, as tidal influence expands, it will carry with an expansion of admiralty jurisdiction and the reach of such laws as the Clean Water Act and the Rivers and Harbors Act of 1899 since tidal areas are deemed navigable by law.⁸

2. Water Quality Concerns

Beyond a basic demand for sufficient water to meet needs for public use and to support navigation, a certain quality of water must be maintained to ensure successful implementation of other Army Corps missions and objectives for this Study. Water quality is increasingly a boundary condition in how we design and operate flood control and environmental enhancement projects. In particular, there are ecological concerns of polluted water in river management, particularly with respect to diversions. Poor quality of water used for projects can expose projects to liability under related federal or state law. These pollution concerns could prompt changes to operating protocols for flood control projects, as evidenced by legal challenges relating to the aftermath of the 2019 openings of the Bonnet Carré Spillway alleging

⁷ Russ Bynum, *Mining Company Can't Tap Water Needed for Okefenokee Wildlife Refuge, U.S. Says*, PBS (Mar. 4, 2024), <u>https://www.pbs.org/newshour/nation/mining-company-cant-tap-water-needed-for-okefenokee-wildlife-refuge-u-s-says</u>.

⁸ See The Propeller Genesee Chief, 53 U.S. 443, 455 (1851) (expanding admiralty jurisdiction beyond tidal waters to waters that are navigable in fact. Prior to that, admiralty jurisdiction was confined to waters subject to the ebb and flow of the tide—which included the Mississippi River at New Orleans.). Peyroux v. Howard, 32 U.S. 324 (1833).

the Army Corps violated its duties under the Marine Mammal Protection Act.⁹ Other recent lawsuits challenging water projects, specifically the Mid-Barataria Sediment Diversion in Plaquemines Parish, raise similar concerns under the National Environmental Policy Act and Endangered Species Act.¹⁰ Growing concerns over water quality will continue to shape public perception and concern over diversions and emergency flood control operations.

Nutrient runoff, PFAS contamination, and other agricultural and industrial pollution persist in the Mississippi River corridor. Though the Corps does not have the authority to regulate water pollution in the river, it must consider the impacts of water pollution on human and natural communities and ecosystems that may be impacted by the operation of authorized navigation, flood control and ecosystem enhancement projects. If these types of pollution and their major sources are not addressed throughout planning in the MR&T, use of the river in flood management and environmental enhancement projects could be further compromised and vulnerable to legal challenge. If anything, the agency must be considering procedural changes to meet growing concerns of water quality for public projects as they impact related ecosystems and communities. It will be crucial for the MRC and its districts to continue to work with stakeholders as it takes on more large-scale water management projects.

Finally, as the MRC begins the important but challenging work of studying groundwater usage and its impacts on the Lower Mississippi River, it will need to understand the water quality implications. There is the potential for groundwater pollution to move into surface water, which could compromise the usability of the river. Surface water pollution can also spread to vital groundwater sources, compromising their important use. Alongside concerns of groundwater depletion in the Midwest, there is broadening concern of the contamination impacts of groundwater rise, particularly in coastal regions.¹¹ Along the main stem in particular, ongoing issues with saltwater intrusion continue to threaten water quality in Baton Rouge's Southern Hills Aquifer.¹² The numerous opportunities and issues surrounding groundwater should be accounted for at the onset of this Study.

3. Accounting for Changes in Federal Environmental Law

The changing landscape in federal environmental law in the United States must be addressed as we embark upon this long-anticipated LMR Study to understand and address emerging challenges along the Mississippi River. The impacts of the recent United States

⁹ Complaint, Harrison Co. v. U.S. Army Corps of Engineers, (S.D. Miss. 2024), *available at* <u>https://bloximages.newyork1.vip.townnews.com/nola.com/content/tncms/assets/v3/editorial/1/4c/14c10a1e-b97b-11ee-a71e-fb68aab9e061/65aef5c87be98.pdf.pdf</u>.

¹⁰ Complaint, Jurisich Oysters, LLC v. U.S. Army Corps of Engineers, (E.D. La. 2024), *available at* <u>https://www.earthisland.org/assets/immp/midBaratariaSedimentComplaint.pdf</u>.

¹¹ Julia Kane et. al., *Rising Groundwater Levels are Threatening Clean Air and Water Across the Country*, GRIST (Mar. 29, 2023), <u>https://grist.org/cities/what-it-means-groundwater-is-rising/</u>.

¹² David J. Mitchell, *Baton Rouge Drinking Water has its Own Problem With Salt Intrusion*, THE ADVOCATE (Oct. 2, 2023), <u>https://www.theadvocate.com/baton_rouge/news/salt-continues-slow-contamination-of-baton-rouge-fresh-water/article_3765ecfe-5f0a-11ee-ae5d-5330359c4f23.html</u>.

Supreme Court decision in *Sackett v. Environmental Protection Agency* severely restrict the Corps' jurisdiction over wetlands and streams under the Clean Water Act, which will undoubtedly impact development patterns in the Mississippi River's floodplains. The majority's decision indicates that the presence of levees and other man-made infrastructure would preclude jurisdiction over such wetlands.¹³ If one can now build up to the levee, how will that impact maintenance and project work? What are the flood risk implications? These questions are critical to address, especially considering their direct impact on storm damage reduction and flood risk, the first purpose listed in this Study's congressional authorization.

Recent changes to the National Environmental Policy Act warrant consideration. Last year, Congress passed amendments to the NEPA review process that limit various aspects of the review.¹⁴ If the recent lawsuits arising out of diversions and spillway openings are any indication, now is not the time to lessen environmental scrutiny. As such, the Corps should ensure that present and future reviews consider the maximum suite of environmental considerations allowed by law. Moreover, the Army Corps' own approaches to planning projects are changing, as exemplified by their pending updates to their Agency Specific Procedures. While those may not be in force at the moment, they likely will be soon, and it should be made clear if and how such changes will impact the Study and other ongoing investigations.

Conclusion

The opportunity presented by the Lower Mississippi River Comprehensive Management Study cannot be understated. It will give MRC the foundation to guide future work along the Mississippi River and its tributaries. Though there is a seemingly endless number of important considerations that cannot all be addressed in this first study, it is crucial that the urgent considerations of water supply are incorporated into its basic assumptions. If LMR Project Management would like any assistance with these matters throughout the Study's duration, we at the Institute are happy to help. Thank you for the opportunity to share these comments.

Sincerely,

Haley Gentry, Senior Research Fellow Mark Davis, Affiliated Faculty Tulane Institute on Water Resources Law & Policy 6329 Freret St. New Orleans, LA 70118 Phone: (504) 865-5847 Email: <u>hgentry@tulane.edu</u>

¹³ Sackett v. Env't Prot. Agency, 598 U.S. 651, 726 (2023) (Kavanaugh, J., concurring).

¹⁴ See Council on Env't Quality, Amendments to NEPA from the Fiscal Responsibility Act of 2023, <u>https://ceq.doe.gov/laws-regulations/fra.html</u> (last visited Apr. 1, 2024).

Letter ID: 75 Name: Tyson, Will Org/Agency/Company: -

Long story about this — this goes back to, I guess, 2011. Joey Windham, I think, cherry-picked the pieces of this study from the 1980s. Joey is out of MVD Vicksburg. It's a study of the Atchafalaya Basin. It touches on a whole lot of comments that a lot of folks had in here earlier, but at one of the charettes, they talked about doing nothing — "What if we continue to do the same?" If we continue to do the same, the Basin is going to silt in and, you know, your discharge capacities are shrinking.

You have to look at the Basin in its entirety. I understand that the Basin is 25 miles wide. It has two 2,000 foot wide openings at the bottom, one at the Atchafalaya River in Morgan City, the other at the Calumet Cut. Everyone is talking about changing the 70/30s. The 70/30s absolutely have to be changed. You also have to look at the trigger operation on the Morganza control. The trigger used to be 1.5 million cubic feet per second on the Red River landig. I think they opened it and it was 139 or 1.4 million cubic feet per second, but at the end of the day, the Atchafalaya Basin is, again, 25 miles wide. We need to accelerate the flows on the upper end in Concordia Parish. We have three structures there plus a hydroplant. Those percentages need to be changed and we need to take a look at putting in training dikes at the bottom to open the channels back up to where we can get the water out. If the water doesn't get out of the Basin, it goes on a stand because it's such a volume that comes down there and the openings are so narrow at the bottom. In this study, some of the cherry-picked pieces start talking about changing the flows. I don't necessarily agree with all of those, but one of the solutions to the problem to make the entire region — everybody from Pointe Coupee south and inside the Basin — is to widen the Calumet Cut. I think that does it. That's pretty much my comment.

Letter ID: 221 Org/Agency/Company: U.S. Department of Agriculture

The pervasive depletion of groundwater in the Mississippi River Valley alluvial aquifer (MRVAA), combined with changing weather patterns attributable to climate change highlight the need to support water sustainability in regions such as the Upper Mississippi Embayment (UME) that are relatively "water rich." Given the wealth of water resources within the UME, a holistic approach may be most effective, considering groundwater and surface water together in an integrated water resources management framework that incorporates social and economic well-being. The Lower Mississippi River Comprehensive Management Study, given its objective to identify recommendations of actions for the comprehensive management of the basin for multiple purposes, provides an opportunity to consider how surface water can be managed to best support stressed groundwater resources in the region. The MRVAA provides the majority of irrigation water for agriculture in the region, and other aquifers provide substantial drinking water and industrial water supplies.

The U.S. Department of Agriculture, Agricultural Research Service (USDA-ARS) has conducted research for decades addressing water sustainability in the UME. I am leading a managed aquifer recharge (MAR) project to assess feasibility of enhancing recharge to the MRVAA by combining riverbank filtration with groundwater transfer and injection, which has included close collaboration with the Vicksburg District of the U.S. Army Corps of Engineers (USACE) (https://www.mvk.usace.army.mil/Media/News-Releases/Article/2653681/usace-usda-ars-host-ribbon-cutting-for-pilot-groundwater-project/). Surface water can serve as the source water for effective MAR projects to support sustainability in the region. Other MAR research includes testing vadose-zone recharge wells (dry infiltration wells) as an on-farm technology to increase aquifer recharge, which potentially could be combined with other agricultural conservation practices such as sediment basins and constructed wetlands. Our Long-Term Agroecosystem Research program assesses farm-management strategies in the Lower Mississippi River Basin, addressing water quality and availability, erosion and sedimentation, and ecosystem health challenges to agricultural and economic sustainability (https://ltar.ars.usda.gov/sites/lmrb/).

A pressing need exists for studies on approaches to integrated water resources management in the UME. The Lower Mississippi River Comprehensive Management Study could help identify synergies between surface water and groundwater management infrastructure and activities, complementing ongoing work by USACE, USDA, U.S. Geological Survey, and numerous state and local agencies.

Letter ID: 70 Org/Agency/Company: U.S. Fish and Wildlife Service

See attached letter.



United States Department of the Interior

FISH AND WILDLIFE SERVICE 200 Dulles Drive Lafayette, Louisiana 70506



April 19, 2024

Colonel Cullen Jones District Engineer U.S. Army Corps of Engineers 7400 Leake Avenue New Orleans, Louisiana 70118

Dear Colonel Jones:

The U.S. Fish and Wildlife Service (Service) participated in the U.S. Army Corps of Engineers' (USACE) Lower Mississippi River Comprehensive Management Study (LMR Comp Study) public scoping meetings. The LMR Comp Study is a 5-year, \$25,000,000, mega study that will evaluate alternatives for ensuring effective long-term management of the Mississippi River from Cape Girardeau, Missouri, to the Gulf of Mexico. The study would involve re-examining and re-envisioning all aspects of the operation and management of the lower Mississippi River and Tributaries (MR&T) system in an adaptable, resilient, and sustainable manner. The USACE LMR Comp Regional Study Team will conduct a study of the LMR basin for the purposes of hurricane and storm damage reduction, flood risk management, structural and nonstructural flood control, floodplain management strategies, navigation, ecosystem and environmental restoration, water supply, hydropower production, recreation, and other purposes as determined by the Secretary of the Army. The study area encompasses seven states: Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee. See Figure 1 for a map of the Study Area.

The following comments are provided as an early planning aid in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321 et seq.), and the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 661 et seq.). This letter reflects the Service's Southeast Region Ecological Services (ES) and National Wildlife Refuge's collective comments from Arkansas, Kentucky, Louisiana, Mississippi, and Tennessee.



Figure 1. Lower Mississippi River Comprehensive Management Study Area Map.

Significant Fish and Wildlife Resources to Be Considered

Threatened and Endangered Species and Other Species of Concern

The proposed study may impact federal trust resources such as threatened and endangered species, at-risk species, nesting wading birds, and bald eagles within the proposed study area. Your office will be responsible for a determination of project impacts to each of those species, any designated critical habitat, and the supporting rationale for those determinations. The Service is aware that the USACE has initiated informal consultation with the Service by obtaining a <u>list of threatened and endangered species</u> that may occur in the proposed project location from our Information for Planning and Consultation (<u>IPAC</u>) online tool on April 12, 2024 (Project Code: 2024-0076664). Your determination can be developed using <u>IPAC</u> for states that have complete Determination Keys (D-Key) available for their species. If a state does not have complete D-Keys, please reach out to the appropriate state ES¹ office or the Louisiana Ecological Services Office (LESO) for help.

¹ Points of contact for state ES offices in the Service's Southeast Region:

[•] Arkansas (870) 503-1101or jason_phillips@fws.gov

[•] Kentucky (502) 234-2832 or <u>taylor_fagin@fws.gov</u>

[•] Louisiana (337) 291-3122 or catherine_breaux@fws.gov

[•] Mississippi (601) 321-1131 or david_felder@fws.gov;

[•] Tennessee (931) 214-3215 or <u>robbie_sykes@fws.gov</u>.

The interior least tern (*Sterna antillarum*) was removed from the Federal List of Endangered and Threated Wildlife on January 13, 2021. The interior least tern is a migratory colonial waterbird that breeds, nests, and rears its young on sparsely or non-vegetated portions of sand or gravel bars located mid-stream or along the shoreline in the Mississippi, Missouri, Arkansas, Ohio, Red and Rio Grande River systems and the rivers of central Texas. On the lower Mississippi River, the interior least tern population is concentrated within approximately 500 river miles between its confluence with the Ohio River at Cairo, Illinois, and Vicksburg, Mississippi. Major threats to this species included habitat loss, human disturbance at nesting colonies, and altered water flow patterns. Because the interior least tern has been delisted, it was not included in the April 2024 IPAC species list. Although this species is no longer listed as threatened or endangered, it is currently in its post delisting monitoring period. For more information on the interior least tern's post-delisting monitoring, please contact Kelly Morris (kelly_morris@fws.gov, 601-321-1120).

Section 7(a)(1) opportunities

Section 7(a)(1) of the ESA is a conservation mandate that states, "All... Federal agencies shall ... utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species." It is a proactive authority with a goal to recover listed species. The Service recommends throughout the study process that consideration be given to the recovery of listed and proposed species. For additional species information, please reference your April 12, 2024, <u>IPAC species list</u> (Project Code: 2024-0076664) that includes links to the Species Profile Page on the Service's ECOS site.

For examples and ideas of conservation measures refer to the USACE's 2014 <u>Conservation Plan for</u> the Interior Least Tern, Pallid Sturgeon, and Fat Pocketbook Mussel in the Lower Mississippi River which was developed to help comply with Sect 7(a)(1) for those species.

At-Risk Species Opportunities

The Service's Southeast Region has defined "at-risk species" as those that are: 1) proposed for listing under the ESA by the Service; 2) candidates for listing under the ESA, which means the species has a "warranted but precluded 12-month finding"; or 3) petitioned for listing under the ESA, which means a citizen or group has requested that the Service add them to the list of protected species. Petitioned species include those for which the Service has made a substantial 90-day finding as well as those that are under review for a 90-day finding. As the Service develops proactive conservation strategies with partners for at-risk species, the states' Species of Greatest Conservation Need (defined as species with low or declining populations) will also be considered.

Opportunities to consider for reducing the likelihood of additional species listings would be actions that benefit at-risk species. See Appendix A for a list of at-risk species in the LMR Comp Study Area. For most species, the column with their common name contains a link to additional information on the species. Please utilize the links to find further information on each species and/or contact an identified Service ES Office for additional information.

Opportunities for Birds of Conservation Concern

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the Service to identify species, subspecies, and populations (hereafter taxa) of all migratory nongame birds that without additional conservation action are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973. The Birds of Conservation Concern 2021 (BCC 2021) is the most

recent effort to carry out this mandate. The Service's goal is to work with private and public entities on proactive conservation to conserve these species, thereby precluding the need to federally list as many at-risk species as possible. Table 1 lists Birds of Conservation Concern known to occur within the study area.

Species Common Name	Scientific Name
Eastern Whip-poor-will	Antrostomus vociferus
Chimney Swift	<u>Chaetura pelagica</u>
King Rail	<u>Rallus elegans</u>
Yellow Rail	Coturnicops noveboracensis
American Golden-Plover	<u>Pluvialis dominica</u>
Pectoral Sandpiper	<u>Calidris melanotos</u>
Semipalmated Sandpiper	<u>Calidris pusilla</u>
Lesser Yellowlegs	<u>Tringa flavipes</u>
Least Tern	<u>Sternula antillarum</u>
Little Blue Heron	<u>Egretta caerulea</u>
Swallow-tailed Kite	<u>Elanoides forficatus</u>
Red-headed Woodpecker	<u>Melanerpes erythrocephalus</u>
Wood Thrush	<u>Hylocichla mustelina</u>
LeConte's Sparrow	<u>Ammospiza leconteii</u>
Henslow's Sparrow	Centronyx henslowii
Rusty Blackbird	<u>Euphagus carolinus</u>
Prothonotary Warbler	Protonotaria citrea
Kentucky Warbler	<u>Geothlypis formosa</u>
Cerulean Warbler	<u>Setophaga cerulea</u>
Prairie Warbler	<u>Setophaga discolor</u>

Table 1. Birds of Conservation Concern in the Mississippi Alluvial Valley Region.

Significant Habitats

Coastal marshes, swamp, bottomland hardwood forest (wet and dry), riparian zone, stream water bottoms, and other habitats are considered by the Service to be resources of national importance due to their increasing scarcity and high habitat value for fish and wildlife within Federal trusteeship (i.e., migratory waterfowl, wading birds, other migratory birds, threatened and endangered species, at-risk species, and interjurisdictional fisheries).

The Service's Mitigation Policy (Federal Register, Volume 46, No. 15, January 23, 1981) identifies four resource categories that are used to ensure that the level of mitigation recommended by Service biologists will be consistent with the fish and wildlife resource values involved.

<u>Resource Category 1</u> - Habitat to be impacted is of high value for evaluation species and is unique and irreplaceable on a national basis or in the ecoregion section. The mitigation goal for this Resource Category is that there should be no loss of existing habitat value.

<u>Resource Category 2</u> - Habitat to be impacted is of high value for evaluation species and is relatively scarce or becoming scarce on a national basis or in the ecoregion section. The mitigation goal for habitat placed in this category is that there should be no net loss of in-kind habitat value.

<u>Resource Category 3</u> - Habitat to be impacted is of high to medium value for evaluation species and is relatively abundant on a national basis. FWS's mitigation goal here is that there be no net loss of habitat value while minimizing loss of in-kind habitat value.

<u>Resource Category 4</u> - Habitat to be impacted is of medium to low value for evaluation species. The mitigation goal is to minimize loss of habitat value.

The Service recommends the USACE investigate alternatives which avoid and minimize impacts to these habitats and where possible to enhance or restore them. If the below habitats cannot be avoided, mitigation will be recommended. Considering the high value of these wetlands for fish and wildlife and the relative scarcity of that habitat type, those habitat types are designated as Resource Category 2, the mitigation goal for which is no net loss of in-kind habitat value.

Coastal Marshes

Louisiana supports the largest area of coastal marsh in North America (Coleman and Huh 2004, Couvillion et al. 2017). Marsh types in the study area include fresh, intermediate, brackish, and saline marshes, and open water. Coastal marshes exhibit an increasing salinity gradient beginning with freshwater wetlands in the uppermost basins and near existing breaches along the bank of the Mississippi River, which transition into intermediate marsh, followed by brackish habitats, and then saline marshes towards the Gulf of Mexico. The marshes and waters of coastal Louisiana are high in biological productivity (Day et al. 1982). They serve as vital nursery areas for fish and shellfish (Van Sickle et al. 1976) as well as wildlife habitat (Lowery 1974a, 1974b). Those wetlands provide plant detritus to adjacent coastal waters and thereby contribute to the production of commercially and recreationally important fishes and shellfishes. Wetlands also provide valuable water quality functions such as reduction of excessive dissolved nutrient levels, filtering of waterborne contaminants, and removal of suspended sediment. In addition, coastal wetlands buffer storm surges and reduce their damaging effect to man-made infrastructure within the coastal area.

Forested Wetlands (Swamp and Bottomland Hardwood Forest)

Forested wetlands (bottomland hardwoods [BLH] and swamps) are found along the natural levees of the Mississippi River and its distributary ridges. Swamp habitat in the study area consists primarily of cypress, tupelo, and red maple. The BLH habitat consists of species such as oaks, hickories, American elm, green ash, sweetgum, sugarberry, boxelder, persimmon, honey locust, red mulberry, eastern cottonwood, and American sycamore. Swamp and BLH are valuable plant communities that provide a variety of significant benefits to wildlife including food, nesting areas, shelter, and water.

Mississippi Alluvial Valley and Gulf Coast Habitats

The coastal marshes, moist soil habitats, freshwater emergent, and forested wetlands in the Mississippi Alluvial Valley and the Gulf Coast have been identified as key waterfowl wintering habitat by the North American Waterfowl Management Plan (NAWMP), Lower Mississippi Valley Joint Venture (LMVJV), and Gulf Coast Joint Venture (GCJV). The Gulf Coast and Lower

Mississippi Valley, part of the Central and Mississippi Flyways, are some of the most important waterfowl areas in North America, providing breeding, wintering, and migration habitat for significant numbers of continental duck populations, and significant numbers of wintering and migrating geese that use both flyways. These wetlands are also among the most important habitats on the continent for breeding, migrating, and/or wintering shorebirds, wading birds, and secretive marsh birds.

The Convention on Wetlands (<u>RAMSAR</u>) is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources. Wetland habitats of the <u>Cache-Lower White Rivers</u> and <u>Catahoula Lake</u> are designated as a RAMSAR Wetland of International Importance. The Cache-Lower White Rivers is the most important breeding area for wood ducks (*Aix sponsa*) in Arkansas and one of the most important wintering areas for mallard ducks (*Anas platyrhynchos*) in North America. Catahoula Lake is the most important inland wetland for waterbirds in Louisiana.

Batture

The <u>batture</u> is the land remaining between the levees of the Mississippi River, which both provides protection to the levees and retains ecological value. The batture is a dynamic ecosystem that changes in response to the river's annual hydrologic regime. The ecological value of the batture is reflected by the high biodiversity of aquatic and terrestrial species. The LMR batture is one of the most important remaining wilderness areas in the U.S., encompassing over 2.2 million acres (Biedenharn et al. 2018). Several studies (Klimas 1998, Dwyer et al. 1997, Allen et al. 2003, and Geyer et al. 2000) indicate that the batture is important in protecting riverbanks and adjacent levees from erosion. The Mississippi River active floodplain is now 80 percent smaller than it was historically (Baker et al 1991). There is a need to restore the quality of habitat within the batture. Conservation and restoration of this important habitat will ensure its continued ecological and protective contribution to the LMR. The ecological value is further explained in the following section.

Riparian Corridors

Riparian corridors (i.e., rivers, streams, and adjacent lands) are valuable habitats for wildlife. Vegetation plays a key role in the function of riparian areas as suitable wildlife habitat. Streamside vegetation provides food and shelter for many species. The shade, detritus, and woody debris provided by streamside forests are important for healthy fisheries. Leaves, branches, and trees uprooted by rivers, streams, bayous, etc., become food and shelter for aquatic organisms and many forms of terrestrial wildlife inhabiting riparian areas. The high value of riparian areas as wildlife habitat is also due to the proximity to water combined with the convergence of many species along the edges and ecological transition zones between aquatic/wetland, aquatic/upland, wetland/upland, and river channel/backwaters habitats. Forested buffers along waterways (i.e., riparian habitat) provide unique values as an ecologically functional unit. The riparian zone is defined as 300 feet on the side of a waterway based on information provided in the North American Mink Habitat Suitability Model (Allen 1986). Loss of these riparian corridors results in habitat fragmentation, which is a major cause of wildlife decline. It is, therefore, important to maintain undeveloped and naturally vegetated corridors between habitats of a sufficient width to enable animals to travel from one habitat to another. Additionally, forested buffers (or tree screens) along the Lower Mississippi River navigation channel can decrease overbank scour during high water events; thereby providing

a benefit not only for wildlife, but for river engineering and channel maintenance as well (P. Snyder, pers. comm.).

Sandbars and Gravel Bars

Dynamic river forces form, enlarge, erode, move, and destroy sandbars and gravel bars. On established sandbars, high water removes existing vegetation and deposits new sand. Sandbars are the primary habitat component used for interior least tern nesting. Gravel bar habitats are important as spawning substrate for pallid sturgeon and other fish species. There is a need to protect and restore gravel and sand bars. The <u>Conservation Plan for the Interior Least Tern, Pallid Sturgeon, and Fat Pocketbook Mussel in the Lower Mississippi River</u> addresses management and restoration of these features and the <u>Restoring America's Greatest River</u> initiative also identifies the need to conserve and restore them.

Secondary Channels, Backwaters, and Oxbows

Secondary channels function similarly to both main channel and floodplain habitats, however, they offer greater habitat diversity compared to the main channel (Killgore 2012). There are areas within secondary channels of strong current with substrates of sand and gravel, and other areas of slack water with connections to backwaters, lakes, and oxbows. Overall habitat heterogeneity in secondary channels supports a diverse assemblage of invertebrates and fishes including the federally listed pallid sturgeon and fat pocketbook mussel.

Restoration Opportunities

National Resource Damage Assessment and Restoration

Fish, wildlife, and other natural resources can be injured when oil or hazardous substances are released into the environment. The primary benefit of the National Resource Damages Assessment and Restoration (NRDAR) Program is to achieve restoration of injured resources for the benefit of the American people. A long-term goal of the LMR Comp Study should identify restoration actions consistent with the study ecosystem purposes that could be readily available for use in or in coordination with NRDAR restoration efforts.

Operations

There are multiple diversions, siphons, and natural crevasses along the lower Mississippi River that each have their own independent operations plan. The Service recommends the USACE reviews the operation of each diversion as a congruent system to better consider the overall health of coastal Louisiana and the river in a way that optimizes ecosystem restoration and alleviates flood or draught conditions in the river. To better achieve this goal, as part of the LMR Comp Study, the Service recommends the USACE consider reauthorizing the Caernarvon and Davis Pond Diversions to remove the salinity restrictions associated with operation of the diversions.

There are several pumping stations along, or associated with, the LMR that each have their own independent operations plan. The Service recommends the USACE review the operation of each pumping station to better consider the impacts that these plans are having on the fish and wildlife habitat, specifically in areas that are impacting lands associated with a National Wildlife Refuge (NWR).

If the USACE investigates ways to improve drainage issues within the Mississippi River watershed, then the Service recommends the USACE considers a way to bypass silt-laden flood waters from the Missouri Bootheel from reaching the lake at <u>Big Lake NWR</u>. Existing infrastructure allows large amounts of silt laden water to enter the refuge during high water and flood periods which adversely impacts the lake habitat at Big Lake NWR. Changes to the lake from siltation include decreased water depths and overall habitat change from a lacustrine to marsh habitat. These changes will reduce the lake's ability to support migratory birds and fisheries, public hunting and fishing opportunities, and the refuge's ability to maintain compatibility with the purposes (management for migratory birds and waterfowl) for which the refuge was established.

Low-flow stream conditions

The Service recommends the USACE investigate ways to improve low-flow conditions to benefit fish and wildlife resources within interior streams and rivers (i.e., Sunflower River in Yazoo-Mississippi Delta). Stream and groundwater levels throughout the Mississippi Delta have shown declines over several decades due to increases in irrigation to support agricultural production, creating conditions with detrimental effects to fish, mussels, and other riverine species. Improving stream low-flow conditions could have beneficial effects to fish and wildlife resources.

Reconnect floodplains and backwaters

The Service recommends the USACE identify opportunities to reconnect the floodplain to the Mississippi River where possible, similar to the Loch Leven Project in southwest Mississippi and the Richard K. Yancey Blackhawk Scar Lakes Ecosystem Restoration and Monitoring Project (RK Yancey Project) near Vidalia, Louisiana. The Loch Leven project includes installing water control structures to increase water connectivity from the river to 4,500 acres of floodplain wetlands in addition to reforestation efforts on the property. The RK Yancey Project restored more natural floodplain hydrology to 700 acres of batture habitat, including installation of a weir and properly sized culverts on the interior of the property to provide better connectivity, fish habitat, and recreational opportunities.

The Service recommends consideration be given to returning Wapanocca Bayou back to a wildlife corridor between the Mississippi River and Wapanocca NWR. Restoration to the bottomland/riparian habitat could substantially enhance fish and wildlife resources and the refuge. The USACE has already purchased a portion of the bayou for this purpose. The Service recommends the remainder of the area be evaluated for restoration as well.

Restore Secondary Channels

The Service recommends the USACE continue efforts to restore flow through secondary channels via notching of dikes. Such <u>projects</u> already conducted by the USACE and partners have restored flows to many miles of secondary channels along the Mississippi River, thereby improving habitat for trust resources such as the pallid sturgeon and enhancing reproductive success of interior least terns and other sandbar-nesting species; along with increasing recreational fishing opportunities.

Batture Reforestation

The Service recommends the USACE explore opportunities to build on the batture reforestation initiative started by the Natural Resources Conservation Service's (NRCS) partnership with the Mississippi River Trust and Lower Mississippi River Conservation Committee. For example, through the NRCS's Wetland Reserve Enhancement Partnership program, incentives are available

to landowners to reforest cleared or open land within the "batture" in six states in the LMR floodplain.

Build on Existing Resource Assessment Plans

The Service recommends the USACE incorporate and expand on previous plans that have been developed to improve and restore habitat within the LMR. One such plan, the 2016 Lower Mississippi River Resource Assessment (LMRRA), was developed to examine river management information, habitat, and recreation; identify needs for each of these; and make recommendations for meeting those needs.

One outcome of the LMRRA was to conduct eight conservation reach habitat restoration studies on the LMR to determine if there was federal interest sufficient to justify construction of ecosystem restoration features. The Hatchie/Loosahatchie <u>feasibility study</u> currently being undertaken by the USACE Memphis District is one outcome of this effort which proposes to restore ecological structure and function along the Mississippi River including side channels and other aquatic habitats, floodplain forests; and several scarce vegetative communities including wetlands, canebrakes, riverfront forests and bottomland hardwood forests. The Service believes this is an excellent example of the outcome of the collaborative efforts of federal and state partners to achieve conservation benefits within the LMR. The Service recommends the USACE incorporate the remaining seven conservation reaches identified in the LMRRA into the LMR Comp Study.

National Wildlife Refuges

The Service administers 133 refuges encompassing more than 3,950,165.61 acres within the Southeast Region and the study area. Please reference the April 12, 2024, <u>IPAC species list</u> (Project Code: 2024-0076664) for a list of refuges that may be found within the LMR Comp study area. Refuges that were not found in the IPAC species list but maybe within the Study Area or may potentially be impacted by the LMR Comp Study can be found in Table 3. The Service recommends the USACE also consider the refuges in Table 3 in the LMR Comp study.

National Wildlife Refuge (NWR)	Location and Size
Wapanocca NWR	Near Turrell, AR; Outside and adjacent to Mississippi
	River Mainline Levee, 5,600 acres
Overflow NWR	AR; 13,973 acres
Tensas River NWR	LA; 77,868 acres
<u>Yazoo NWR</u>	MS; Yazoo-Mississippi Delta near Hollandale, 13,706
	acres
Morgan Brake NWR	MS; Yazoo-Mississippi Delta near Tchula, 7,383 acres
Hatchie NWR	TN; 11,556 acres

Table 1. National Wildlife Refuges found within the LMR Comp Study Area that were not included in the <u>IPAC species list</u> (project code: 2024-0076664).

Monitoring and Adaptive Management

The Service recommends a long-term monitoring and adaptive management plan and restoration program on the LMR be developed for the LMR Comp study. One model to consider is the <u>Upper</u>

<u>Mississippi River Restoration (UMRR) Program</u>, which integrates long-term monitoring, research, modeling, and data management to provide critical knowledge about the Upper Mississippi River's (UMRS) health and resilience. This provides a solid foundation upon which to base management actions, habitat restoration, and policy. The UMRR Program addresses long term stressors to the UMRS, such as sedimentation, increased water tables due to maintaining navigation pools during low flows and continues to effectively respond to new stressors on the UMRS, such as the invasive Asian carp. Although the UMRR is a model to consider, any long-term monitoring and restoration program would need to be tailored for the LMR and the multiple uses, particularly considering the importance of navigation and flood risk management programs.

Monitoring of the Davis Pond and Caernarvon Diversions indicated that some contaminants were being introduced into the receiving areas from the Mississippi River; however, the full extent of any impacts to fish and wildlife are unknown. To address potential impacts of future contaminants resulting from LMR Comp Study projects on fish and wildlife resources, the Service recommends that a Monitoring and Adaptive Management Plan be developed and implemented as part of the LMR Comp Study to conduct monitoring of fish, shellfish invertebrates, and sediments from outfall areas and the Mississippi River. That plan should also implement corrective actions if monitoring indicates that contaminants from the river are causing significant impacts to project-targeted areas.

The USACE and the Service have formally committed to work together to conserve, protect, and restore fish and wildlife resources while ensuring environmental sustainability of our Nation's water resources under the January 22, 2003, Partnership Agreement for Water Resources and Fish and Wildlife. Accordingly, the Service looks forward to our continued work on the LMR Comp Study. Comments and responses to this early planning aid letter can be directed to the Louisiana Ecological Services Office (LESO) as the lead office on this study. In addition, please also submit requests and comments directly to each state's ES office, as appropriate. We appreciate the cooperation of your staff on the LMR Comp Study. Should your staff have any questions regarding this letter, please have them contact Mrs. Brigette Firmin (337-291-3108) of this office.

Sincerely,

Jeffrey D. Weller Program Supervisor Alabama, Arkansas, Louisiana, Mississippi Southeast Region

cc:

FWS, Conway, AR FWS, Jackson, MS FWS, Cookeville, TN FWS, Refuges, Atlanta, GA FWS, Fisheries Conservation Office, Baton Rouge, LA FWS, Gulf Restoration Office, Fairhope, AL FWS, Migratory Birds Program, Atlanta, GA

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Appendix A

Table of At-Risk Species for t	ne Lower Mississippi River	Comprehensive Study
1	11	1 2

Species Common Name	Scientific Name	Таха	Location
Cumberland dusky salamander	Desmognathus abditus	Amphibians	TN
Gopher frog	Lithobates capito	Amphibians	TN
Streamside salamander	Ambystoma barbouri	Amphibians	KY, TN
Golden-winged warbler	Vermivora chrysoptera	Bird	AR, KY, LA, MS, TN
Coastal (Wayne's) black-throated green warbler	Setophaga virens waynei	Birds	MS, LA, AR, TN, KY
Yalobusha rivulet crayfish	Hobbseus yalobushensis	Crayfish	MS
Tennessee bottlebrush crayfish	Barbicambarus simmonsi	Crayfish	TN
Barrens darter	Etheostoma forbesi	Fish	TN
Lake Sturgeon	Acipenser fulvescens	Fish	AR, KY, LA, MO, MS, TN
Piebald madtom	Noturus gladiator	Fish	MS, TN
Striated darter	Etheostoma striatulum	Fish	TN
Tuscumbia darter	Etheostoma tuscumbia	Fish	TN
Yazoo darter	Etheostoma raneyi	Fish	MS
Acute elimia	Elimia acuta	Freshwater Snail	TN
Corpulent hornsnail	Pleurocera corpulenta	Freshwater Snail	TN
Elegant elimia	Elimia teres	Freshwater Snail	TN
Spider elimia	Elimia arachnoidea	Freshwater Snail	TN
Spiny riversnail	lo fluvialis	Freshwater Snail	TN
American bumble bee	Bombus pensylvanicus	Insect	AR, KY, LA, MS, TN
Monarch butterfly	Danaus plexippus	Insect	AR, KY, LA, MS, TN
Schoolhouse Springs leuctran stonefly	<u>Leuctra szczytkoi</u>	Insect	LA
Southern plains bumble bee	Bombus fraternus	Insect	AR, KY, LA, MS, TN
Variable cuckoo bumble bee	Bombus variabilis	Insect	AR, LA, MS, TN
Linda's Roadside Skipper	Amblyscirtes linda	Insect	AR, KY, LA, MO, MS, TN
Blueridge springfly	Remenus kirchneri	Insects	TN
Cherokee clubtail	Gomphus consanguis	Insects	TN
Edmund's snaketail	Ophiogomphus edmundo	Insects	TN
Frosted elfin butterfly	Callophrys irus	Insects	AR, KY, LA, TN
Loopy five firefly	Photuris forresti	Insects	TN
Margarita River skimmer (Mountain River cruiser)	Macromia margarita	Insects	TN

Species Common Name	Scientific Name	Таха	Location
Sevier snowfly	Allocapnia brooksi	Insects	TN
Smokies needlefly	Megaleuctra williamsae	Insects	TN
Tennessee forestfly	Amphinemura mockfordi	Insects	TN
Little Brown Bat	Myotis lucifugus	Mammal	AR, KY, LA, MO, MS, TN
Tricolored bat	Perimyotis subflavus	Mammals	MS, LA, AR, TN, KY
<u>Alabama rainbow</u>	Villosa nebulosa	Mussel	TN
Coosa creekshell	Villosa umbrans	Mussel	TN
Green floater	Lasmigona subviridis	Mussel	TN
Alabama hickorynut	Obovaria unicolor	Mussel	MS, LA
Alabamas spike	Elliptio arca	Mussel	MS, TN
Western fanshell	Cyprogenia aberti	Mussel	MS
Carolina hemlock	Tsuga caroliniana	Plants	TN
Godfrey's stitchwort	Minuartia godfreyi	Plants	TN
Harper's fimbristylis	Fimbristylis perpusilla	Plants	TN
Ten-lobed foxglove	Agalinis decemloba	Plants	KY, TN
Tennessee pondweed	Potamogeton tennesseensis	Plants	TN
Eastern diamondback rattlesnake	Crotalus adamanteus	Reptile	LA, MS
Western chicken turtle	Deirochelys reticularia miaria	Reptile	AR, LA, MS
Bog turtle, southern population	Glyptemys muhlenbergii	Reptiles	TN
Correll's false dragonhead	Physostegia correllii	Vascular Plant	LA

Letter ID: 183 Name: Vebardeleben, Nonnie Org/Agency/Company: -

I am speaking on behalf of the Gulf Islands Conservancy, and they're concerned with the ecosystems and the health of all the Gulf Islands along the Mississippi Gulf Coast and the detrimental affect of the floodwaters of the Mississippi River. We think it's paramount that the Corps looks at the opening of the spillways, that something has to be done. The law that they're using is 200 – a hundred years old, and it totally needs to be reevaluated. And they need to look at releasing floodwaters earlier in the system. They also need to look at the pollutants that are coming down the river, both farm and industrial. When it ends up at the mouth of the Mississippi River and into the Mississippi Sound, it affects not only land animals but extensive sea life and results in the death of, as we know, we have no oysters left on the Mississippi Gulf Coast. We will submit further written comments. Thank you.

Letter ID: 225 Org/Agency/Company: Venice Port Complex

This correspondence serves as written public comments on behalf of The Louisiana Fruit Company DBA the Venice Port Complex regarding the ongoing Lower Mississippi River Comprehensive Management Study. The Venice Port Complex is a port servicing the Mississippi River and Gulf of Mexico located along and off the Mississippi River approximately 20 miles from the mouth of the Mississippi River. Our concerns/comments regarding the Lower Mississippi River Comprehensive Management Study are as follows:

1. River Breaches: There are multiple uncontrolled breaches in the Mississippi River, primarily the Mardi Gras Pass, Neptune Pass, and Fort St. Phillip breaches, resulting in a significant 60-80% reduction in the flow of the river. These breaches and resulting loss of river flow presently threaten the sustainability of navigation, the maintenance of the banks along the river delta, and the viability of the area's wetlands for hurricane and flood protection. This conclusion is supported by a new study authored by Tulane University's Department of River-Coastal Science and Engineering, and published in the October 2023 issue of Hydrological Processes, which may be found here: https://doi.org/10.1002/hyp.15004. These breaches have also led to additional concerns for human health and safety, including, but not limited to, the recent saltwater intrusion threat in the southeastern Louisiana including the Metropolitan New Orleans area and pollutants that harm the commercial fishing industry.

2. Dead Zone: Excess agricultural runoff from fertilizers, industrial waste, and other contaminants contribute to the "Dead Zone" in the Mississippi River Delta area, which threatens seafood production, recreation and marine life.

3. Interference of Dams: There is less material coming down the river because of dams and other structures built North of Plaquemines Parish, resulting in less sediment available for coastal restoration projects. The material from the dams can be barged to South Louisiana for coastal restoration

projects.

4. Need for Increased Dredge Funding: Certain areas of the river, including Tiger Pass, South Pass, and Baptiste Colette Bayou, are not being dredged to their authorized depths as there is not a-reliable source of funding to do so. Additional funding should be delegated to increase dredging-in these areas for navigation purposes. The use of Tiger Pass, South Pass, and Baptiste Colette Bayou as-waterways for shallow vessels is a much safer alternative to using the main channel of the-river.

If you wish to discuss any of these comments in further detail, please contact me.

Letter ID: 11 Name: Vicidomina, Frank Org/Agency/Company: -

Remove Bonne Carre Spillway needles at the start of hurricane season; design remote operation of proposed sediment diversions.

For potential floods resulting from high river, existing spillways, control structures and likely all proposed sediment diversions will be open and accomplish stage lowering (via current design and authorized operation). <u>However, for a possible combination of an elevated river and major hurricane event the nearby Bonne Carre Spillway is not planned, nor (arguably) authorized to be opened during hurricane season.</u> Such an opening would have to occur prior to an approaching hurricane as it takes a week or more to open all the stop log needles. Additionally, two proposed sediment diversions, Mid-Barataria (West Bank) and Breton Sound (East Bank), relatively close to New Orleans will likely be closed during hurricane season (See below map). These sediment diversion outflows may also provide potential river stage lowering, albeit marginal, effects if open during a combined elevated river/major hurricane event.

The Bonne Carre Spillway, located just upstream of the project area (See below map), serves as an outlet for Mississippi River flow during high river flow events. There is limited control via operation by means of removal of numerous vertical stop logs. Flow exits the river over a fixed weir (@ ~El. 15.0-15.5) and discharges through a spillway into Lake Pontchartrain. This "upstream" diversion is effective in reducing downstream stages in the New Orleans area by several feet at maximum design flow.

What if the spillway was completely opened at the beginning of each hurricane season? Normal flow would not be above the discharge weir and no flow would enter Lake Pontchartrain. However, if a significant hurricane event that causes a "compression wave" up the river would occur, the open spillway would relieve flow and stage elevation to some extent, perhaps 1 to 2 critical feet in the New Orleans area and perhaps more in reaches closer to the spillway.

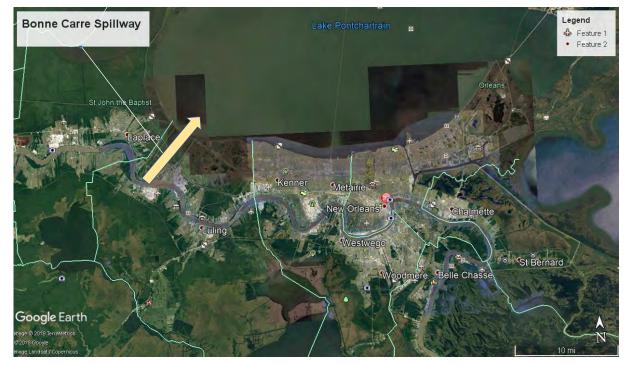
While river levees and floodwalls in the New Orleans Area proper have been constructed over and beyond calculated possible water level elevations, it is still quite possible that future overtopping may still occur. Continuing climate trends, including but not limited to, earlier hurricane season, longer high river season, higher river stages and more intense hurricanes may result in a higher than anticipated maximum flood stage event(s). Also, reaches immediately upstream and downstream of New Orleans do not have the same over-protection and would be vulnerable to even a slight underestimation of future flood levels. *Regardless of whether levees and floodwalls are indeed high enough, reducing their inundation level greatly improves resiliency and risk of failure.*

Hydraulic verification. Public acceptance and spillway operation authorization *may* (?) need to be addressed (Would the Bonne Carre Spillway be considered to be 'open' if no water is passing over the weir?). Note that authorization changes are possible as recently accomplished with changing the opening criteria of the upstream Morganza Spillway (added stage elevation specification).

The above-mentioned sediment diversions would not likely be operating in full flow mode during hurricane season as this is not the preferred time to introduce sediment to the surrounding marsh target areas. The structures would also not likely be manned during a potential major hurricane strike. Although their flowrates are far less than that of the Bonne Carre Spillway, fully open outflow may have a marginal, but perhaps critical stage lowering in the New Orleans Area given a combined elevated

river/major hurricane event. As such, it is recommended that possible remote operation of the proposed sediment diversions be considered in their design and operation plan.





Letter ID: 20 Name: Irby, Garrison Org/Agency/Company: Viserion Grain, LLC

Our company loads barges. We don't want any negative impacts to the navigational channel.

Letter ID: 29 Name: Russell, Tom Org/Agency/Company: Viserion Grain, LLC

12' drafts. When harvest time hits, water travel is the best form of transport. Farmers use trucks, and this number didn't change during low water while they had a harder time loading and couldn't keep up. The farther south you go, the weight restrictions are exponentially higher, so it affects the road network. This is moreso a MVK issue: south of I-20 more harbors went dry. Tallulah and Lake Providence Harbors are affected by siltation from USACE Channel Improvement Project across the river. Maybe 12' channel might help at the harbor mouths.

Letter ID: 33 Name: Walker, James Org/Agency/Company: -

The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944 and recommended by the Mississippi River Commission. Maintaining the 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commerical barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitve by making significant investments in their respective infrastructure.

Letter ID: 60 Name: Walters, Kirt Org/Agency/Company: -

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Letter ID: 43 Name: Wasbutsky, Lori Org/Agency/Company: -

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Letter ID: 23 Name: Nathan, Tobey Org/Agency/Company: Watco Company, LLC

Missing consideration of movement of commodities on and off the river: (1) More extreme weather patterns (highs and lows) can shut down harbors for highs or lows. Lots of facilities were shut down during low water. Port of Memphis shut down August 2023 to January 2024. This impacted local communities. (2) Look at industry on the river and impacts to commerical movement. Look at not only supporting public ports but local companies that use the river for unintended consequences of (modifications/updates to) USACE navigation system and structures.

Letter ID: 15 Name: Calhoun, Deb Org/Agency/Company: Waterways Council, Inc.

The inland navigation community/stakeholders (constiuents) are not opposed to the study but would like to ensure there are no negative impacts to navigation from the study recommendations. Maintaining a 12-foot channel will ensure maximum efficiency for barges to move commodities, especially in low water conditions. Moving cargo by the inland waterways is the most energy efficient, cost competitive, safest, most enviro-sound mode. Props to the Corps: there was a big difference (good communication between Corps and customers) from 2022 to 2023.

Letter ID: 173 Name: Armstrong, Jen Org/Agency/Company: Waterways Council, Inc.

So the inland waterway industry is not opposed to the comprehensive study but wants to ensure that there's no negative impacts to inland waterway navigation which provides the safest most energy efficient mode of transportation moving bulk commodities with the lowest carbon imprint. Any negative impacts to the system could drive tonnage off the river. We especially want the Corps to address the lower Mississippi operational maintenance at 12 feet as authorized in the Flood Control Act of 1944. Barges are able to maximize their draft at 12 feet. Just a ninefoot reduction to draft will increase the number of barges by 20 percent that they need to move the same quantity of commodities. And then as we experienced in the 2022 low water event, we have seen the highest grain freight rates ever recorded. So there are also a lot of advantages beyond just the transportation cost savings. As I mentioned, this has the lowest carbon footprint of any surface transportation; one 15-barge tow is the equivalent of 1050 trucks on the road and 216 railcars. But when considering the dredging or considering the maintenance to feet, it's important not only to think of the main channel but also the harbors and supporting areas to allow the draft to accommodate any of the main channel traffic that's utilizing the 12 feet. So the harbor in the supporting areas, they need to be consistent with what is dredged on the main channels to -- really there's no -- if you can't get into the harbor, there's no point in having the main channel to 12 feet. But maintaining it to 12 feet really allows for when there are low water events, it minimizes the impacts or the amount of loading that they have to reduce to accommodate a large draft. Thank you. Appreciate it.

Letter ID: 27 Name: Robertson, Brent Org/Agency/Company: Westlake Corporation

Westlake Corporation supplies salt for water treatment, so navigation is very important as well as addressing low water conditions. Smaller harbors were problems, and restrictions in the mainstem were specific issues. Light loading means more assets needed and more traffic on the River.

Letter ID: 227 Org/Agency/Company: World Trade Center of New Orleans

The World Trade Center New Orleans (WTCNO) – the first of what are now more than three hundred World Trade Center organizations in nearly one hundred countries across the globe – serves to support, promote, and attract international trade and businesses for the benefit of Louisiana. WTCNO has nearly 100 members throughout the state. The vision of WTCNO is to be the premier voice of international trade and business in the Gulf South. The ultimate indication of success will be the presence of a vigorous and growing international business community, supporting Louisiana's status as the "gateway to North America."

WTCNO appreciates LMR Comp's purposes of evaluating alternatives for ensuring effective long-term management of the Mississippi River from Cape Girardeau, to the Gulf of Mexico. LMR Comp will be a pivotal activity in facilitating the future operation and management of the lower Mississippi River and Tributaries (MR&T) system in a manner that is adaptable, resilient, and sustainable. Throughout your team's determination of scope and subsequent evaluation, we encourage prioritization of trade and logistics in Louisiana, given our role as the gateway to North America. A shutdown of the Mississippi River Ship Channel in Louisiana would cost, conservatively, \$100 million each day, with exponential increases if Louisiana's 14 oil refineries – accounting for nearly one-fifth of the nation's refining capacity – are forced to close. Similarly, if Louisianians working in key industries are forced from their homes and jobs due to environmental impacts of improper Mississippi River Ship Channel – will be rendered inoperable.

The United States has over 25,000 miles (40,000km) of navigable waters connected to Louisiana's port systems. Connected to much of the country via our nation's waterways, Louisiana is home to five of the nation's 15 largest ports when measured by tonnage. Louisiana's logistical advantages are not just limited to the state's waterways. With direct access to a 133,000 mile rail network, nearly 900 miles of interstates, and seven primary airports, businesses in Louisiana are able to efficiently transport their goods across the world. To protect these assets and maximize their value to industries and the country, WTCNO urges the following considerations in the LMR Comp study:

• The need to continuously monitor river depth and navigational challenges affecting the Lower Mississippi River deepwater ports in Southeast Louisiana, which the Mississippi River Valley's economy depends on for exports, particularly considering private and public investment in the new Louisiana International Terminal in St. Bernard Parish

• The need to address navigational challenges at the Birdsfoot to maintain national security, prevent economic losses, and maximize the economic potential of the entire Mississippi River Valley

• The need for consistent freshwater supply in Southeast Louisiana, via the Mississippi River, for communities and residents that work at port facilities, industrial facilities, and critical infrastructure that serves the world

• The need to prioritize federal ecosystem restoration projects near the mouth of the Mississippi River, like the Mississippi River Gulf Outlet ecosystem restoration, in order to restore a first line of coastal defense for critical infrastructure and essential workforce

• The need to invest in flood risk management projects, like Lake Pontchartrain and Vicinity levee lifts, to protect workforce, infrastructure, and industrial facilities in Southeast Louisiana.

• The need to increase dredging, while ensuring that dredged sediment is prioritized for ecosystem and environmental restoration where rates of land loss are most egregious

Thank you for your work on this study of paramount importance to trade and logistics in Louisiana and our nation. Please reach out with any questions. Our membership stands ready to lend expertise and advise on challenges and solutions. Letter ID: 132 Name: Wright, Susan Org/Agency/Company: -

This study is vital to the protection of the people, land, tourism industry, and fishing industry in Louisiana and surrounding areas. Flooding has devastated our state and is causing increased insurance rates or in a lot of cases, loss of ability to insure completely. This is unacceptable. It starts at the top. My entire family and I have been affected by this for decades and will continue to be if nothing is done. Please move forward with this study. So many depend on it.

Letter ID: 77 Name: Wurtele, Joanna Org/Agency/Company: -

I'm a resident of Pointe Coupee Parish. I'm a landowner in Pointe Coupee Parish. We grow sugar cane. It is my belief that Pointe Coupee Parish could easily be the sacrifice in the Corps of Engineers' plan. We are defined by water. We are a peninsula between the Atchafalaya and the Mississippi Rivers. We have levees on both sides. We have never in the history of our parish, to my knowledge, had a comprehensive drainage plan. Each person has piecemealed their own property; therefore, we damage each other. And in the event the Corps is unsuccessful at the main control structure or the Morganza Control Structure, then we will be the sacrifice. Our farmers depend on the efficient supply of water and drainage. The farmers are the lifeblood and economic source in Pointe Coupee Parish. We don't have ten years to wait for the Corps. We need you now. Thank you.

Letter ID: 25 Name: Sheppard, Bill Org/Agency/Company: Yazoo MS Delta Levee Board

Don't lose importance of the original MR&T project: flood control and navigation. Flood Risk and Navigation were the original intents of the post-1927 project. Don't lose sight of the fact that these two were the original intent of the original MR&T project when you compare to the other system functions – don't dilute these when you compare to ecosystem restoration, hydropower, etc. Finish the MR&T before it becomes 100-years old and complement what's already there. Do this by getting the levees up to snuff and structures in good shape, etc. Let public know that we aren't at 100%.

Letter ID: 185 Name: Young, Alane Org/Agency/Company: -

So my biggest concern is the effect of the freshwater from Mississippi floodwaters affecting our -- under the Marine Mammal Protection Act, our bottom-nose dolphins, as well as our oysters, which were decimated by the Bonnet Carré. And I also want to make sure that the Corps extends the Eastern model boundary, at least as far as the Mississippi-Alabama border, and even better well into Alabama so they can comprehensively model those freshwater effects. So it seems to me from the data presented here that the Morganza Spillway has a much higher flow rate and it should be opened before opening the Bonnet Carré. And, hopefully, they will reevaluate those checks by which they make those decisions. Thank you.

Letter ID: 186 Name: Young, Allen Org/Agency/Company: -

Okay. I worked for the Corps of Engineers about 50 years ago, and at that time we were already studying the erosion problem along the coast of Louisiana mostly, but Mississippi as well. And there we have, in the Mississippi River, this sediment rich water and we've still never tapped into that water to get the sediment out where it's needed to restore the coastline. And at the same time, that sediment tends to silt in the river. So the Corps of Engineers will send dredges out there, ships that suck up the sand and take it out to sea. So all that sediment that we need to rebuild our coastline is now being dumped in a thousand feet of water where it's useless. So the point of that is we can put some pipes into the river and siphon some of that water out, and that would actually lower the level of the river and be a partial solution to the flooding problem in New Orleans in the first place. So that's my suggestion. Thank you. Okay. We were discussing measured releases when the flood stage of the river starts to rise. In Morganza Spillway, most of that water, if it's a measured release, will go out into the Gulf of Mexico and it won't change the salinity as greatly as it does in Lake Pontchartrain and the Mississippi Sound; therefore, the oyster reefs over there would probably survive without any problem. Our oysters are completely gone here in the Mississippi Sound. Thank you.

Letter ID: 14 Name: Young, Judy Org/Agency/Company: -

I'd like to know when are the monthly quarterly meetings held in the New Orleans office? When and where are the EPA joint agencies meetings held on the Mississippi River or the basin? When does the Lower Mississippi River commission meet? I'd like some explanation on the EAB letters of recommendation that have been sent probably every 30 to 90 days to Lieutenant General Semonite in Washington, D.C. with all of the recommendations for what needs to be done for the Mississippi Sound issue, and where are we with those recommendations that the General was very recpetive on and said he would implement as soon as he could? I'd like to know what the regional sediment management plan updates are for our region that have all the resolutions on the impacts. I would like to know about the correlation between the EPA's TRI tracker that shows the endemic distribution of teh PS - the PFAS into the Mississippi Sound, that are basically forever chemicals. 189 chemicals are toxic as of now. Four hundred dangerous chemicals have been removed on the TRI Tracker. So there's absolutely no way that we're the end of the line for the entire system that we shouldn't be one of the most critical areas. EPA has listed us as high-priority in their structure, and I can't imagine why we wouldn't be high-priority with the Corps of Engineers. That's not to mention the Department of Interior and the Department of Defense that also has us on the list that recent came out as high-priority. So everyone is angry and upset, because all the other agencies, including the DOD, have this region a high-priority risk. So again, it makes no sense to anyone why we're not. And I'd like to know how all those inner agencies work together, because they all have the same studies going on and some of them have been completed in 2000. I would like summaries and notes of all the input from all the meetings aggregated onto one site, so that we can see what all of the comments are and know that the final amalgation of everything isn't going to be skewed by any agency.

Letter ID: 206 Name: Zick, Mike

The inland navigation community believes there is an opportunity in this study to advance the system. We believe the Corps could address the Lower Mississippi River operational maintenance at 12 feet, as authorized by Congress per the Flood Control Act of 1944 and recommended by the Mississippi River Commission. Maintaining the 12 feet allows optimal draft for barges to maximize volumes transported on the river system. When the channel is not maintained to 12 feet, commerical barges are forced to reduce the volume they transport per barge, especially during low-water events such as those seen in 2022 and 2023. Loading barges to a draft of only 9 feet results in an increase of barges by 20% to move the same amount of tonnage. When low water hit in the middle of grain harvest in 2022, the highest grain freight rates ever recorded was the result. This puts American farmers and shippers at a competitive disadvantage in the world marketplace at a time when other countries are becoming increasingly competitve by making significant investments in their respective infrastructure.